



WATER FORWARD

INTEGRATED WATER RESOURCE PLAN

Austin Integrated Water Resource Planning Community Task Force

Packet Index

July 9, 2019

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Austin Integrated Water Resource Planning Community Task Force
July 9, 2019 – 4:00 p.m.
Waller Creek Center, Room 104
625 East 10th Street
Austin, Texas 78701

For more information go to:
[Austin Integrated Water Resource Planning Community Task Force](#)

AGENDA

Voting Members:

Sharlene Leurig - Chair	Diane Kennedy	Bill Moriarty
Jennifer Walker – Vice Chair	Perry Lorenz	Sarah Richards
Todd Bartee	Robert Mace	Lauren Ross

Ex Officio Non-Voting Members:

Austin Water: Greg Meszaros
Austin Energy: Kathleen Garrett
Austin Resource Recovery: Sam Angoori
Neighborhood Housing and Community Development: Rebecca Giello
Office of Innovation: Kerry O'Connor
Office of Sustainability: Lucia Athens
Parks and Recreation:
Watershed Protection: Mike Personett

1. CALL TO ORDER – July 9, 2019 4:00 p.m.

2. CITIZEN COMMUNICATION

The first 10 speakers signed up prior to the meeting being called to order will each be allowed a three-minute allotment to address their concerns regarding items not posted on the agenda.

3. APPROVAL OF MEETING MINUTES

- a. Approval of the meeting minutes from the May 28, 2019 Task Force meeting (5 minutes)

4. STAFF BRIEFINGS, PRESENTATIONS, AND OR REPORTS

- a. Recap of Recent Activities– City Staff (30 minutes)
 - a. Task Force Questions and Discussion
- b. Preliminary Ordinance Development Update – City Staff (60 minutes)
 - a. Task Force Questions and Discussion

5. FUTURE AGENDA ITEMS

6. ADJOURN

Note: Agenda item sequence and time durations noted above are subject to change.

MINUTES



The Austin Integrated Water Resource Planning Community Task Force convened in a Regular Meeting on May 28, 2019 at Waller Creek Center, Conference Rm 104, 625 E 10th Street, in Austin, Texas.

Members in Attendance:

Sharlene Leurig - Chair

Jennifer Walker – Vice Chair

Todd Bartee

Lauren Ross

Bill Moriarty

Diane Kennedy

Robert Mace

Perry Lorenz

Ex-Officio Members in Attendance:

Josh Rudow, Mike Personett, Lucia Athens

Staff in Attendance:

Kevin Critendon, Teresa Lutes, Marisa Flores Gonzalez, Ginny Guerrero, Sarah Hoes, Helen Gerlach, Matt Cullen, Mary Zambrano, Prachi Patel, Matt Hollon, Drema Gross, Roberto Chapa, Joe Smith, Bill Stauber, Dan W. Pedersen, Jason Inge

Additional Attendees:

Dan Warth, David Foster

1. CALL TO ORDER

Chair Leurig called the meeting to order at 4:05 p.m.

2. CITIZEN COMMUNICATION: GENERAL

David Foster spoke to the value in continuing to communicate about the Water Forward Plan and highlighted the recent City Council direction on Water Forward implementation.

3. APPROVAL OF MEETING MINUTES

The meeting minutes from the March 12, 2019 Austin Integrated Water Resource Planning Community Task Force regular meeting were approved with a correction of the listed meeting start time to 4:13 PM on Member Ross's motion and Member Mace's second with a final 8-0-0-1 vote.

4. STAFF BRIEFINGS, PRESENTATIONS, AND/OR REPORTS

- a. A staff presentation on a recap of activities related to Water Forward Plan implementation approach was provided by Marisa Flores Gonzalez, Program Manager, Austin Water. This was followed by Task Force discussion and input.
- b. A staff presentation on implementation approach for Water Forward code items was provided by Marisa Flores Gonzalez, Program Manager, Austin Water. This was followed by Task Force discussion and input.
- c. A staff presentation on the near-term schedule update was provided by Marisa Flores Gonzalez, Program Manager, Austin Water. This was followed by Task Force discussion and input.

5. FUTURE AGENDA ITEMS

None

6. ADJOURN

Chair Sharlene Leurig adjourned the meeting at approximately 6:12 pm.

PRESENTATION

Water Forward Task Force Meeting

July 9, 2019



Recap of Recent Activities

June 25th Workshop



Hosted by Austin Water

Austin's 100-year water plan, Water Forward, calls for increased use of alternative waters such as rainwater, storm water, graywater, and air conditioning condensate to meet non-potable water needs. This workshop is designed for building engineers, design architects, developers and anyone interested in incorporating innovative and cost-effective water reuse systems into their building.

At this FREE, one-day workshop you will:

- ◆ Hear first-hand experiences with designing and building alternative onsite water systems
- ◆ Learn how the City of San Francisco has increased use of alternative water through ordinance requirements
- ◆ Give input to shape future City of Austin ordinance requirements regarding alternative water systems

June 25, 2019
8:30 a.m. – 4:00 p.m.

4800 Spicewood Springs
Austin, Texas 78759
(at Austin Board of Realtors Headquarters)

RSVP: onsitereuse.eventbrite.com



ALTERNATIVE ON-SITE WATER USE WORKSHOP

Agenda

Greg Meszaros
Director, Austin Water
Welcome and Introduction of
Water Forward Plan

Mayor Steve Adler
City of Austin
Importance of Planning for our
Water Future

Morning Focus: Case Studies in Alternative Onsite Water Systems

Katherine Jashinski, P.E.
Austin Water
Practical Application of Onsite
Reuse Systems in Austin

**Jonathon Smith, AIA, LEED
AP BD+C**
Lake Flato Architects
Austin Central Library Onsite and
Alternative Water Use

Chris Maxwell-Gaines, P.E.
Large Scale On-site System
Installation

Matt Rickert
Ryan Companies
City of Austin Planning and
Development Center Onsite
Blackwater Reuse System

Amelia Luna
Sherwood Design Engineers
Drivers for owners to include
onsite water reuse systems from a
national perspective

Kevin Critendon, P.E.
Austin Water
Introduce Keynote Speaker

Lunch Will Be Provided

Keynote Speaker

Paula Kehoe
Director of Water Resources,
San Francisco Public Utilities Commission

The Future of Onsite Water Reuse: Presenting remotely, Ms. Kehoe will discuss her experience developing San Francisco's groundbreaking program and her work with the National Blue Ribbon Commission for Onsite Non-potable Water Systems.

Afternoon Focus: Water Forward Ordinance Development Workshop

Austin Water staff will present ordinance concepts focused on requirements that developments over 250,000 square feet submit water balance applications and use alternative and onsite waters to meet indoor and outdoor non-potable demands.

Workshop attendees will provide input and help identify issues to address in future ordinances.

**This is your opportunity to help shape
future policy. Please join in!**

Spaces are limited. RSVP required to reserve lunch.

Questions about the event?

Contact:
Marisa Flores Gonzalez
marisa.flores@austintexas.gov
512-972-0194

Learn more about the Water Forward Plan
austintexas.gov/waterforward



Stakeholder Participation

- Approximately 86 attendees
- Development community
 - Engineers
 - Onsite system designers and installers
 - Architects
 - Landscape architects
 - Developer interests
- Boards and Commissions
 - Water and Wastewater Commission
 - Water Forward Task Force
- Staff
 - Austin Water
 - Watershed Protection
 - Austin Energy Green Building



Workshop Format

- Brief overview presentation
- Breakout discussions
 - Stakeholders cycled through three tables
 - Water Balance Submittal
 - Regulatory Framework and Water Quality Requirements
 - Permitting Process
 - Twenty minutes per table, five minute transitions
 - Stakeholder input sought to help in identifying issues to address in the development of these ordinances
- Staff facilitators reported out on discussions at end of workshop

Code Concepts Presented at 6/25 Workshop

New development submitting a site plan must also submit a water balance

Code
Adopted
Fall
2019

Concept 1

New non-single family residential development over 250,000 square feet must meet with staff to **discuss** optimization of alternative and onsite water. Current requirements related to reclaimed water and air conditioning condensate would still apply (effective with Land Development Code changes).

Concept 2

New non-single family residential and non-multifamily residential development over 250,000 square feet **must use** alternative and/or onsite water (excluding blackwater) to meet non-potable demands (toilet, urinal flushing, irrigation, cooling) with a potable back-up required (one year lag in effective date).

Code
Adopted
Later

18-24 months later

New development over 250,000 square feet must use alternative and/or onsite water sources to meet non-potable indoor and outdoor demands with a potable back-up required.

24-36 months later

Revisions to code to expand applicability (ex: potentially including multifamily), required non-potable demands to be met (ex: laundry), and onsite sources of water that can be used to meet non-potable demands (ex: blackwater).

Stakeholder Feedback Received – Permitting

- Project teams need advance notice of requirements to incorporate an onsite reuse system into the design of their buildings and systems.
- Want notification prior to site plan stage for onsite water related requirements.
 - Early information preferable, maybe at development assessment stage, so by the time you reach site plan stage you know what you need.
- Need clarity on what a development >250k SF is
- Would like to understand all of the cost-savings, time-savings and incentives available for onsite reuse systems
 - Ex: streamlined permitting, density bonuses, water rate savings, capacity charge adjustments, water quality volume credits, etc.
- Preference for concept 1 or hybrid approach, because need to figure out program, staffing, etc.
 - If folks volunteer you have 1 project to implement that shows issues and you can course correct, unlike a requirement where you have 12 or 13 projects to implement.

Stakeholder Feedback Received – Water Balance Submittal

- Emphasis on turning this into a useful tool for the developer rather than a cumbersome additional paperwork step.
 - Emphasis on streamlining submittal process and working to facilitate an integrated design process
- Concerns about time/resource requirements to fill out calculator as well as reliability of inputs to calculator at site plan stage
 - “Need to map out the development process and understand when this information is even available and when it is useful”
- Costs: Will water/wastewater rate and capital cost impacts be included in outputs to provide a sense of opportunity costs?
 - This could help incentivize adoption for building owners
- Questions about how the calculator will be used
 - Used in enforcement of any type of rate/clawback provisions?
 - Used for capital recovery fee calculation and/or potential offset?
 - Used for identification of district scale opportunities?

Stakeholder Feedback Received – Regulatory Framework

- Ongoing education is key
- Want to understand how water quality requirements relate to storm water requirements
- Address co-benefits (financial, streamlining process, addressing storm water nexus)
- Operating Expenses (Affordability, etc.)
- Prescriptive vs. Performance
- Incentives (traditional vs. non-traditional)
- Operation credentials
- Current lab testing protocols vs. continuous monitoring
- No Validated technology credits
- Pilot testing
- Concerns about square footage triggers (249,999 square foot development)
- How does enforcement work? How is it funded? (program area)
- Variability of standards for different square footage

Onsite Water Use Stakeholder Workshop #2

July 23, 2019
8 a.m. – noon
Waller Creek Center
625 East 10th Street
Austin, TX 78701
Room 104

The July 23 workshop will be an opportunity for stakeholders to provide feedback on a proposed Alternative and Onsite Water Use regulatory framework. Working in small groups, stakeholders and city staff will take model developments through the draft regulatory framework to test the feasibility and effectiveness of potential approaches.

Register at: <https://www.eventbrite.com/e/onsite-water-use-stakeholder-workshop-2-tickets-64987798254>



Questions

Ordinance Development Update

OUTLINE

A solid blue vertical bar is positioned to the left of the numbered list items.

1

**INTRODUCTION AND BACKGROUND ON AUSTIN
WATER'S DECENTRALIZED COMMITTEE**

2

**NATIONAL BLUE RIBBON COMMISSION
FRAMEWORK FOR IMPLEMENTING ONSITE NON-
POTABLE WATER SYSTEMS**

3

ORDINANCE DEVELOPMENT APPROACH

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ORDINANCE DEVELOPMENT APPROACH

AUSTIN WATER'S DECENTRALIZED REUSE TECHNICAL TEAM



Robert Stefani, Environmental Program Coordinator

- B.S. in geography from Texas State University, specializing in Resource & Environmental Science
- Over 10 years experience working on auxiliary water and intergovernmental issues
- Member of the 2012 City of Austin Graywater Working Group
- Member of the National Blue Ribbon Commission for On-site Non-potable Water Systems since 2015



Katherine Jashinski, P.E., Engineer C

- B.S. & M.S. in engineering from UT Austin, specializing in Environmental & Water Resources
- 5 years experience as an on-site sewage facility program regulator
- 4 years experience with disaggregated demand modeling & decentralized reuse planning
- Design & installation experience of residential rainwater, graywater, & condensate systems
- Project manager for the PDC blackwater reuse system
- Member of the National Blue Ribbon Commission for On-site Non-potable Water Systems

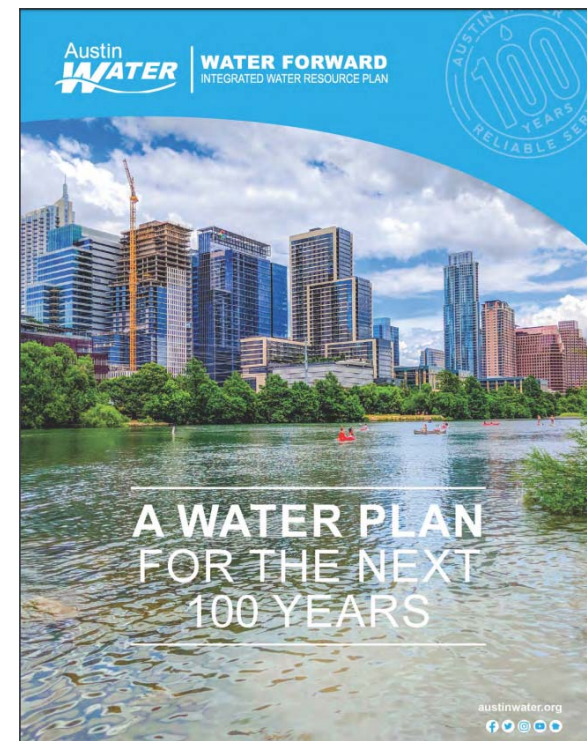
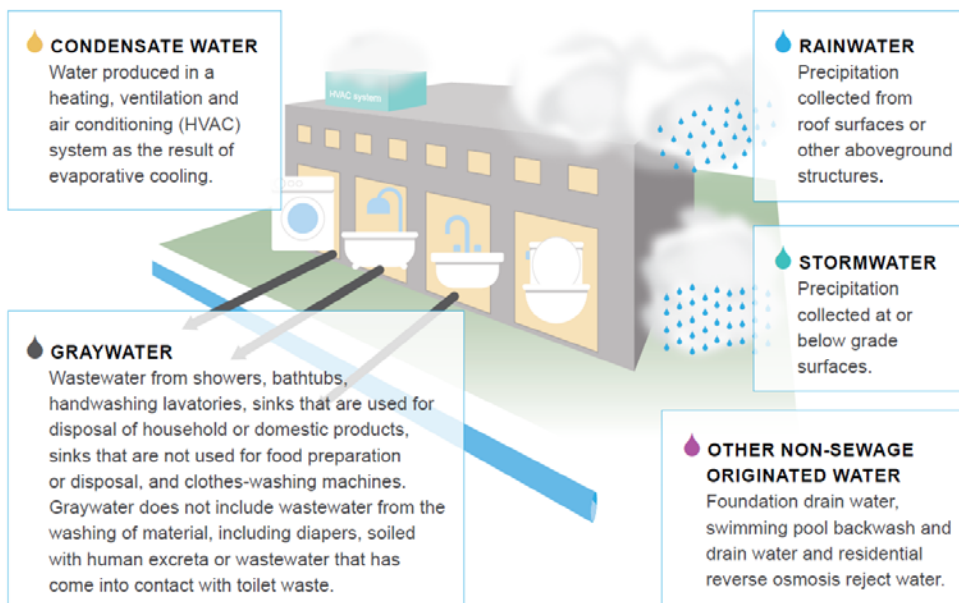
INNOVATIVE WATER STRATEGIES COMMITTEE

Purpose Statement:

Austin Water's Innovative Water Strategies (IWS) Steering Committee was created to develop a guiding process and framework for the evaluation and implementation of innovative decentralized water and wastewater systems.

The Committee is charged with (among other things):

- Integrating with AW's concurrent integrated water resources planning process, **Water Forward**

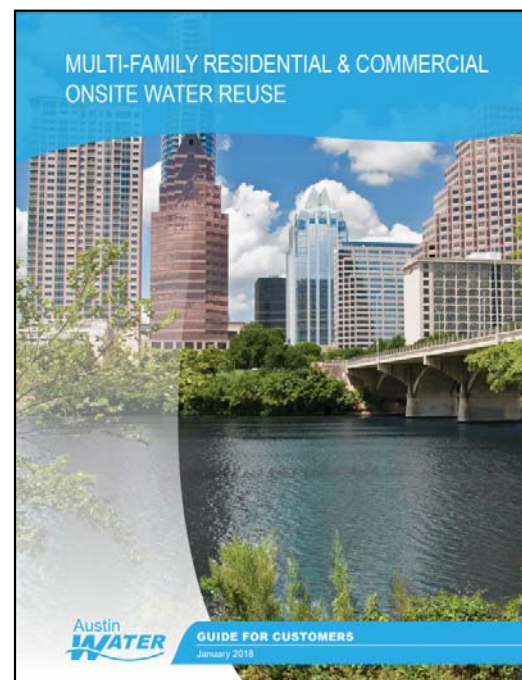


IWS COMMITTEE HIGHLIGHTS & ACCOMPLISHMENTS

- ✓ Published webpage and Onsite Water Reuse System guides
- ✓ Initiated Planning and Development Center Onsite Water Reclamation Facility: building-scale blackwater reuse pilot (Anticipated May 2020)
- ✓ Dedicated staff resources to meet with developers & review projects for decentralized reuse opportunities
- ✓ Education and outreach to local professional organizations & at events
- ✓ Applied for funding from WRF to study costs to dual plumb buildings in Austin (Anticipated Dec 2019)



AIWRPCTF



OUTLINE

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ORDINANCE DEVELOPMENT APPROACH

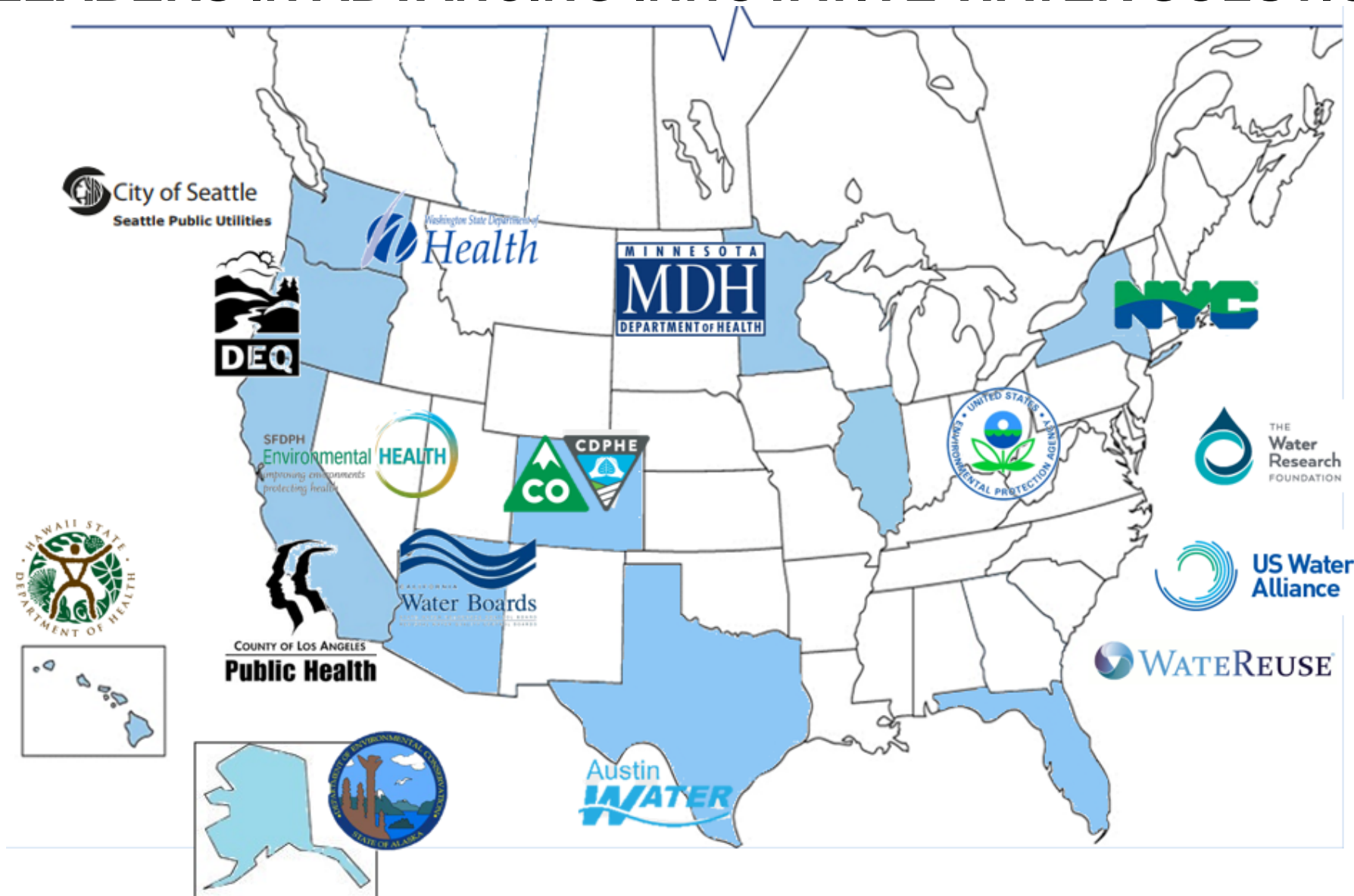
AUSTIN WATER AND THE BLUE RIBBON COMMISSION



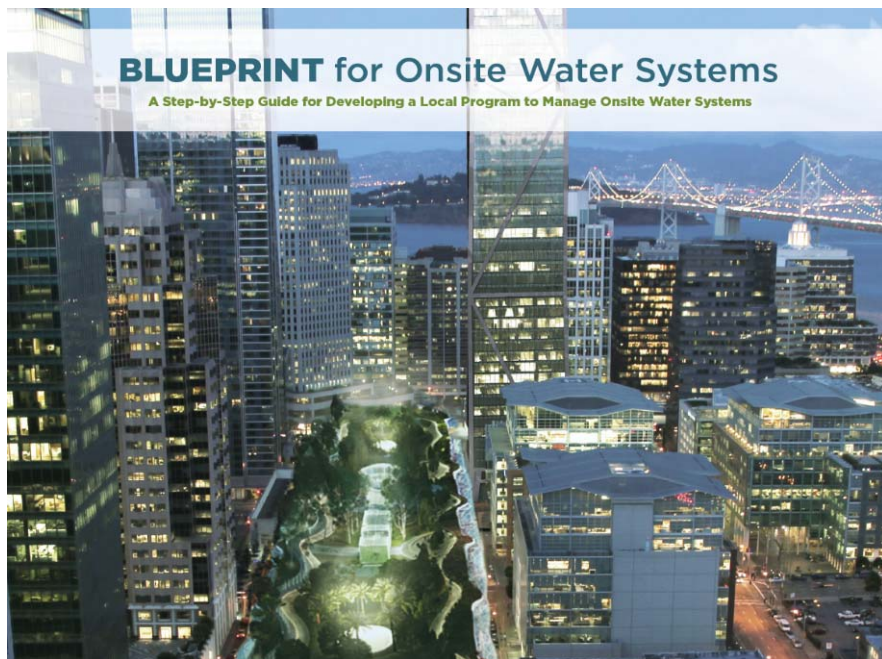
National Blue Ribbon Commission for Onsite Non-potable Water Systems

The National Blue Ribbon Commission advances best management practices to support the use of onsite non-potable water systems within individual buildings or at the local scale. We are committed to protecting public health and the environment, and sustainably managing water—now and for future generations.

LEADERS IN ADVANCING INNOVATIVE WATER SOLUTIONS



NBRC FRAMEWORK FOR DEVELOPING A LOCAL PROGRAM



Developing a local program to manage onsite water systems offers a proactive way to increase water resiliency and promote green building practices while protecting public health. The development of a program should follow a sequence of steps and associated actions, which will inform critical decisions regarding the scope, structure, and implementation of the program.

- 1 Convene a Working Group**
Establish a small working group to guide the development of the local program.
- 2 Select the Types of Alternate Water Sources**
Narrow the specific types of alternate water sources covered in the program.
- 3 Identify End Uses**
Classify specific non-potable end uses for your program.
- 4 Establish Water Quality Standards**
Establish water quality standards for each alternate water source and/or end use.
- 5 Identify and Supplement Local Building Practices**
Integrate your program into local construction requirements and building permit processes.
- 6 Establish Monitoring and Reporting Requirements**
Establish water quality monitoring and reporting requirements for ongoing operations.
- 7 Prepare an Operating Permit Process**
Establish the permit process for initial and ongoing operations for onsite water systems.
- 8 Implement Guidelines and the Program**
Publicize the program to provide clear direction for project sponsors and developers.
- 9 Evaluate the Program**
Promote best practices for onsite water systems.
- 10 Grow the Program**
Explore opportunities to expand and encourage onsite water systems.

Blueprint for Onsite Systems: A Step-by-Step Guide for Developing a Local Program to Manage Onsite Water Systems (2014)

ESTABLISHING WATER QUALITY STANDARDS

Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems

March 2017: This panel report provides a risk-based framework to develop public health guidance for decentralized non-potable water systems. [More >](#)



Final Report

Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems



GUIDEBOOK, MODEL ORDINANCE, AND RULESET

A Guidebook for Developing and Implementing Regulations for Onsite Non-potable Water Systems (2017) To help develop water quality criteria and standards for ONWS and present pathways for implementation and management of these systems at the local and/or state level.

Model Local Ordinance for Onsite Non-Potable Water Programs (2017) Provides template local ordinance for establishing regulatory programs for ONWS. To be used with the Guidebook.

Model Program Rules for Onsite Non-potable Water Systems (2017) Provides specific details on implementation of an ONWS, including system design criteria, permitting, cross-connection control, reporting, notification, and enforcement. To be used with the Guidebook.

Guidance Manual for Engineers, Operators, Utilities and Regulators (Anticipated 2019) Provides recommendations for how to implement the NBRC's public health recommendations in an Onsite Non-potable Water Systems program.

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ORDINANCE DEVELOPMENT APPROACH

ORDINANCE DEVELOPMENT APPROACH

1

Convene a Working Group

Establish a small working group to guide the development of the local program.

2

Select the Types of Alternate Water Sources

Narrow the specific types of alternate water sources covered in the program.

3

Identify End Uses

Classify specific non-potable end uses for your program.

4

Establish Water Quality Standards

Establish water quality standards for each alternate water source and/or end use.

5

Identify and Supplement Local Building Practices

Integrate your program into local construction requirements and building permit processes.

6

Establish Monitoring and Reporting Requirements

Establish water quality monitoring and reporting requirements for ongoing operations.

7

Prepare an Operating Permit Process

Establish the permit process for initial and ongoing operations for onsite water systems.

8

Implement Guidelines and the Program

Publicize the program to provide clear direction for project sponsors and developers.

9

Evaluate the Program

Promote best practices for onsite water systems.

10






Grow the Program

Explore opportunities to expand and encourage onsite water systems.







Having a consistent policy framework across cities and states is one of the best ways that we can integrate onsite systems in a way that protects public health and meets our water needs.

THE NBRC FRAMEWORK IS A PARADIGM SHIFT

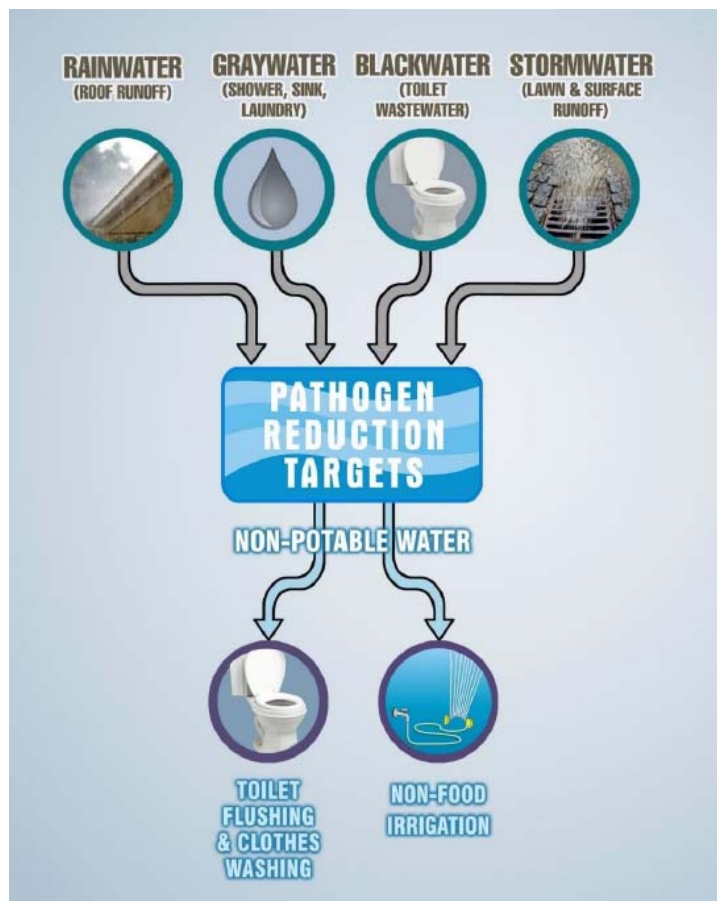
CURRENT REGULATORY FRAMEWORK & WATER QUALITY STANDARDS FOR ON-SITE NON-POTABLE WATER SYSTEMS

WATER SOURCE	STATE REVIEW	LOCAL REVIEW	END USES	WATER QUALITY LIMITS	MONITORING
RAINWATER  STORMWATER  CONDENSATE WATER  GRAYWATER  OTHER NON-SEWAGE 	NONE	BUILDING/PLUMBING DESIGN, CROSS-CONNECTION CONTROL	TOILET/URINAL FLUSHING CLOTHES WASHING COOLING MAKEUP IRRIGATION & LANDSCAPE	TOTAL SUSPENDED SOLIDS E. COLI	MONTHLY E. COLI TESTING WITHOUT REPORTING
BLACKWATER 	TREATMENT SYSTEM DESIGN & SOLIDS DISPOSAL PLAN	BUILDING/PLUMBING DESIGN, CROSS-CONNECTION CONTROL	TOILET/URINAL FLUSHING CLOTHES WASHING COOLING MAKEUP IRRIGATION & LANDSCAPE	BOD TOTAL SUSPENDED SOLIDS ENTEROCOCCI & E. COLI TURBIDITY PH	TWICE PER WEEK TESTING WITH MONTHLY REPORTING TO TCEQ

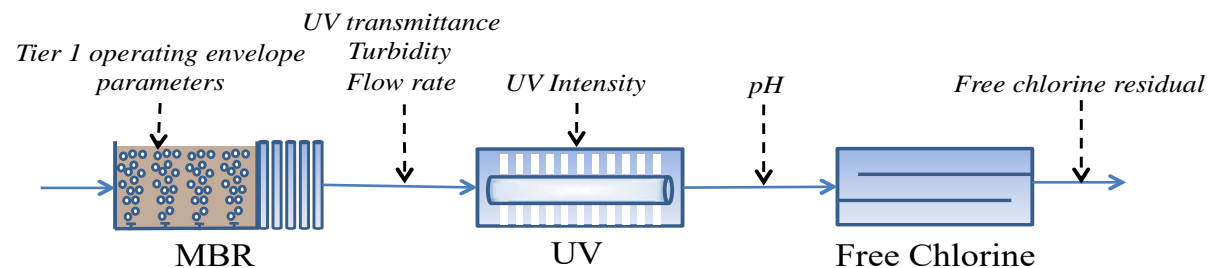
NATIONAL BLUE RIBBON COMMISSION RISK-BASED FRAMEWORK FOR ON-SITE NON-POTABLE WATER SYSTEMS

WATER SOURCE	STATE REVIEW	LOCAL REVIEW	END USES	WATER QUALITY LIMITS	MONITORING
RAINWATER  STORMWATER  CONDENSATE WATER  GRAYWATER  OTHER NON-SEWAGE  BLACKWATER 	NONE (EXCEPT TCEQ HAS REGULATORY AUTHORITY OVER BLACKWATER)	TREATMENT SYSTEM DESIGN, BUILDING/PLUMBING DESIGN, CROSS-CONNECTION CONTROL	TOILET/URINAL FLUSHING CLOTHES WASHING COOLING MAKEUP IRRIGATION & LANDSCAPE	LOG REDUCTION TARGETS: VIRUS PROTOZOA BACTERIA	CONTINUOUS MONITORING OF SURROGATE PARAMETERS WITH ANNUAL REPORTING TO CITY OF AUSTIN

THE NBRC FRAMEWORK ENSURES ONSITE TREATMENT SYSTEMS ARE ACHIEVING PUBLIC HEALTH GOALS



Unit Process	Pathogens			Water Quality		Removal / Inactivation Mechanisms
	Virus	Protozoa	Bacteria	Particulates	Organics	
Biological Treatment						
Non-membrane options	Red	Yellow	Yellow	Yellow	Green	Biodegradation, adsorption, predation
MBR	Yellow	Green	Green	Green	Green	Same as above plus size exclusion
Filtration						
Granular media filter	Red	Yellow	Yellow	Green	Red	Physical removal (e.g., size exclusion, interception, diffusion)
Cartridge filter	Red	Yellow	Red	Green	Red	Physical removal (e.g., size exclusion)
Membrane filter	Red	Green	Green	Green	Red	
Reverse osmosis	Green	Green	Green	Green	Green	
Disinfection						
UV	Green	Green	Green	Red	Red	Physical degradation
Free chlorine	Red	Red	Green	Red	Red	Chemical inactivation and oxidation
Chloramine	Red	Red	Green	Red	Red	
Ozone	Green	Yellow	Yellow	Red	Red	



BUILDING A PROGRAM FROM SCRATCH REQUIRES INVOLVEMENT FROM MANY STAKEHOLDERS

Onsite Reuse System Professionals



**DESIGN
ENGINEER**



OPERATOR



REGULATOR



**PROGRAM
ADMINISTRATOR**



**SYSTEM
OWNER**

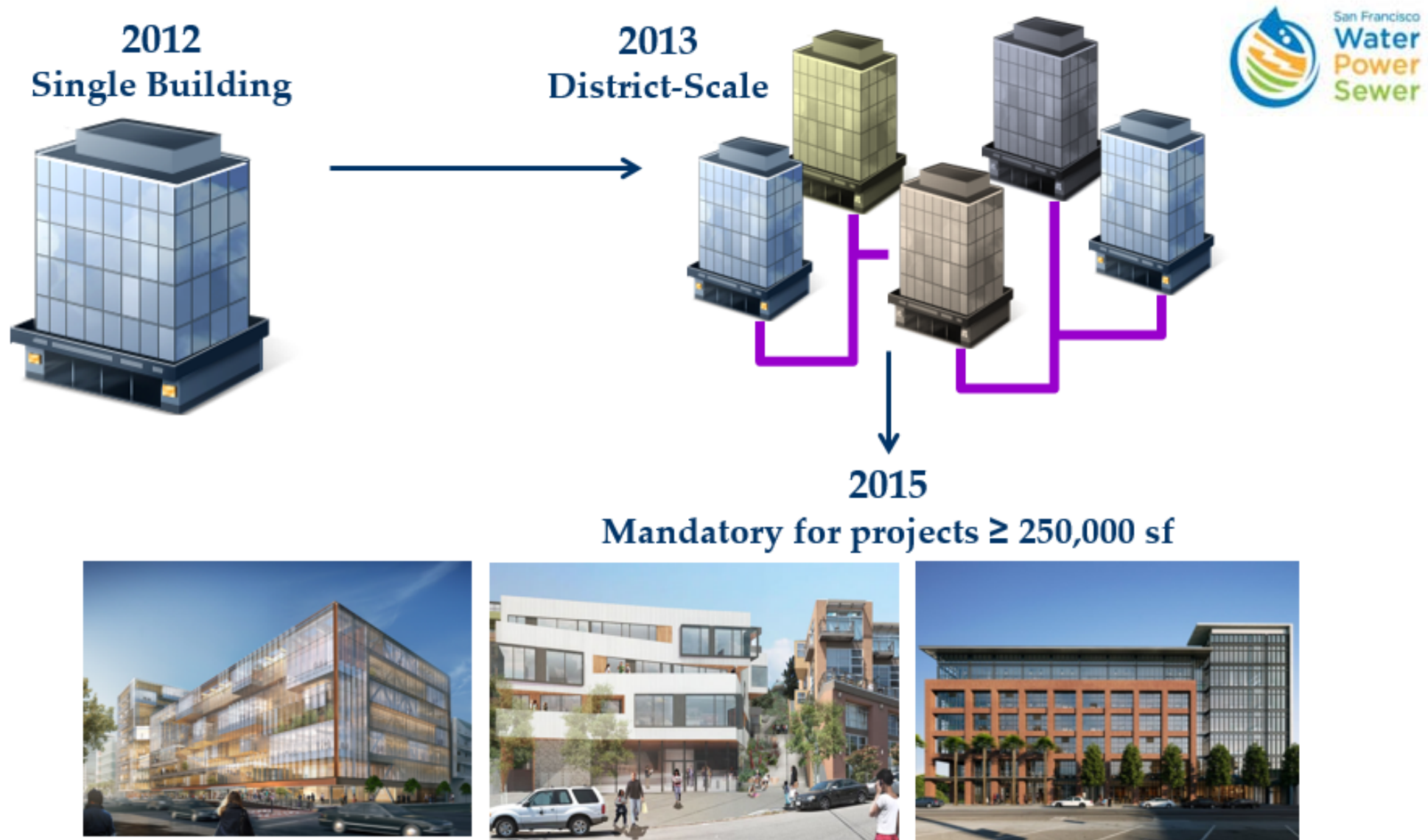
The General Public/Users of Buildings



ROLES & RESPONSIBILITIES MUST BE CLEARLY DEFINED

PROJECT TEAM	REGULATOR	DEVELOPMENT REVIEW
<ul style="list-style-type: none"> Prepare Project Application/Water Balance 	INITIAL PROJECT DEVELOPMENT	
<ul style="list-style-type: none"> Preliminary design Engineering Report (Preliminary) 	PRELIMINARY DESIGN	
<ul style="list-style-type: none"> 100% Design Engineering Report (Final) Operations & Maintenance Plan including Commissioning Plan Construction Cross-connection Inspection 	FINAL DESIGN, CONSTRUCTION AND INITIAL INSPECTIONS	
<ul style="list-style-type: none"> Commissioning 	PROJECT STARTUP	
<ul style="list-style-type: none"> On-going monitoring and reporting 	ON-GOING MONITORING AND REPORTING	

THE SFPUC ORDINANCE APPROACH



AUSTIN WATER ORDINANCE APPROACH

Program & Grant Development	Program Implemented with Incentive	Mandate Implemented
<ul style="list-style-type: none"> Establishes new rules/regulatory framework for Onsite Water Reuse Systems Grant program developed to incentivize systems under new rules 	<ul style="list-style-type: none"> All new Onsite Systems required to meet new rules & obtain permit from Austin Water Grants issued to large projects to incentivize program participation 	<ul style="list-style-type: none"> All new developments >250,000 square feet must incorporate Onsite Water Reuse & obtain permit from Austin Water

Mandatory Water Balance Submittal

- New developments submit water balance with site plan applications
- >250,000 square feet developments meet with AW staff to discuss water balance results and grant program until mandate takes effect

Water balance submittal and in-person staff meetings planned to coincide with opening of City's new Planning and Development Center (anticipated May/June 2020)

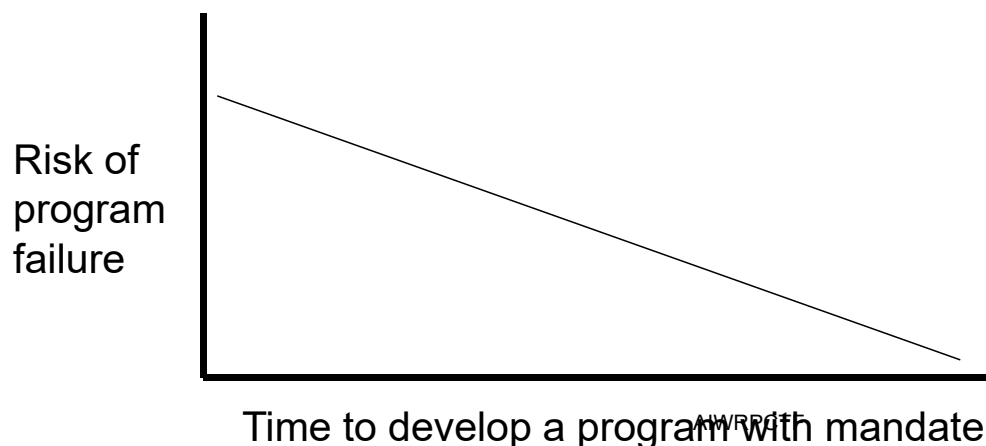
RISKS ASSOCIATED WITH PROGRAM IMPLEMENTATION

Examples of Risk-Based Considerations for Identifying the Management Category of the ONWS

Example	Number of Persons Exposed	Likelihood of Malfunction	Management Category and Considerations	Health Agency Role
Single-owner occupied system using roof runoff for irrigation	Small user base (<~20 pe/d ¹)	Low—low pathogen content—simple process	Low Risk—Building owner serves as the Responsible Management Entity (RME) with full responsibility	Provides educational information to building owners and issues permit
Single-owner occupied system using graywater for toilet flushing and irrigation	Small user base (<~20 pe/d ¹)	Moderate—equipment maintenance required	Low Risk—Building owner serves as RME with full responsibility	Requires manufacturer certification of equipment, operation and maintenance (O&M) manual and issues permit
Single-owner occupied system using roof runoff and treated wastewater for toilet flushing, laundry, and subsurface irrigation	Small user base (<~20 pe/d ¹)	Considerable—complex equipment requires routine O&M by trained staff	Moderate Risk—Independent registered service agent provides O&M	Registers/licenses service agent, defines reporting of data and issues permit
Multi-user building with roof runoff system for irrigation	Moderate user base (20–100 pe/d ¹)	Low—low pathogen content—simple process	Low Risk—Building owner or HOA serves as RME with full responsibility	Registers/licenses service agent, defines performance reporting and issues permit
Multi-user system using treated graywater for toilet flushing and irrigation	Large user base (100–1,000 pe/d ¹)	Moderate—equipment and distribution system requires trained O&M staff oversight	High Risk—Qualified full service RME with financial security and routine reporting	Establishes RME qualifications, ensures financial guaranty, requires data reporting, and issues permit
District/multi-user system serving mixed uses, collecting roof runoff and treated wastewater sources for toilet flushing, laundry, cooling, and irrigation	Large user base (100–5,000 pe/d ¹)	Significant—Complex process and distribution system requiring skilled O&M	High Risk—Qualified full service RME with financial security and routine reporting	Establishes RME qualifications, ensures financial guaranty, requires data reporting, and issues permit

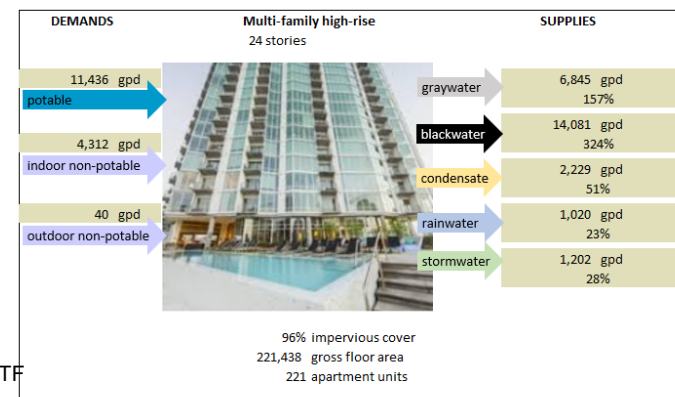
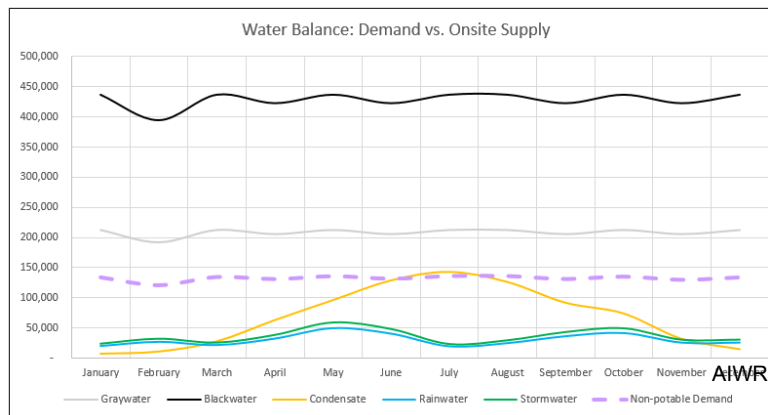
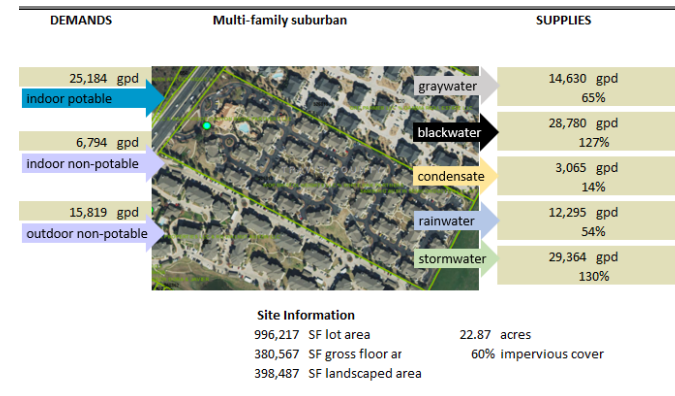
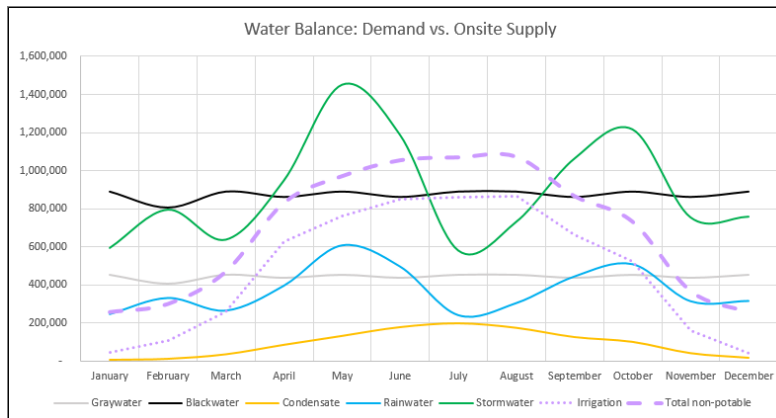
EXAMPLES OF RISKS

- Systems abandoned after time with no oversight to ensure proper operation & use
- Members of the public being exposed to pathogenic microorganisms from an improperly managed Onsite Water Reuse System
- Having a regulatory mandate without any guidance on who is qualified to design, construct, operate and maintain an Onsite Water Reuse System
- Disrupting the flow of/adding time to the development process could lead to backlash from system owners



JULY 23rd STAKEHOLDER WORKSHOP

1. Review water balance calculator inputs and results for typical developments in Austin to inform benchmarking requirement
2. Introduce NBRC regulatory framework and test feasibility for typical developments in Austin to inform onsite reuse program development & ordinance approach



Questions?





BACKUP MATERIALS

Design Considerations for FLUSHING TOILETS and URINALS with **Reclaimed Water**

Flushometer Valve Selection

Several plumbing fixture manufacturers make flushometer valves fabricated with corrosion-resistant components because reclaimed water is generally more aggressive than drinking water. Just as drinking water varies from city to city, so does reclaimed water.

Tip: Austin Water is conducting experiments to determine whether our reclaimed water is sufficiently aggressive to warrant special corrosion-resistant components. Until these experiments are complete, designers may want to specify flushometer valves specifically designed for use with reclaimed water.

Urinal Flush Volumes

Waterless urinals are well known to have clogging issues. When the flow to a traditional urinal is reduced it begins to behave, and clog, like a waterless urinal.

Tip: Austin Water is conducting experiments on flush volumes to avoid clogging. Until these experiments are complete, designers may want to specify the largest flush volume allowed by the plumbing code (0.5 gallons per flush).

Surge Protection (water hammer arrester)

Toilets and urinals in commercial buildings are flushed with quick-acting flushometer valves. While these feature low water use, the flow occurs in bursts that are 4-5 seconds with correspondingly high flow volumes that can generate water hammer.

Tip: The Uniform Plumbing Code requires that building plumbing with quick-acting valves be provided with devices to absorb water hammer.

Surge Protection (day tank)

Drinking water and reclaimed water systems can experience water hammer from the starting/stopping of pumps, the quick opening/closing of valves, and sudden large customer demands.

Tip: Austin Water has hired a design consultant to analyze and make recommendations to minimize water hammer. In the meantime, customers concerned about water hammer may want to install a day tank to maintain service for toilet and urinal flushing while physically separating building plumbing from Austin Water's reclaimed water system. An advantage to this approach is that rainwater and ac condensate can be harvested and placed in the day tank for use as flush water.

Background

The City of Austin is the first utility in Texas to provide customers with reclaimed water for use in restrooms. While the majority of our customers have used reclaimed water without incident for flushing toilets and urinals since 2009, we have learned a few lessons regarding the design and use of reclaimed water in restrooms.



Austin Water staff is available to help you make the most of reclaimed water in your building design. Please contact us for more information.

Dan W. Pedersen, PE
Reclaimed Program Manager
512-972-0074
dan.pedersen@austintexas.gov



Design Considerations for FLUSHING TOILETS and URINALS with **Reclaimed Water**

Pressure Reducing Valves

Austin Water's reclaimed water system operates over a broader range of pressures than does our drinking water system.

Tip: If reclaimed water pressure is higher than 80 psi, designers may want to install a pressure reducing valve to lower the reclaimed water pressure to a more typical range. Feel free to contact Austin Water for anticipated reclaimed water pressures at your building site.

Locating Hand Washing Sinks Upstream of Toilets/Urinals

With the advent and widespread adoption of ultra-low flow plumbing fixtures, there are documented instances of building drain lines having insufficient flow to sweep away wastes generated at toilets and urinals.

Tip: Some designers have placed additional fixtures, like hand washing sinks, upstream of ultra-low flow toilets and urinals to provide extra water to keep wastes moving.

Strainers with Pucks

Urinal salts, like calcite and struvite, form more quickly in alkaline conditions.

Tip: Building maintenance staff may want to use urinal pucks to facilitate cleaning and to acidify water to prevent urinal salts from forming.

Maintenance/cleaning

Manufacturers of toilets and urinals are vague on maintenance, its frequency, and cleaning frequency.

Tip: The more frequently these plumbing fixtures are used, the more frequently they need to be maintained and cleaned. With maintenance being periodic additional flushing or addition of water to the fixture.

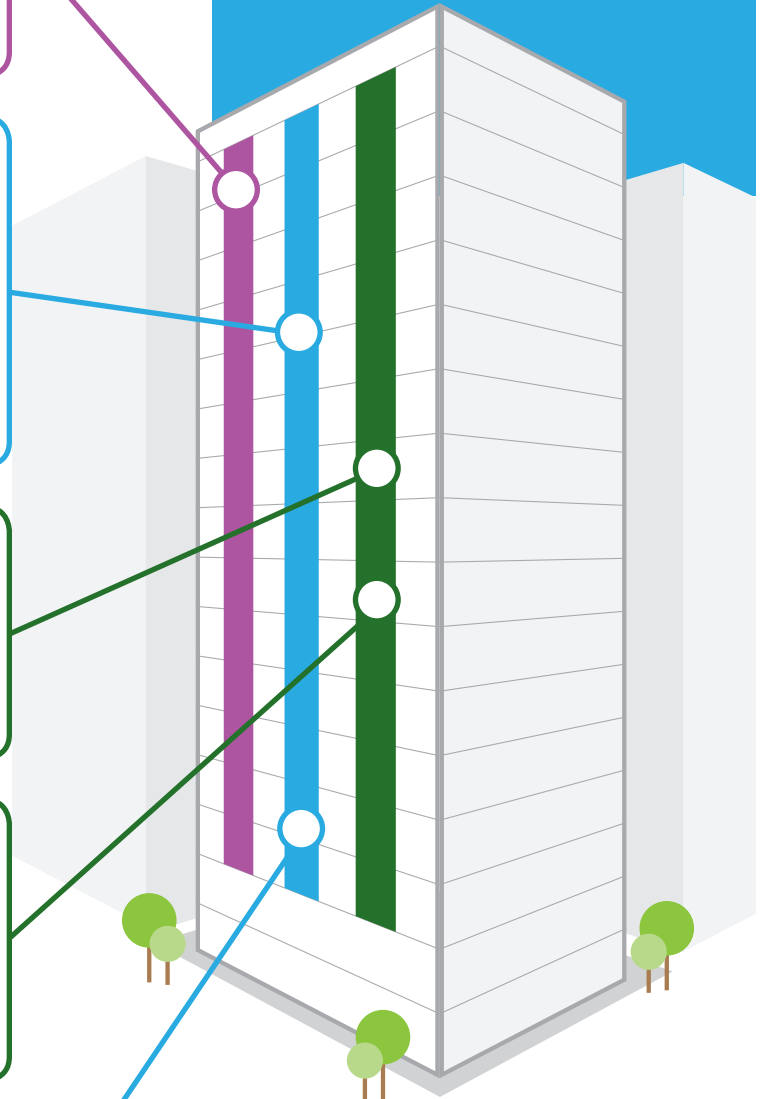
Annual Cross-Connection Test

On an annual basis, the plumbing code requires that reclaimed water customers test backflow preventers and also test to prove there is not a cross-connection. The test prescribed in the plumbing code is awkward, particularly for large buildings.

Tip: Designers may want to consider dye testing for the annual cross-connection test as it is easier and accomplishes the same goal.

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