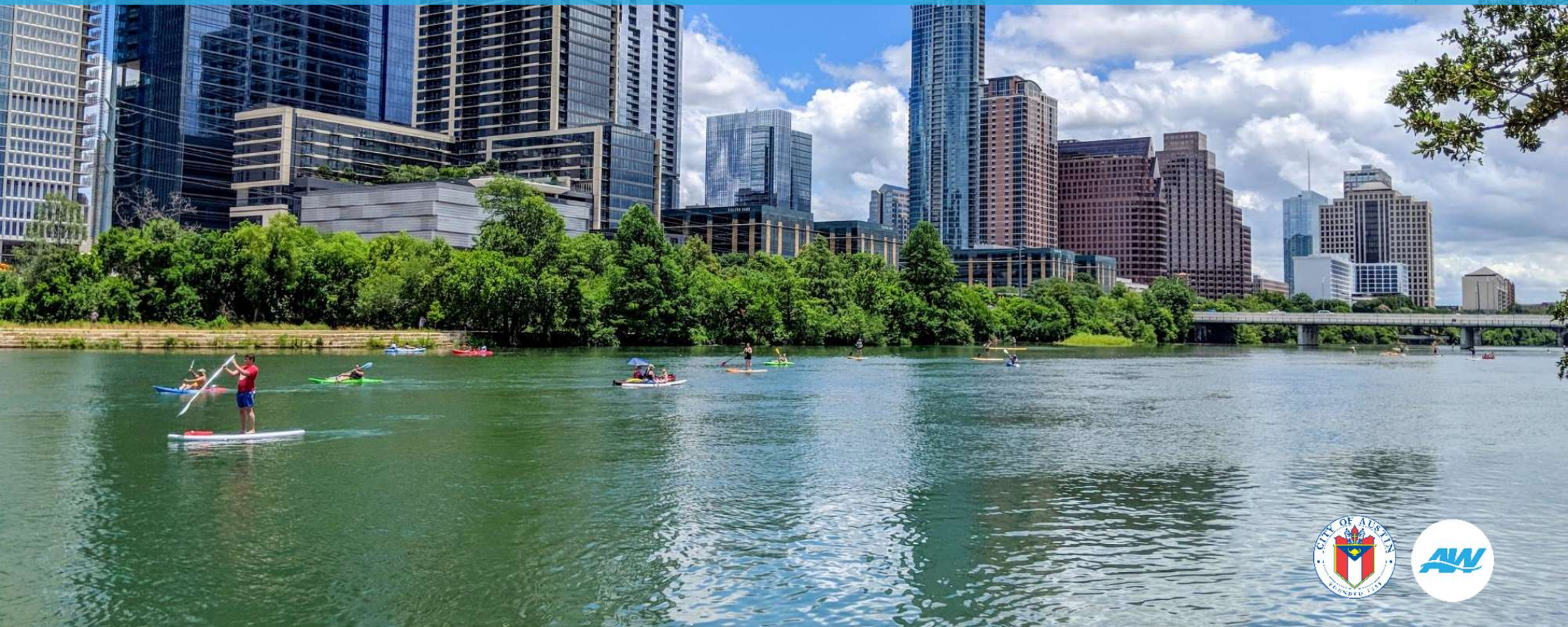
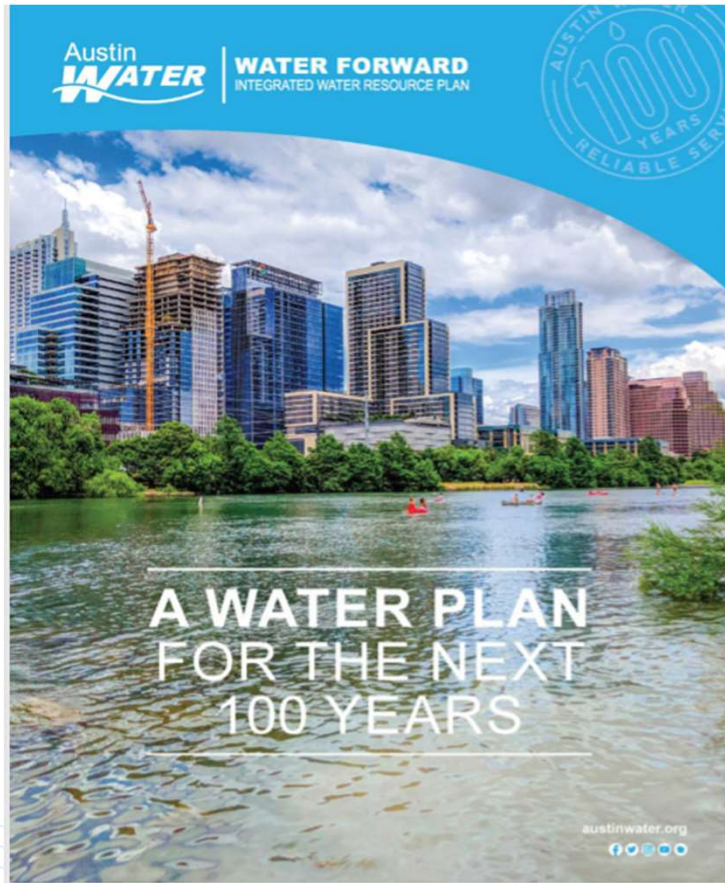


Update on Benchmarking and OWRS Programs

July 12, 2022



WATER FORWARD CONSERVATION & REUSE IN THE LDC



- Austin Water received Council direction in May of 2019 to include Water Forward regulations into the LDC Revision
- AW was specifically asked to address code changes for **large commercial developments ≥250,000 SF**
- Multiple public stakeholder meetings were held on these code changes, but the LDC Revision did not move forward



LDC Amendments in 2021

WATER BENCHMARKING

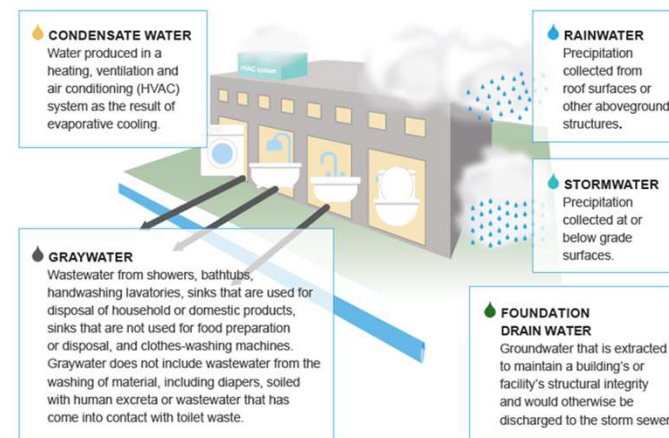


Effective Dec. 1, 2021

RECLAIMED WATER



ONSITE WATER REUSE



Effective Dec. 1, 2023



WATER BENCHMARKING REQUIREMENTS



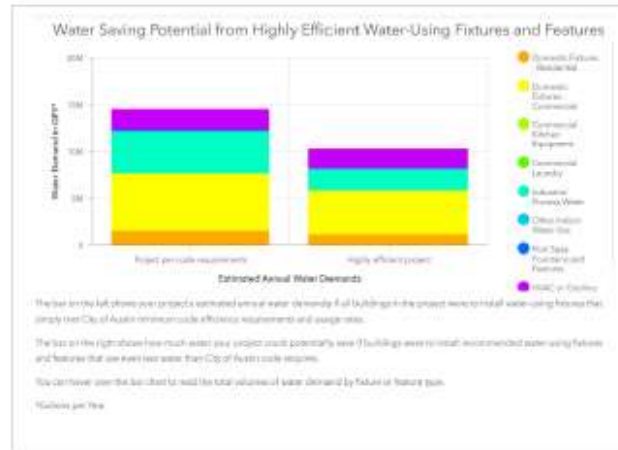
- ◆ All commercial and multi-family site plan applicants complete an online survey to assess how water will be used within their development projects and identify water reuse/water conservation opportunities before construction begins.
- ◆ Projects with 250,000 or more square feet of gross floor area are required to meet with Austin Water to discuss water reuse and conservation strategies and requirements.

WATER BENCHMARKING APPLICATION



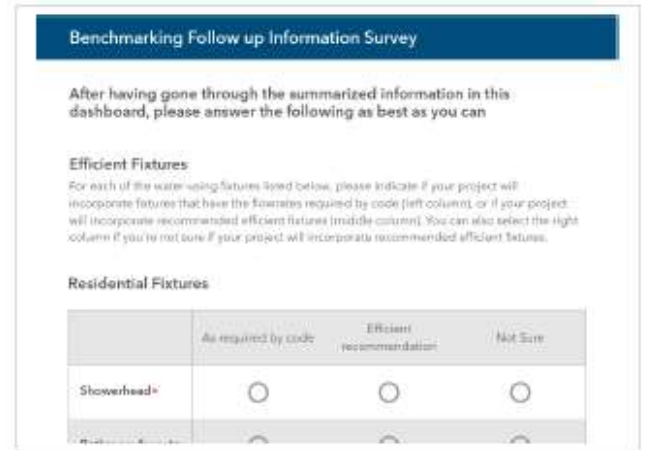
Step 1

Fill the application, link shared on webpage



Step 2

Review water use summary dashboard emailed to you



Benchmarking Follow up Information Survey

After having gone through the summarized information in this dashboard, please answer the following as best as you can

Efficient Fixtures

For each of the water-using fixtures listed below, please indicate if your project will incorporate fixtures that have the flowrates required by code (left column), or if your project will incorporate recommended efficient fixtures (middle column). You can also select the right column if you're not sure if your project will incorporate recommended efficient fixtures.

Residential Fixtures

	As required by code	Efficient recommendation	Not Sure
Showerhead	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Step 3

Answer follow up questions on dashboard

See our website for more information - <https://austintexas.gov/page/water-benchmarking>

Water Benchmarking Summary

Q3 of FY2022

- 59 applications
- 14 \geq 250,000 SF

- Very positive feedback to date on the process
- Developers or owners have been coming to the required meeting and asking great questions
- Lots of interest in Bucks for Business rebate
- Multiple inquiries about making it easier to use rainwater harvesting for landscape irrigation

Onsite Water Reuse System (OWRS) Program

Phase I went into effect December 2020

Voluntary* OWRS Program

- New OWRS regulations in Title 15 (Utility Regulations) for the design, permitting and operation and maintenance of multi-family & commercial systems
- Encourage voluntary adoption of OWRS in new development to test out the new regulatory framework with pilot incentive

*Mandatory for 100 ton+ cooling towers

Phase 2 to take effect December 2023

Mandatory OWRS Program

- Mandatory installation of OWRS for commercial and multi-family developments >250,000 sq. ft. in Title 25 (Land Development Code)
- Rules will be posted on the applicability for the mandate along with provisions for enforcing the mandate

Voluntary OWRS Program Summary

All of FY2022

- 4 OWRS applications
- 1 cooling tower system approval
- 2 pilot incentive applications
- 2 incentive applications approved

- New regulatory framework needs to be learned by local engineering community
- Outreach on incentive program has been successful with projects already planned for
- Confusion surrounding rainwater harvesting for stormwater treatment for discharge to environment vs. rainwater harvesting for landscape irrigation



ACC Highland Campus



Potable Water Savings: 1.8M gallons per year

Funding Level: \$250,000

Source: Rainwater

Use: Spray Irrigation

Treatment: TBD

Tesla Gigafactory



Potable Water Savings: 14M gallons per year

Funding Level: \$500,000


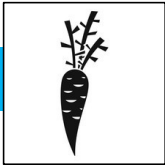


Source: Rainwater

Use: Cooling Tower Makeup

Treatment: Filtration, UV Reactor



Key Takeaways From Public Input On Mandatory Program

- 1** Concerns about system costs and effects on affordability 
- 2** Would like to see developer incentives to offset costs 
- 3** Want to avoid increasing project review time due to new regulations 
- 4** Need for clarification on mandatory installations 

OWRS and Housing Affordability in LDC

- On or before September 28, 2023, the City Manager shall provide a report and possible actions for council consideration concerning the impact of the requirements for an Onsite Water Reuse System and the expansion of the current Reclaimed Water Connection mandate on housing affordability.



What are the costs?

Capital Costs (one time)			\$	Operational costs (annual)			\$
Treatment system			\$	Regular reporting and Monitoring	AW – OWRS (Annual permitting fee)		\$
Plumbing	Dual distribution plumbing		\$		Annual cross connection test (AMOC)		\$
	Dual drainage plumbing		\$		Fees AW – SSD		\$
	Capturing water supply costs		\$	Labor	Treatment System Manager		\$
Electrical			\$		Licensed Operator		\$
Flow meters			\$	Materials	Repair		\$
Signage			\$		Chemicals		\$
Design fees	Engineering design (WB calc + owrs app + engineering report)		\$	Testing	Testing contract		\$
	Engineering design (implementation plan)		\$		Testing Fees		\$
	Architectural design		\$	Energy bills			\$
	Legal (encroachment agreement)		\$				
	Contingencies		\$	<div> <ul style="list-style-type: none"> Cost data from <ul style="list-style-type: none"> Projects throughout U.S. Applicants applying for PIP City Permitting costs Dual plumbing study </div>			
Design permitting	Fees AW- SSD		\$				
	Fees ORES		\$				
	Fees WPD (by pass needs, SCM)		\$				
Installation			\$				
Operating Permit	Fees AW-OWRS		\$				
	Fees AW – SSD		\$				
	Cross connection test vendor		\$				



Developer Incentives or Cost Mitigation

💧 In the current voluntary phase

- Pilot incentive program of up to \$500,000

💧 In the mandatory phase

- Reduced impact fees
- Utility bill savings



Other Potential Cost Mitigation

💧 **Watershed Protection**

- Stormwater quality volume credit &/or reduced fees in lieu

💧 **Texas PACE Authority**

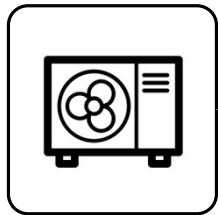
- Long term financing for projects incorporating water & energy saving measures, where project always has a positive savings to investment ratio

💧 **Housing & Planning**

- Gross floor area calculations, density bonuses



Mandatory OWRS Systems



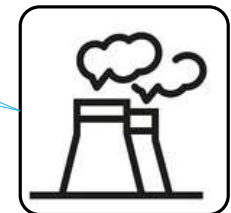
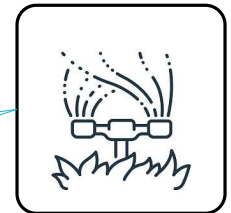
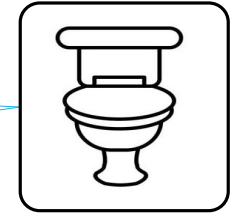
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How much?
What sources?
What demands?



Using Building Typologies to Model Mandatory Systems

- Building structure
- Building use

Multi-family



Commercial



Mixed Use

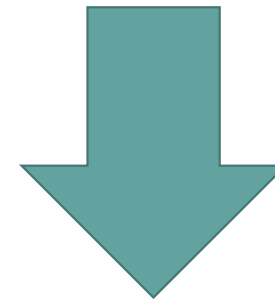


Variables:

- Source
- Non-potable demand
- Typology

Objectives:

- Maximize potable demand offset
- Minimize costs of systems
- Keep it as simple as possible



Mandatory OWRS Regulations



San Francisco Public Utilities Commission Ordinance

2015

2021

	APPLICATION FOR SITE PERMIT SUBMITTED BEFORE JANUARY 1, 2022		APPLICATION FOR SITE PERMIT SUBMITTED AFTER JANUARY 1, 2022	
	Required Alternate Water Sources	Required Non-potable Uses	Required Alternate Water Sources	Required Non-potable Uses
Commercial	Graywater Rainwater Foundation Drainage	Toilet & Urinal Flushing Irrigation	Blackwater Condensate	Toilet & Urinal Flushing Drain Trap Priming
Residential and Mixed-Use	Graywater Rainwater Foundation Drainage	Toilet & Urinal Flushing Irrigation	Graywater Condensate	Toilet & Urinal Flushing Irrigation Clothes Washing ¹ Drain Trap Priming



Austin's Ordinance Will Reflect Local Conditions

	Required Alternative Water Sources	Required Non-potable Uses
Commercial	Rainwater and A/C Condensate	Toilet and Urinal Flushing Irrigation Cooling
Residential and Mixed Use	Rainwater and A/C Condensate or Graywater	Toilet and Urinal Flushing Irrigation Laundry

Similar to San Francisco:

Graywater not a significant source in commercial developments

Unlike San Francisco:

Rainwater is a significant source throughout the year

Blackwater has significant regulatory barriers to reuse

Austin has large developments with multiple buildings



Onsite Water Reuse Operator Certificate

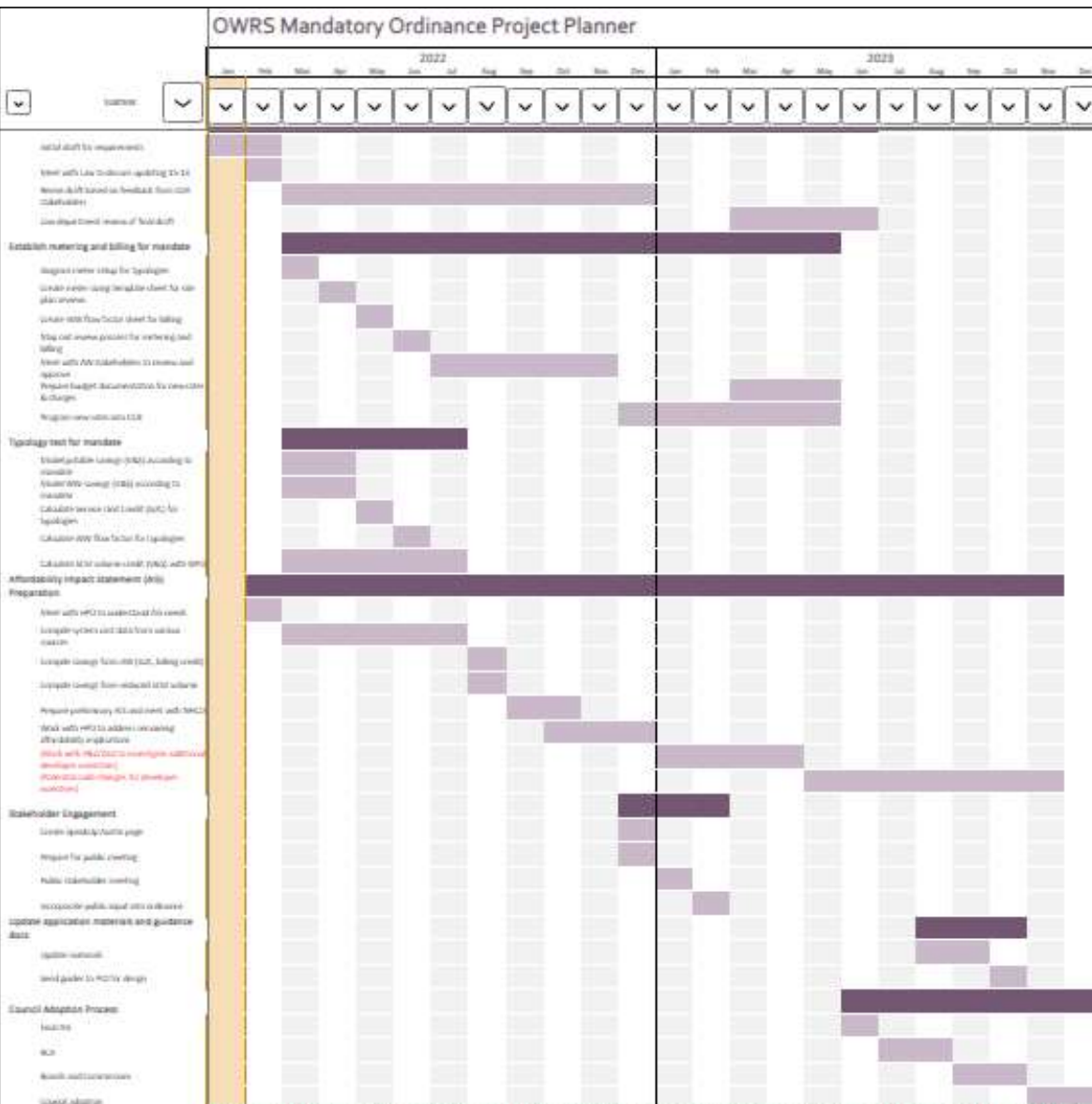
Certificate program with exam expected to launch early 2023

- Exam will be developed in 2022 with subject matter experts from the industry
- Compatible reference/study material is being developed by project consultant
- Two levels of certification with no hands-on experience needed

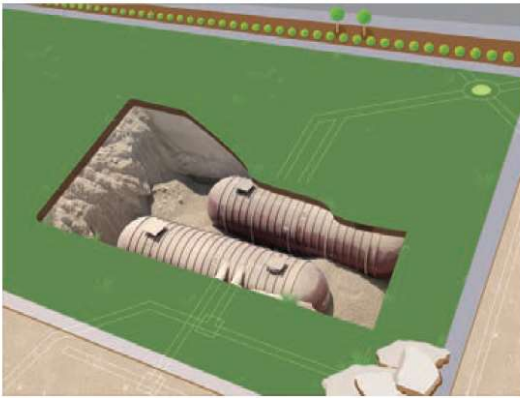
Level I: Rainwater and condensate systems

Level II: Graywater and blackwater systems





Permitting and Development Center Demonstration Project Up and Running



OSCAR is an On-Site Collection and Reuse system that collects air-conditioning condensate and rainwater to reuse for irrigation and landscape maintenance around the building.

Look for the sign in the lawn area to learn more about OSCAR's fit-for-purpose approach to water management.



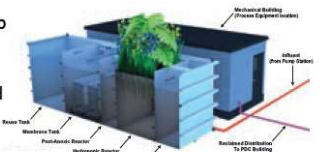
Meet **OSCAR & CLARA** The Future of Water Management

Together, OSCAR and CLARA are helping the City of Austin to save over one million gallons of drinking water each year, reducing the site's potable water use by 75%.

As Austin's population grows and climate change stresses drinking water supplies, more OSCARs and CLARAs installed throughout the city will help to extend our water supplies and conserve precious drinking water.



CLARA is a Closed-Loop Advanced Reclaimed Assembly that treats the building's wastewater and recycles it for toilet and urinal flushing.



Head to the steps in the courtyard to find out more about CLARA's closed-loop water recycling system. Look carefully, the casual eye may miss CLARA at first!



Lessons Learned So Far

The Good

- Successfully treating blackwater and meeting TCEQ permitting requirements
- Experimenting with dye injection for toilet flushing
- Lots of public interest for tours
- Remote operations implemented

The Bad

- Supply chain issues for replacement parts
- Couldn't find contractor willing to perform cross connection test for CLARA
- Plumbing for cross-connection test needs improvement
- OSCAR design needs improvement

