Aquifer Storage and Recovery and Brackish Groundwater Desalination

Climate, Water, Environment and Parks Committee

Austin Water | May 18, 2026

Agenda

- Water Forward Overview
- Aquifer Storage and Recovery (ASR) & Brackish Groundwater Desalination Field Testing
- 2026 Community Engagement Strategy
- Next Steps

Water Forward

- Water Forward is Austin's 100-year integrated water resource plan, adopted by Council in November 2024
- Identifies water conservation, reuse, and supply strategies to adapt to growth, drought, and climate change and ensure a sustainable, resilient, equitable, and affordable water future

Guiding Principles

- Resiliency
- Inclusive Approach + Community Values
- Diverse Strategies
- Equity + Affordability
- Protect the Colorado River
- Reduce Operational Risks
- Focus on Local Supplies

Water Forward 2024 Portfolio

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Utility-Side Water Loss Control

- Production meter improvements
- Expanded active leak detection programs
- Additional analysis of Smart Meter data

Customer-Side Water Use Management

- Expanded customer incentives for conservation
- Use of Smart Meter data for customer-side leak identification, education, and outreach
- Water use budgeting

Native & Efficient Landscapes

- New landscape ordinances & incentives
- Irrigation efficiency incentives
- Landscape conversion programs

Non-Potable Reuse (Go Purple)

- Onsite Water Reuse Systems
- Decentralized Reclaimed
- Centralized Reclaimed

Water Supply Storage

Aquifer Storage and Recovery

Lake Walter E. Long On Channel Reservoir

Potable Reuse

Indirect Potable Reuse

Strategies reliant on Colorado River and LCRA supplies

New Water Supplies

Brackish Groundwater Desalination

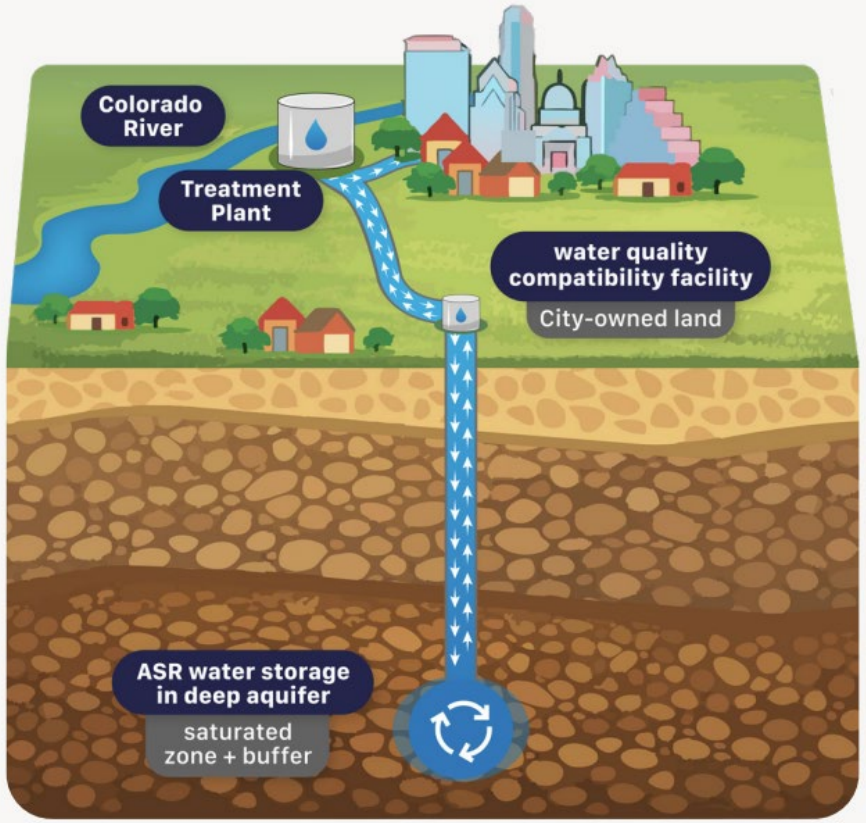
Adaptive Management Approach

- Update Water Forward plan every five years
- Between five-year updates: Implement, evaluate, and adjust strategies
- Plan alternate pathways to respond to lessons learned and changing conditions

Aquifer Storage and Recovery

- Aquifer Storage and Recovery (ASR) is a proven method of safely storing water in an aquifer to use later

1. Austin's Water Supply: Colorado River and Highland Lakes
2. Water Treatment Plants treat water to drinking standards
3. Water Quality Compatibility Facility conditions water to be compatible with aquifer
4. Water pumped underground and stored – more water is always added than used

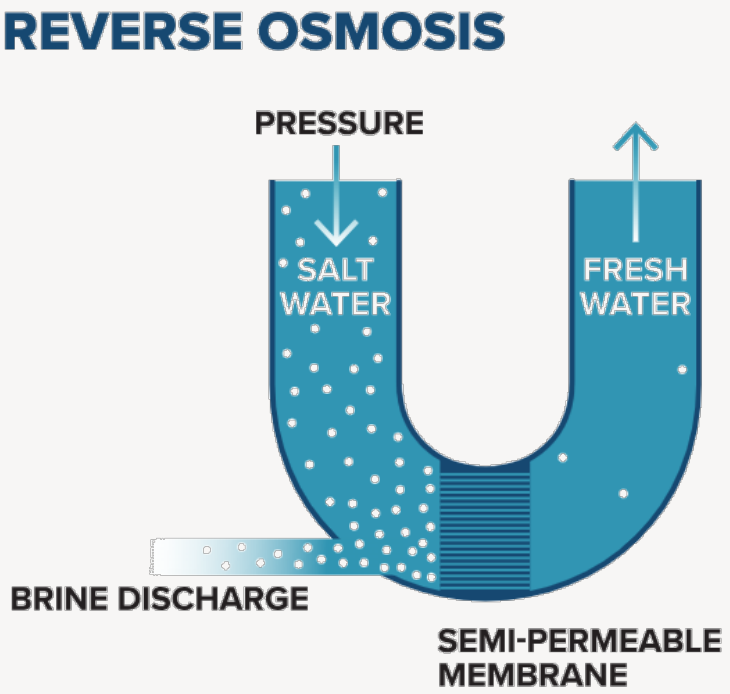


Benefits of Trinity Aquifer ASR

- Benefits of a location closer to Austin Water's system on City-owned land include:
  - Lower costs for pipelines, pumping stations, and land
  - Better alignment with planned Austin Water infrastructure
  - Easier access to Austin Water service centers and workforce
  - Reliable power from Austin Energy's service area
  - Potential to conserve land or enhance recreation and education for residents
  - Greater ability to partner with Austin and Travis County stakeholders

Brackish Groundwater Desalination

- This strategy involves the withdrawal of brackish (salty) groundwater from deep underground
- Water would be treated by advanced processes such as reverse osmosis to be compatible with Austin's drinking water
- The treatment process creates a very salty byproduct (brine) that requires disposal in accordance with state regulations



Example Water Desalination Process

Aquifer Field Testing

- Revised Phase 1B Field Testing Scope will include field testing for ASR and brackish desalination in eastern Travis County on City-owned land:
  - Design and drill test wells into the Trinity-Hosston Aquifer, with groundwater and core sampling
  - Conduct lab analysis of groundwater, core samples, and Austin's drinking water
  - Form a Technical Advisory Group (TAG) to support testing
  - Engage the community throughout the process
  - Develop plans for future pilot projects based on test results

- AW will use data to plan projects that meet Water Forward goals, including wellfields that could co-locate ASR and brackish groundwater desalination projects

ASR Contract Amendment

- **Contract Amendment**
  - Current contract with HDR will require additional authorization to support field testing and drilling
  - Additional funding will cover test well drilling, sample collection, laboratory testing, ASR pilot planning, and brackish groundwater desalination evaluation

- **Timeline**
  - May 20, 2026: Water and Wastewater Commission recommendation
  - May 28, 2026: Council consideration of amendment

Field Testing Timeline

Fall 2026

Test well site selection, well design, environmental, and permitting tasks

Spring 2027

Test well drilling, sample collection, and laboratory analysis

Spring 2028

Complete Phase 1B plan report, start Phase 2 ASR pilot well design, and prepare for TCEQ ASR pilot authorization

ASR Project Timeline

- **Complete:** Desktop Study to identify most viable locations for project 2022–23
- **Exploratory Drilling and Field Testing:** Estimated 36–42 months
- **Pilot ASR Testing:** Estimated 36 months
- **Full Scale ASR Design and Construction:** Estimated 8–10 years

Results of each project phase will be evaluated to determine whether the project will move to the next phase.

Community Engagement Purpose

- **Raise Awareness:** Help secure Austin's water future and raise awareness about AW water supply projects, including Aquifer Storage and Recovery (ASR) and Brackish Groundwater Desalination

- **Proactive Engagement and Education:** Have a proactive community engagement approach that builds community support for water supply strategies

- **Partnerships and Trust:** Form strong partnerships with stakeholders who will support Austin Water and advocate with us

2026 Community Engagement Strategy

Phase 1: Jan – May 2026
Internal & Early Stakeholder Engagement

- **Focus**
  - Introduce Eastern Travis County water supply project to stakeholders
- **Activities**
  - Engage City of Austin partner departments
  - Early communication with elected officials
  - Outreach to Eastern Travis County stakeholders

Phase 2: May – Sept 2026
Broader Community Outreach

- **Focus**
  - Broaden community support for Austin's water supply projects
  - Share updates on analyses and other initial work
- **Activities**
  - Tentative: Fall Open Houses
  - Outreach to environmental groups, neighborhood associations, large customers, business groups, and regional water entities

Phase 3: Oct – Dec 2026
Field Testing Milestones

- **Focus**
  - Communicate key project milestones for field testing
- **Activities**
  - Communicate site prep work such as access roads and drill rig mobilization as needed

Next Steps

- Establish an ASR and Brackish Technical Advisory Group to review testing plans and results
- Test groundwater and core samples to better understand existing conditions
- Use test results to plan safe treatment steps and protect the aquifer
- Share findings with advisors, community partners and the public

Building Austin's water future, together.

Austin

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