

JULY 2026

ONE WATER 2100 PLAN

IMPLEMENTATION REPORT 2025



CITY OF
TUCSON



TUCSON
WATER
1900-2025

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ACRONYMS

1W2100 Plan	<i>One Water 2100 Plan</i>	LCRR	<i>Lead and Copper Rule Revisions</i>
ADEQ	<i>Arizona Department of Environmental Quality</i>	LID	<i>Low-Impact Development</i>
ADWR	<i>Arizona Department of Water Resources</i>	LSCMRP	<i>Lower Santa Cruz River Managed Recharge Project</i>
AMI	<i>Advanced Metering Infrastructure</i>	LTSCs	<i>Long-term Storage Credits</i>
AOP	<i>Advanced Oxidation Process</i>	MCL	<i>Maximum Contaminant Level</i>
AWP	<i>Advanced Water Purification</i>	MGD	<i>Million Gallons Per Day</i>
AWS	<i>Assured Water Supply</i>	PCFCD	<i>Pima County Regional Flood Control District</i>
CAP	<i>Central Arizona Project</i>	PFAS	<i>Per and Polyfluoroalkyl Substance</i>
CARES	<i>Community Assistance and Resources for Economic Stability</i>	PFOA	<i>Perfluorooctanoic acid</i>
CAVSARP	<i>Central Avra Valley Storage and Recovery Project</i>	PFOS	<i>Perfluorooctyl sulfonate</i>
CAWCD	<i>Central Arizona Water Conservation District</i>	PMRRP	<i>Pima Mine Road Recharge Project</i>
CCR	<i>Consumer Confidence Report</i>	S2S Program	<i>Storm to Shade Program</i>
CEC	<i>Contaminants of Emerging Concern</i>	SAVSARP	<i>Southern Avra Valley Storage and Recovery Project</i>
CIP	<i>Capital Improvement Program</i>	SCIA	<i>System Conservation Implementation Agreement</i>
CIS	<i>Customer Information System</i>	SDWA	<i>Safe Drinking Water Act</i>
City	<i>City of Tucson</i>	SHARP	<i>Shirley C. Scott Southeast Houghton Area Recharge Project</i>
CTPP	<i>Central Tucson PFAS Project</i>	SOP	<i>Standard Operating Procedure</i>
DAWS	<i>Designation of Assured Water Supply</i>	SURGE	<i>Sonoran Urban Resilience and Green Stormwater Infrastructure Exchange</i>
DCP	<i>Drought Contingency Plan</i>	TAMA	<i>Tucson Active Management Area</i>
EPA	<i>Environmental Protection Agency</i>	TARP	<i>Tucson Airport Remediation Project</i>
GAC	<i>Granulated Activated Carbon</i>	TCE	<i>Trichloroethylene</i>
GPCD	<i>Gallons Per Capita Per Day</i>	TIAA	<i>Tucson International Airport Area</i>
GSFs	<i>Groundwater Savings Facilities</i>	UCMR	<i>Unregulated Contaminant Monitoring Rule</i>
GSI	<i>Green Stormwater Infrastructure</i>	USBOR	<i>United States Bureau of Reclamation</i>
HOAs	<i>Homeowners Associations</i>	USGS	<i>United States Geological Survey</i>
IGA	<i>Intergovernmental Agreement</i>	UV	<i>Ultraviolet</i>
IX	<i>Ion Exchange</i>	WIFA	<i>Arizona Water Infrastructure Finance Authority</i>
kWdc	<i>Kilowatts of Direct Current</i>		

TUCSON WATER DIRECTOR'S MESSAGE

As Tucson continues to grow and adapt to changing conditions across the Colorado River Basin and the Sonoran Desert, Tucson Water remains focused on what matters most: providing safe, reliable water today while preparing responsibly for tomorrow.

Guided by our One Water 2100 Plan, we are making long-term investments that strengthen water reliability, improve system resilience, and help ensure our community continues to thrive for generations to come.

2025 also marked Tucson Water's 125th anniversary of serving our community. For more than a century, Tucson Water has adapted alongside our community, responding to changing water conditions through innovation, responsible resource management, and long-term planning. That legacy continues today as we prepare for the next century of service.

In 2025, Tucson Water made meaningful progress across several key initiatives. We advanced the design of the Pure Water | Tucson Education Center to expand public understanding of advanced water purification (AWP). AWP is designed to strengthen long-term drought resilience and diversify local water supplies by helping meet a portion of Tucson's daily water demand.

We also expanded efforts to improve reclaimed water planning and system management, strengthened recharge and infrastructure investments, and continued modernization efforts through advanced metering and digital transformation initiatives that improve system efficiency and customer service.

Equally important, we continued meaningful engagement with the community we serve. Through millions of customer touchpoints each year, Tucson Water works to ensure customers remain informed and connected as we plan for the future together.

Whether through neighborhood events, educational programs, conservation initiatives, digital engagement, or multilingual communication efforts, we remain committed to meeting people where they are and ensuring all customers have access to information and resources.

Public trust and water stewardship have always been part of Tucson's identity. Today, that stewardship extends beyond conservation alone. It means managing our surface water, groundwater, reclaimed water, and stormwater as one connected system, investing wisely in infrastructure, embracing innovation, and planning ahead so future generations inherit a resilient and sustainable water supply.

We have enough water to thrive, but not enough to waste.

Tucson is well-positioned for the future. Tucson Water has the experience, the resources, and the long-term vision to meet tomorrow's challenges while continuing to provide the safe, reliable service our community depends on every day. The work highlighted throughout this report reflects our ongoing commitment to protecting Tucson's water future—for today, for tomorrow, and for the next 125 years.

John P. Kmiec

John Kmiec

Director of Tucson Water



John P. Kmiec, Director of Tucson Water



BACKGROUND

The City of Tucson's Mayor and Council adopted the One Water 2100 Plan (1W2100 Plan) on October 17, 2023, to ensure a sustainable, high-quality water supply now and into the future. The 1W2100 Plan replaces the City of Tucson (City) long-term water resource plan, Water Plan: 2000-2050, and is linked to the City's Climate Action and Adaptation Plan, Drought Preparedness and Response Plan, and general plans, Tucson Resilient Together and Plan Tucson, respectively.

The 1W2100 Plan outlines a One Water approach, which values the interconnectedness of all water: surface water, groundwater, recycled water, rain, and stormwater harvesting, with the guiding principles for commitment to resilience, equity, water stewardship, and maintaining a great quality of life.

The elements of the 1W2100 Plan are based around four plausible future scenarios: two are more desirable, and two are less attractive outcomes. The two desirable outcomes are the Sustainable Oasis (decreased demand and increased supply) and Desert Oasis (both increased demand and supply) scenarios. The two less attractive outcomes are the Thirsty Desert (increased demand and decreased supply) and Counting Buckets (both decreased demand and supply) scenarios.

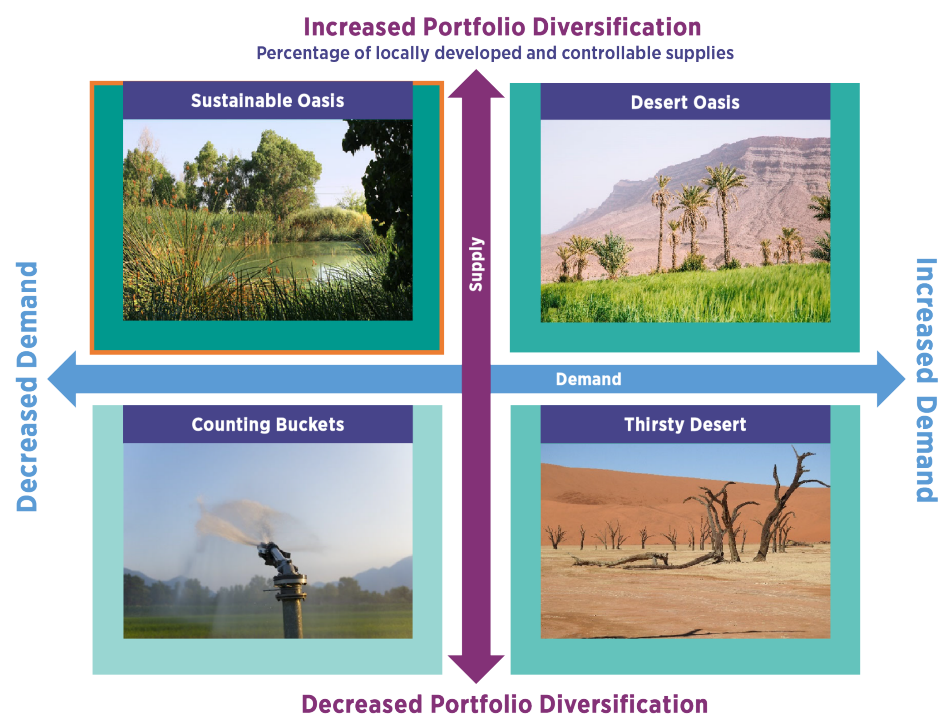
Long-range water resource management through 2100 is accomplished through 16 strategies and 68 implementation actions to protect the reliability and quality of Tucson's water supply under changing conditions. The strategies and actions to mitigate the risk of undesirable outcomes were the result of community engagement workshops and interviews, community surveys, Mayor and Council input, Citizens Water Advisory Committees, and feedback from Tucson Water staff. These collaborative efforts, completed over several years, were key components to developing Tucson's One Water future.

Each strategy is accompanied by a relative cost (high, low) and effort (1 low - 3 high). Each action has an implementation timeline that spans Ongoing (0- 26 years), Near-Term (1-10 years), Mid-Term (11-25 years), and Long-Term (> 26 years).

The 1W2100 Plan will be used as a guide for developing, implementing, and refining important water policies, as well as making water management and system investment decisions. Therefore, the 1W2100 Plan also ties to Tucson Water's Capital Improvement Program (CIP) budget for long-range guidance on future infrastructure projects to address specific actions and strategies.

The 1W2100 Plan's implementation is intended to serve as a framework for the City's efforts to develop and maintain community support and partnerships between City departments, collaborating organizations, other Arizona utilities, and government agencies such as the Arizona Department of Water Resources (ADWR), Arizona Department of Environmental Quality (ADEQ), Central Arizona Project (CAP), and Federal partners.

Implementation of the Plan strategies and actions will be shared with the public through this annual progress report provided on the One Water website at tucsononewater.com. Communication will also occur through the Water Matters newsletter, social media, water bill inserts, and community events.



Scenario Planning

I. SURFACE WATER



I. SURFACE WATER



Tucson's effective management of surface water is helping to increase local groundwater supplies. The strategies under Tucson Water's surface water resources are aimed at maximizing the beneficial use of Tucson's Colorado River water allocation while taking cooperative actions to promote the long-term viability of this resource for future generations. Addressing these complex water management challenges requires institutional collaboration with a broad range of partners at the federal, state, and local levels.

SW-1 Maximize the benefits of our current Colorado River water

During 2025, the Colorado River operated under Tier 1 guidelines of the Lower Basin Drought Contingency Plan. While Tier 1 guidelines do not call for reductions in the Colorado River supply for municipal providers, Tucson voluntarily conserved 30,000 acre-feet of its entitlement through the System Conservation Implementation Agreement (SCIA) to help improve water levels in Lake Mead.

Tucson's annual entitlement of renewable Colorado River water is 144,191 acre-feet. The CAP delivers Colorado River water to the Water Bank of Tucson (previously known as the Clearwater facilities) in Avra Valley, which consists of the Central Avra Valley Storage and Recovery Project (CAVSARP) and the Southern Avra Valley Storage and Recovery Project (SAVSARP). Since 2012, the Water Bank of Tucson facilities have significantly expanded their recharge capacity, enabling them to receive the City's full annual entitlement of Colorado River water.

Tucson Water collaborates with regional partners to store water in facilities such as the Pima Mine Road Recharge Project (PMRRP) and groundwater savings facilities (GSFs). A GSF is a partnership with an agricultural entity that holds groundwater rights for irrigation. This partnership allows farmers to reduce their groundwater usage by utilizing a portion of Tucson's renewable Colorado River entitlement. This approach helps conserve groundwater resources and provides Tucson with long-term storage credits (LTSCs) for future use.

Our Colorado River entitlement and annual order typically exceed our current customers' annual water demand. As a result, the excess recharged water is stored and converted into LTSCs the following year. This process helps accumulate storage volumes to use in future years. Tracking the balance of LTSC guides when adaptive management will need to be implemented.

For instance, Tucson Water evaluates the effectiveness of conservation measures through a supply and demand analysis. By focusing on maintaining a lower demand than our surface water supply and utilizing all available water resources, we can create a resilient community that offers flexibility for the future. Tucson Water's ongoing capital investments and maintenance of the Water Bank storage facilities are crucial for successfully executing this strategy as they protect our local storage capacity.

SW-1 Action A:

Continue to fully utilize Colorado River water with the use of CAVSARP, SAVSARP, Pima Mine Road Recharge Project, and groundwater savings facilities.



High
Priority



Ongoing

Actions taken in 2025

- Tucson received 114,191 acre-feet of Colorado River water through its Water Bank, PMRRP, and multiple GSFs. The reduction in delivery was to adhere to the SCIA with the United States Bureau of Reclamation (USBOR) to reduce scheduled delivery for up to 30,000 acre-feet in 2025 for the benefit of Lake Mead.

- Renewable Colorado River water was recovered from recharge facilities to produce 94,976 acre-feet of potable water for Tucson Water's Service Area.

SW-1 Action B:

Annually update the projected balance of long-term storage credits to inform the adaptive management of Plan strategies.



High
Priority

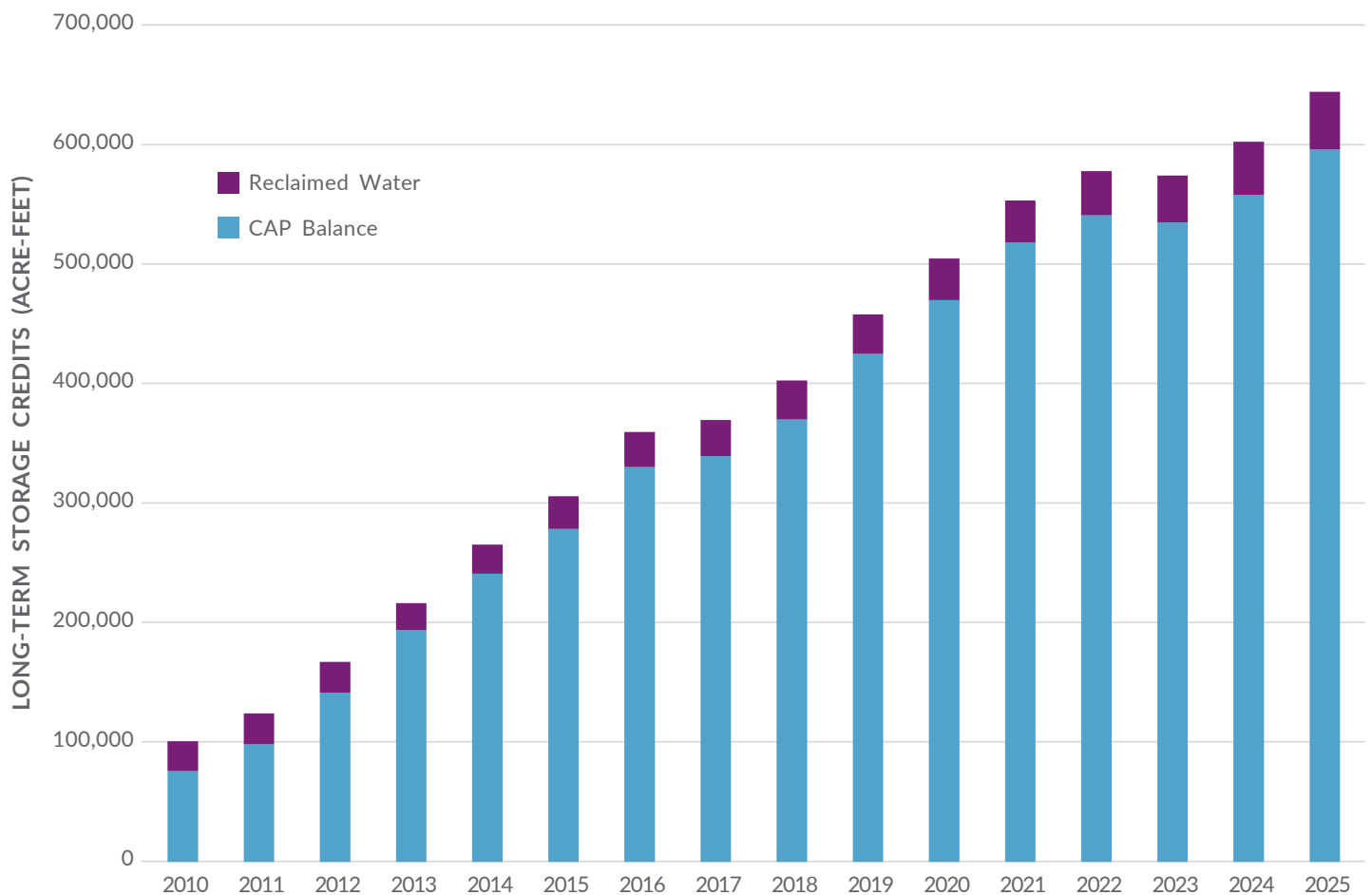


Ongoing

Actions taken in 2025

- In 2025, we earned storage credits that were added to our long-term storage account, resulting in a balance of 646,577 acre-feet, which is six years' worth of our current potable water demands. The growth rate of long-term storage credits has slowed in recent years due to our SCIA participation with USBOR.

Figure 1. Historic Cumulative Long-Term Storage Balance



This chart illustrates Tucson's progress in accumulating positive storage volumes through its storage credits (LTSCs) for future use.

Table 1. Surface Water Projects Budget

Project	Amount	Project Progress Report	SCIA Funds	Tucson Water CIP Funds
CAVSARP Facility Upgrades	\$16,000,000	In Progress	✓	✓
Old Vail Reservoir	\$31,614,600	In Progress		✓
South Houghton Transmission Main	\$7,300,000	In Progress		✓

SW-1 Action C:

Maintain and renew/replace infrastructure for storage and delivery of full Colorado River allocation.



High
Priority



Ongoing

Actions taken in 2025

- Performed routine recharge basin maintenance, flow meter replacement, and production well replacement at the Water Bank of Tucson facilities, CAVSARP and SAVSARP. Meter replacement is important for accurate measurement of deliveries to the recharge facilities. Updating aging wells is essential for ensuring the reliable supply of renewable water in our service area. The designs for replacing two recovery wells at CAVSARP were completed.
- Completed an engineering design for valve replacements at five CAVSARP basins, continued the valve replacement work for three basins, and began the design phase for the two remaining basins at the facility, which require a pressure-regulating valve. Tucson Water also plans to add a third valve to the pressure-release valve station at Milewide Road. The new design will replace outdated infrastructure while preserving the facility's delivery and storage capacity as part of a 20-year refurbishment and replacement project.

Upgrades to the CAVSARP facility are funded through SCIA and Tucson Water CIP funds.

- Continued the work for the Old Vail reservoir expansion. The upgrade to 6-million-gallon storage capacity is important to meet existing and future needs in Southeast Tucson.
- Completed the design and started construction for the new South Houghton transmission main to connect Corona de Tucson to the central system. This project will facilitate the delivery of renewable Colorado River water, reducing groundwater extraction in the area.



CAVSARP replacement valve



CAVSARP valve installation, Water Bank of Tucson

SW-1 Action D:

Utilize groundwater storage credits as short-term transitional supplies during Colorado River allocation shortages while additional supplies are acquired, restored, and/or developed.



High
Priority



Near & Mid-Term

Actions taken in 2025

- Although Tucson conserved 30,000 acre-feet of its Colorado River allocation in exchange for federal compensation through SCIA, no LTSCs were recovered during 2025. The Tucson community's culture of water conservation is globally recognized and serves as a model for other arid regions.

SW-1 Action E:

Develop implementation triggers for alternative supplies and enhanced conservation measures to prepare for extended Colorado River allocation shortages.



High
Priority



Near & Mid-Term

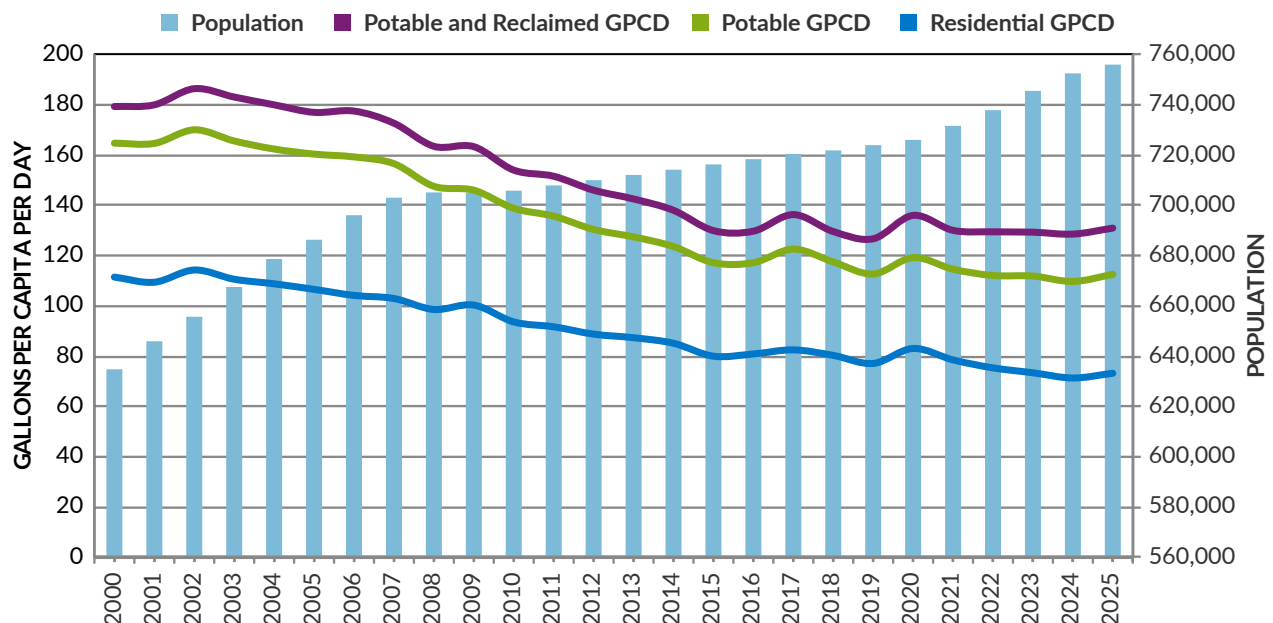
Actions taken in 2025

- The Lower Basin operated under Tier 1 guidelines of the Drought Contingency Plan (DCP) and participated in the SCIA. As a result, Tucson Water did not activate triggers for alternative water supplies. Instead, Tucson operated under Tier 2 shortage guidelines outlined in the Drought Preparedness and Response Plan. Tier 2 measures included providing water-audit assistance to customers who exceeded water use guidelines.

tucsonaz.gov/Departments/Water/Water-Resources-and-Drought-Preparedness/Drought-Preparedness

- The demand for potable water in the service area remained low, helping to cushion the impact of the voluntary shortage in 2025. Tucson Water also conducted demand/supply and tracking analyses to monitor our LTSC balance and the annual gallons per capita per day (GPCD) within the service area. Both metrics offer reliable insights into year-to-year changes in water demand. If there is an increase in our GPCD alongside a decrease in our LTSC balance, more stringent conservation measures will be set.

Figure 2. Tucson Water Service Area Population and GPCD Trends 2000-2025



SW-2 Work with the State of Arizona to explore additional water supplies for the Central Arizona Project (CAP)

The City collaborates with the Governor’s Office, ADWR, the Central Arizona Water Conservation District (CAWCD, operator of the CAP), the Arizona Water Infrastructure Finance Authority (WIFA), tribal partners, agricultural irrigation districts, and other Arizona utilities to explore opportunities to secure additional CAP water supplies.

The potential sources of intrastate and interstate water supplies include importing water from groundwater basins in western Arizona, recovering stored groundwater near recharge locations with access to the CAP canal, transferring water from other in-state basins, and establishing agreements for water exchanges from other states. One effective strategy for increasing water supplies for utilities has been establishing water exchange agreements with agricultural areas, allowing land to remain fallow in return for compensation.

WIFA has established the Long-Term Water Augmentation Fund, which supports a mandate to identify new water sources to enhance Arizona’s water supply. Of this funding, 75% is allocated for importing water, while the remaining 25% is designated for in-state augmentation projects. Additionally, water quality remains a priority when evaluating new water supplies to augment Tucson’s Colorado River supply.

SW-2 Action A:
Collaborate with CAP, ADWR, and other Arizona utilities to improve regional cooperation on water issues.

 High Priority  Ongoing

SW-2 Action B:
Work proactively with CAP, ADWR, and other Arizona agencies to explore the availability, water quality, accessibility, and cost of alternative water supply options.

 High Priority  Ongoing

Actions taken in 2025 (To support Actions A and B)

- In 2025, 28,016 acre-feet of Colorado River Water were stored collectively for Phoenix, Gilbert, Scottsdale, and Peoria at the Water Bank of Tucson. During years of Colorado River shortages, cities in the greater Phoenix Metropolitan Area can take a portion of Tucson’s Colorado River supply directly off the CAP canal. In turn, Tucson can recover the same amount of water stored by the storage partners in the Water Bank. This arrangement provides Tucson Water with increased operational flexibility by allowing access to the stored water of its intrastate partners.
- City of Tucson Manager Tim Thomure served on WIFA’s Long-Term Water Augmentation Committee. The committee reviewed seventeen requests for qualifications submitted in response to a 2024 solicitation. From these, two development teams were selected to evaluate seven proposed augmentation projects to improve Arizona’s water supply. The annual near-term goal for water augmentation is to achieve 150,000 to 500,000 acre-feet per year over the next 10 to 15 years. Engaging local leadership in water importation projects strengthens the resilience of our regional water supply.

SW-3 Advocate for Tucson’s allocation of Colorado River water through the CAP in state and federal negotiations

SW-3 Action A:
Actively participate in negotiations about how Colorado River water will be shared.

 High Priority  Ongoing

SW-3 Action B:
Participate in collaborative efforts to reduce the risk of Lake Mead falling to critical levels.

 High Priority  Ongoing

Actions taken in 2025 (To support Actions A and B)

- The USBOR is responsible for managing Colorado River operations, which includes an annual determination of any shortages. The current operating guidelines, in place since 2007, are set to expire at the end of 2026. The U.S. Department of the Interior established a deadline of November 11, 2025, for the basin states to develop a preliminary agreement on the post-2026 Colorado River Operations. That agreement was to be finalized in February 2026.

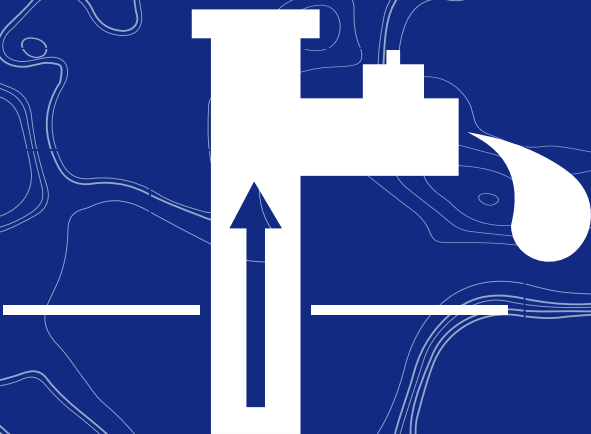
At the end of 2025, negotiations continued with no agreement in place while the City of Tucson was waiting to review the USBOR Draft Environmental Impact Statement (DEIS) Post 2026 Guidelines and Strategies for Lake Powell and Lake Mead. The DEIS will list alternatives to implement if the Colorado River Basin states fail to develop an agreement.
- The City has participated in Colorado River water conservation measures under the 2007 Guidelines, the 2019 DCP, and the voluntary compensated conservation program. As CAP’s largest municipal subcontractor, Tucson Water is strategically focused on negotiating a reduction that will meet Tucson’s water demands. Assessing enhanced conservation strategies, anticipating projected population growth, and diversifying our water supply portfolio are key metrics during negotiations.

To date, Tucson has not faced a mandatory reduction in its entitlement and is actively in consultation with Colorado River stakeholders during the reconsultation period. Reconsultation is the process of negotiating new guidelines to replace the 2007 Guidelines. The recommended changes in operations are due to be completed during 2026.



CAVSARP recharge basin, Water Bank of Tucson

II. GROUNDWATER



II. GROUNDWATER



Before the introduction of renewable water supplies from the Colorado River in the 1990s, Tucson relied entirely on groundwater. The dependence on groundwater resulted in significant declines in aquifer water levels due to over-pumping. While groundwater remains essential to Tucson's water resources, the City's 1W2100 Plan focuses on maintaining water quality, addressing emerging contaminants, and implementing sustainable management practices to restore groundwater levels in areas where they have declined.

GW-1 Partner with regional water organizations to protect the aquifer

The City, through Tucson Water, collaborates with other groundwater users in the Tucson Active Management Area (TAMA), ADEQ, ADWR, the United States Geological Survey (USGS), and Pima County's Regional Wastewater Reclamation Department and Regional Flood Control District (PCRFCD).

This collaboration focuses on monitoring, protecting, and restoring Tucson's aquifer. Ensuring compliance with state and federal statutes and environmental laws remains a continuous priority for safeguarding drinking water supplies.

Like many utilities across the nation, a portion of Tucson's groundwater resources has been impacted by Per and Polyfluoroalkyl Substances (PFAS). Development of federal regulations to address PFAS compounds in drinking water has been ongoing and evolving; regardless, addressing these compounds has been, and will continue to be, a high-priority strategy for the City.

The City worked to strengthen the integrity of the Assured Water Supply (AWS) program and participated in discussions with ADWR to protect groundwater resources. This effort included providing feedback and engaging in discussions regarding the management plan for TAMA.

The Fifth Management Plan of the Groundwater Management Act offers guidance for utilities in the Tucson area to achieve safe yield, which is defined as a long-term balance between water withdrawal and natural or artificial recharge.



Drilling groundwater well Z-013B, Northwest Wells Treatment System Project

GW-1 Action A:

Partner with ADEQ and other regional utilities to characterize groundwater contamination.



High
Priority



Ongoing

GW-1 Action C:

Consider regional solutions to address groundwater quality restoration where feasible.



High
Priority



Near-Term

Actions taken in 2025 (To support Actions A and C)

- Tucson Water continued its support for local, state, and federal efforts to characterize the extent of groundwater impacted by PFAS. Tucson Water staff participated in the Tucson International Airport Area (TIAA) Technical Working Group, which includes staff from the United States Environmental Protection Agency (EPA), Air Force, ADEQ, and Tucson Airport Authority, to support ongoing collaboration between the Air Force and regulatory partners.
The Technical Working Group was formed to establish a forum where subject-matter experts can regularly exchange technical information and collaborate to establish common environmental restoration goals. A regional solution to mitigate PFAS in groundwater will be guided by creating a universal dataset with common standards and developing a regional groundwater transport model.
- The City continues to partner with ADEQ to provide information on groundwater as part of an overall assessment of water quality. In November, Tucson Water initiated baseline monitoring for new aquifer quality standards to evaluate groundwater concentrations relative to changes in the federal maximum contaminant levels for substances such as arsenic, total trihalomethanes, bromate, chlorite, chlorobenzene, haloacetic acids, and uranium.
Samples were collected at entry points into the reclaimed system, point of compliance wells at Southeast Houghton Area Recharge Project (SHARP), the Santa Cruz River Heritage Project, as well as from SAVSARP and CAVSARP.

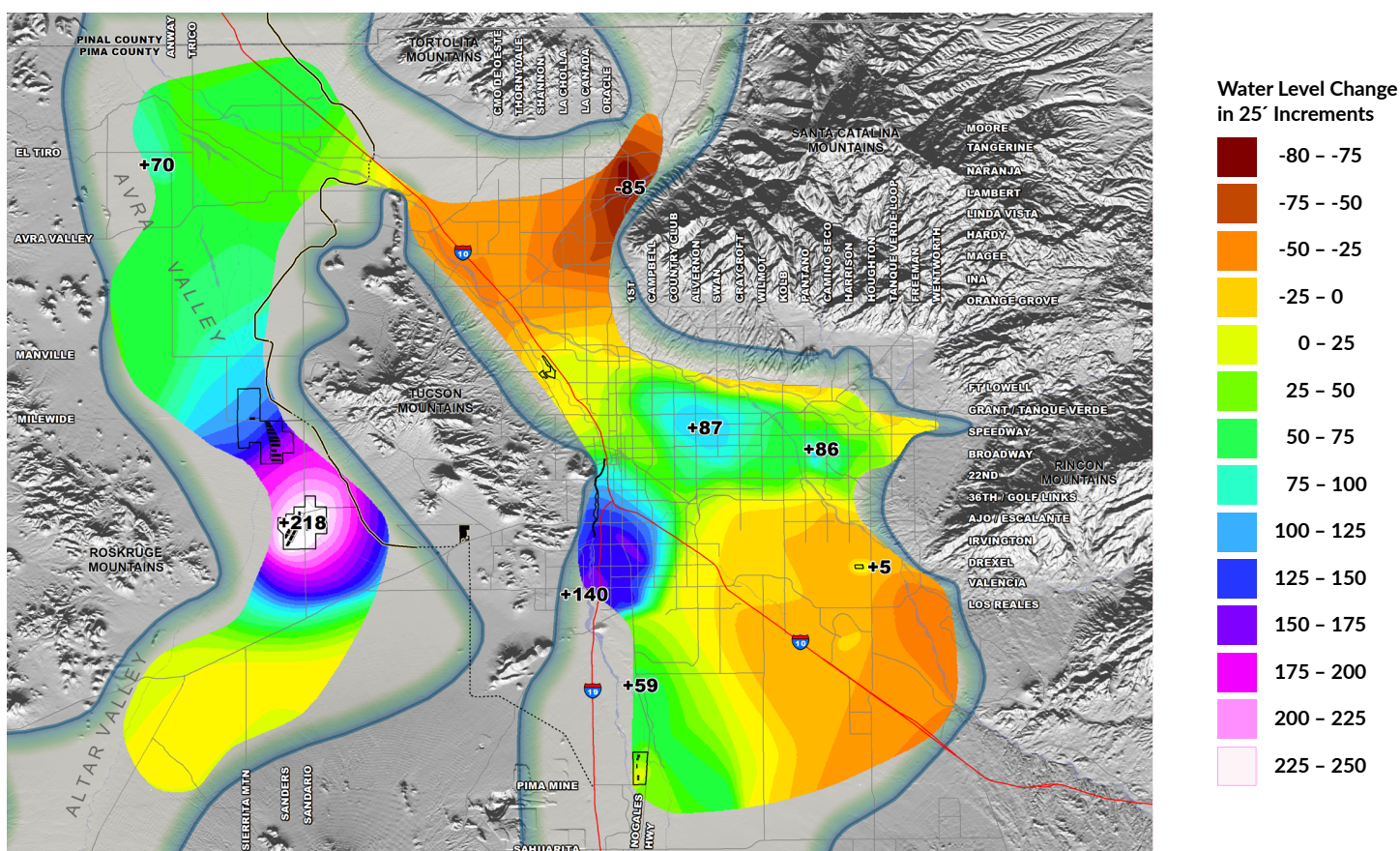
GW-1 Action B: Participate in regional efforts to achieve and maintain safe yield for the Tucson AMA.	 High Priority  Ongoing
GW-1 Action D: Expand the groundwater monitoring network to support groundwater management activities and decision-making.	 High Priority  Near-Term

Actions taken in 2025 (To support Actions B and D)

- Tucson Water Director John Kmiec participated as a member of the Governor’s Water Policy Council. The Council was established in 2023, following Governor Katie Hobbs’s Executive Order to modernize Arizona’s Groundwater Management Act. Areas of focus included strengthening the integrity of the AWS program and Rural Groundwater Management, both of which are critical for protecting and managing the state’s groundwater resources.
In June 2025, the Governor signed Senate Bill 1611, the Ag-to-Urban voluntary conservation program, which provides a framework for converting farmland to lower urban water use demands. The program was created to ensure that long-term growth is not reliant on groundwater depletion.
- The City continued collaboration with regional stakeholders to protect TAMA groundwater resources through new policy or standardized practices. Tucson Water worked with the ADWR modeling group and provided data to develop the TAMA groundwater model.
- Tucson Water staff contributed to creating a new statewide water dashboard called the Arizona Water Observatory. This tool was developed through collaboration between Arizona State University and the Lincoln Institute of Land Policy. It provides water data from various agencies to support water professionals. The goal of the Arizona Water Observatory is to simplify access to reliable data, helping users make informed decisions about water management.

- Tucson Water has been collaborating with ADWR on the City's Designation of Assured Water Supply (DAWS) application. In January 2023, the City submitted a request to modify its DAWS for an additional ten-year term. A letter of application completeness was received in 2025. The application included a detailed inventory of the City's water resources, demonstrating a one-hundred-year water supply for Tucson Water's service area. This effort aims to ensure sustainable economic and population growth.
- The City (in partnership with other regional utilities, Pima County, and ADWR) continued to contract the USGS to perform microgravity studies. Since 1992, these surveys have proved to be a highly sensitive method of tracking aquifer storage change and groundwater movement. This provides the TAMA with a reliable tool for monitoring the goal of safe yield. Data releases are posted online at: usgs.gov/centers/arizona-water-science-center
- Tucson Water monitored and shared groundwater level information from approximately 750 wells during the annual groundwater level round-up. The information is used to produce groundwater level contour maps, which provide a snapshot of the aquifer's health (supply, and locations where groundwater levels are increasing or decreasing). The groundwater levels from active wells are submitted to ADWR as part of annual reporting, and the maps with all the data are published online at: tucsonaz.gov/Departments/Water/Water-Resources-and-Drought-Preparedness
- The City continued to deliver a portion of Tucson's Colorado River entitlement to local GSFs. These efforts place less demand on local groundwater resources, thereby supporting safe yield goals.

Figure 3. Tucson Groundwater Level Change 2000-2024



GW-2 Accelerate groundwater cleanup efforts to make local supplies more available

The City has been managing groundwater cleanup efforts since the early 1980s, when the EPA listed the TIAA as a Superfund Site and closed several wells due to trichloroethylene (TCE) contamination. In response to the EPA's Record of Decision, Tucson Water constructed the Tucson Airport Remediation Project (TARP) to address groundwater remediation of TCE using the air stripping process.

In 2002, the contaminant 1,4-dioxane was identified, leading to the expansion of the remediation system to include an Advanced Oxidation Process (AOP). Contaminants of recent concern, such as PFAS, have emerged at TARP and other locations within the aquifer, requiring immediate attention. Efforts to restore areas of the aquifer are underway through multiple projects, partnerships, and funding sources, which have accelerated the clean-up activities.

The treatment systems listed in Table 2 below were chosen to achieve several key objectives: reduce groundwater contamination, manage the movement of pollutants, safeguard downgradient groundwater resources, and restore system redundancy in areas where contamination has compromised capacity.

Table 2. Groundwater Projects Budget

Project	Amount	Progress Report	SCIA Funding	AZ WIFA Grant/ Loan	ADEQ Grant	Congressional Member Directed Funding	Tucson Water CIP Funds
Randolph Park PFAS Project	Up to \$7.5 million	In progress.	✓			✓	✓
TARP PFAS Treatment Facility	\$27 million	In progress. Projected completion Summer 2026			✓		✓
Northwest Wells Treatment Project	\$33 million	In progress. Projected completion in 2030	✓	✓			✓

Note: Total project costs are estimated and will vary according to the market value of materials.



IX vessels



Installation of IX vessels at TARP

GW-2 Action A:

Implement water treatment solutions to address water quality issues from emerging contaminants.



High
Priority



Near-Term

GW-2 Action B:

Prioritize and address areas of contamination and restore availability of groundwater wells.



High
Priority



Near & Mid-Term

GW-3 Action E:

Implement advanced water treatment to address high-priority emerging water quality issues.



Medium
Priority



Mid & Long-Term

Actions taken in 2025 (To support Actions A and B and GW-3E)

- Tucson Water continues to operate the TARP treatment system, which utilizes various technologies, including Granulated Activated Carbon (GAC) treatment, AOP, and Ultraviolet (UV) Light Disinfection to clean contaminated groundwater. The design and construction of a new Ion Exchange (IX) Resin Pretreatment System for PFAS removal at TARP were based on a successful pilot test conducted in 2024.

By the end of 2025, construction of the IX Resin Pretreatment System was 40% complete, with expected completion in 2026. Once completed, the IX Resin Pretreatment System will remove PFAS concentrations from groundwater before routing it through the other TARP treatment technologies. ADEQ had allocated \$25M in funding, with the remaining costs covered by the City of Tucson/Tucson Water.

- In 2025, ADEQ operated the Central Tucson PFAS Project (CTPP) demonstration facility on an intermittent basis. CTPP recovers groundwater at Tucson Water's well C-007A, which is then processed through the IX treatment facility. The treated water is discharged at Citation Wash. During this period, approximately 80 acre-feet of groundwater was recovered and treated at the C-007A IX treatment facility. ADEQ temporarily halted operations due to funding issues but resumed them later in 2025.
- Progress continues for the Northwest Wells Treatment System Project, which aims to address groundwater wells that have been placed out of service due to PFAS contamination. The project will include extraction wells, a treatment plant, and a pipe connection to the potable system to restore up to 3.7 million gallons per day (MGD) of lost potable production. Recent activities include the construction of recovery well Z-013B, partial construction of recovery well Z-014C, and early engineering designs for the treatment system.
- Minimal progress was made on the Randolph Park PFAS treatment facility in 2025. In the future, the utility will work with ADEQ and its consultants to evaluate additional supply options and treatment system configurations to identify the most effective treatment solution. Treated groundwater will be reused beneficially.
- Tucson Water staff have been in ongoing communication with ADEQ to develop a Source Water Protection Plan for the utility. A comprehensive outline for the potable water system has been completed, including short- and long-term strategies to reduce system vulnerabilities and pollution, minimize the need for new water sources, and enhance public confidence in the quality of drinking water. Although having a Source Water Protection Plan is currently voluntary, ADEQ is offering increased information and support to public water systems throughout Arizona.

GW-2 Action C:

Fully remediate contaminated groundwater.



High
Priority



Long-Term

Actions taken in 2025

- In 2025, a new TARP recovery well, R-006B, was constructed to replace well R-006A, which was failing. Replacing old TARP groundwater recovery wells is important for ensuring consistent treatment volumes and achieving plume containment goals, especially in an area that has historically observed the highest levels of contamination.
- TARP continued operations in 2025 to fully remediate the contaminated groundwater from the TIAA Superfund site. Pursuant to the EPA amended Record of Decision, alternative uses for TARP-treated groundwater include discharging it by gravity into the Santa Cruz River and pumping it to the recycled water system.
- The Santa Cruz River has received TARP-treated groundwater under an Arizona Pollution Discharge Elimination System permit since 2021. Throughout 2025, TARP delivered approximately 724 acre-feet to the Santa Cruz River to support a small riparian habitat. The river receives approximately 250 gallons of treated water per minute.
- The recycled water system has received TARP-treated groundwater since 2023. In 2025, TARP delivered approximately 6,694 acre-feet of TARP-treated groundwater to the reclaimed system. This action is important for the hydraulic containment of the groundwater contamination plume and provides beneficial uses for the treated groundwater. It also allows time to implement ion exchange pre-treatment for PFAS contamination. Concentrations of all contaminants are monitored to verify that the treatment system is meeting the facility's treatment goals.

GW-3 Explore and invest in new treatment technologies to address unregulated, emerging water quality issues

The Sentry Program is one of the most successful voluntary programs the City has implemented to track unregulated contaminants of emerging concern (CECs). EPA's Unregulated Contaminant Monitoring Rule (UCMR) is another program that enhances Tucson's knowledge about the occurrence of emerging contaminants.

Tucson Water and City staff regularly monitor advancements in groundwater treatment technologies that target unregulated and emerging contaminants. Staff regularly attend conferences and workshops with national and global attendance that focus on water treatment and groundwater remediation technologies. Collaborating with national and regional partners is essential for staying informed about new technologies under research.

Tucson Water has participated in global forums with other utilities to share knowledge and best practices regarding challenges like those faced in Tucson. This exchange of information can save time and money in implementing local projects. The City partners with university researchers and foundations and actively participates in the Arizona chapters of nationwide water associations.

GW-3 Action A:

Monitor the development of new Federal and state water quality regulations that could affect Tucson's future groundwater utilization potential.



Medium
Priority



Ongoing

Actions taken in 2025

- On May 14, 2025, the EPA announced the final National Primary Drinking Water Regulations for six PFAS contaminants deadline would be extended from 2029 to 2031. The maximum contaminant levels (MCLs) for perfluorooctanoic acid

(PFOA) and perfluorooctyl sulfonate (PFOS) were established at 4 parts per trillion, while MCLs for other PFAS are still under evaluation.

Tucson Water continues to serve water below PFAS chemical detection and has set operational targets that exceed the future federal enforceable maximum contaminant levels. A comprehensive monitoring program ensures that the presence of PFAS in groundwater is clearly identified to determine the construction of new wells and the potential for implementing treatment.

- In 2025, Tucson Water began annual monitoring of the drinking water distribution system for PFAS, taking a proactive approach to ensure the system is free of these contaminants. This initiative complements the existing rigorous monitoring of all new production wells and the ongoing surveillance of wells that have been taken out of service due to detected concentrations. Tucson has voluntarily adopted some of the strictest monitoring guidelines in the country.
- Tucson Water completed sampling for the Fifth UCMR in 2025 under the Safe Drinking Water Act (SDWA). The EPA administers the UCMR every five years to monitor selected unregulated contaminants in drinking water systems.

Unregulated contaminants are those that may be present in drinking water but lack health-based standards established under the SDWA. The results provide a clear understanding of the occurrence of these contaminants nationwide. The Fifth UCMR involved sampling 29 PFAS and lithium. None of our sample locations detected PFAS compounds when tested using EPA labs, which have detection limits higher than those of the Tucson Water laboratory. The Fifth UCMR cycle runs from 2022 to 2026.

Access to the national dataset is available via a web link: epa.gov/dwucmr



TW staff collecting water quality sample.



TW staff performing groundwater well measurement.

GW-3 Action B:

Continue the Tucson Water Sentry Program to monitor unregulated and emerging contaminants in groundwater supplies.



Medium
Priority



Ongoing

Actions taken in 2025

- Tucson Water continues to perform voluntary water quality sampling as part of the Sentry Program to monitor CECs that may pose health risks, currently not regulated under the SDWA. Unregulated CECs may include pharmaceuticals, personal care products, and pesticides. The program started in 2008 to identify CECs in the potable and recycled distribution systems. The CEC list changes year to year based on CECs observed nationwide.

In 2025, Tucson Water assessed 131 analytes at 16 sampling sites representing different areas and facilities within the distribution system. Tucson Water will continue to enhance its Sentry Program to screen groundwater wells for PFAS compounds and protect public health from other emerging contaminants. Reports are stored on the website linked below:

tucsonaz.gov/Departments/Water/Water-Quality/Water-Quality-Monitoring/Contaminants-of-Emerging-Concern

Figure 4. CEC Sentry Program Sampling Plan-2025

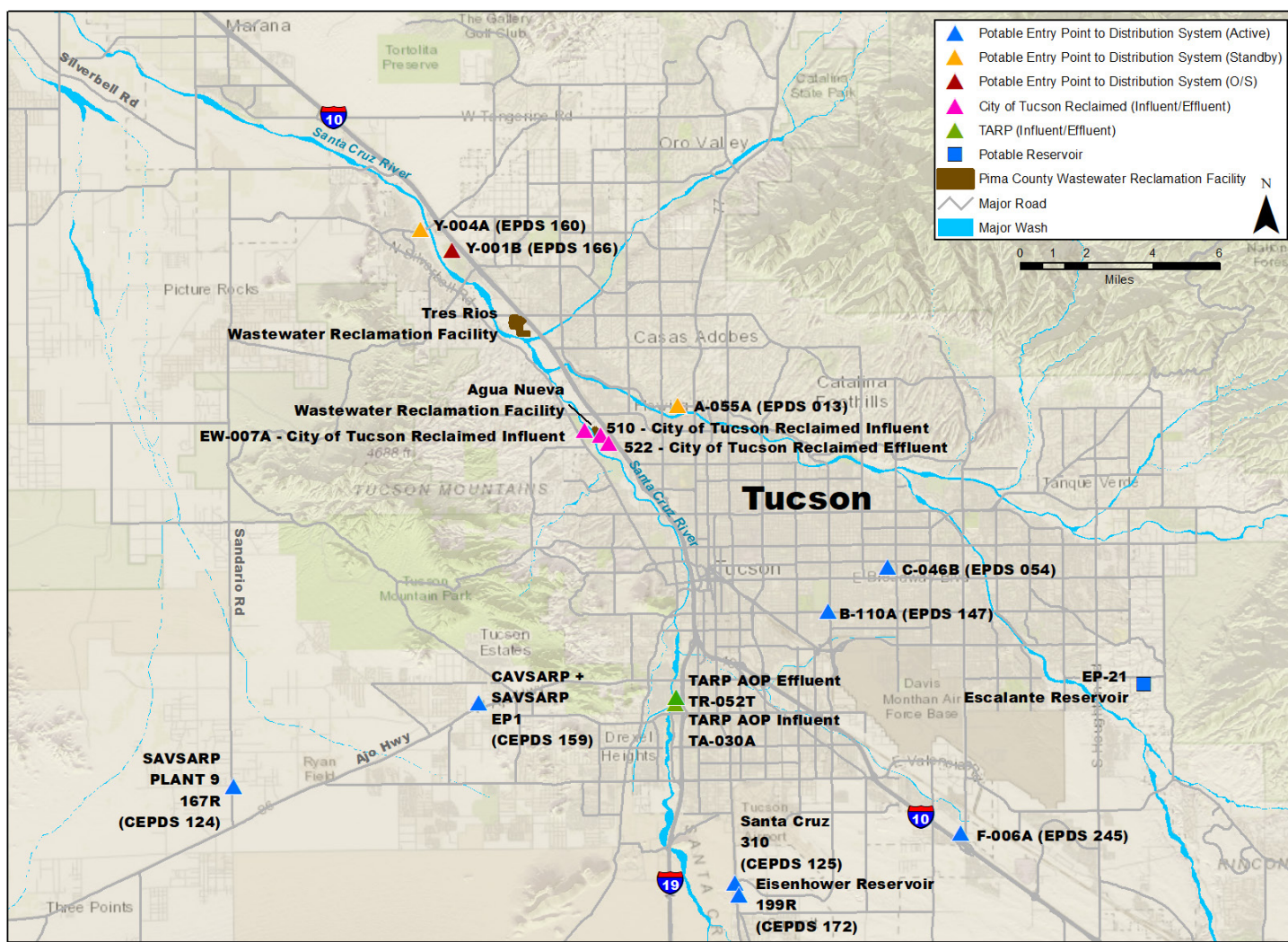
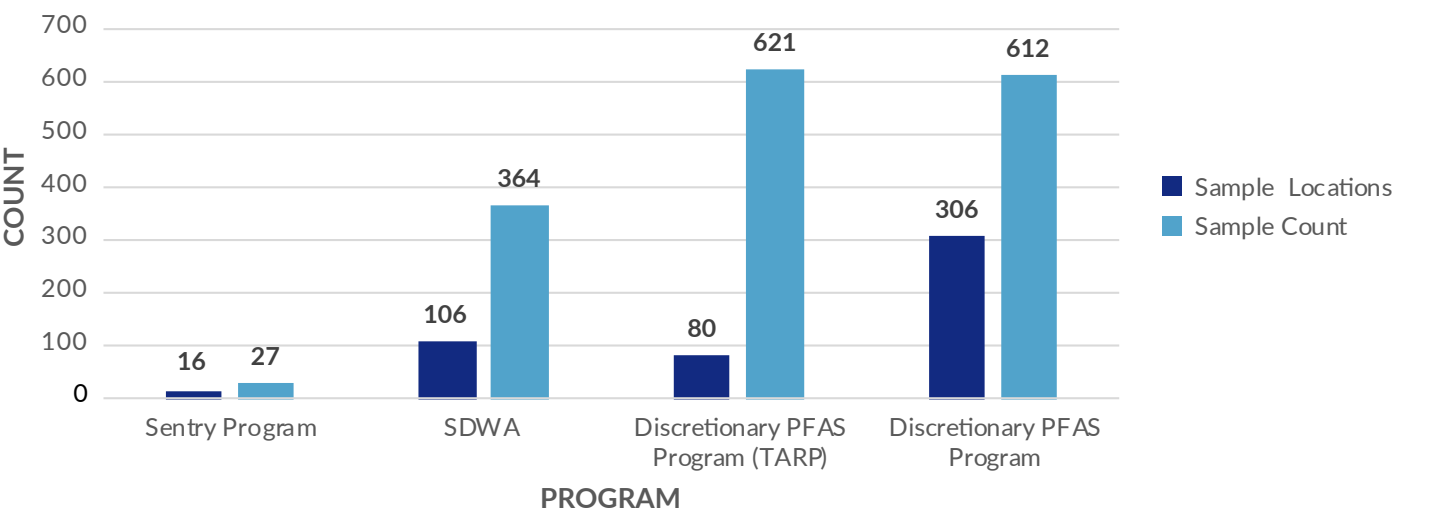


Figure 5. Count of Sample Locations and Samples Collected in 2025



GW-3 Action C:

Monitor the relative risk of emerging contaminants by comparing concentrations in groundwater supplies against Drinking Water Health Advisory levels and contamination risk for additional wells.



Actions taken in 2025

- The City continues to monitor Tucson area-wide aquifer health through the collection of groundwater samples from its active production wells under the regulation of the SDWA and National Primary Drinking Water Regulations (NPDWR). Additional groundwater quality locations are voluntarily monitored for emerging contaminants as new health advisory standards are made available and new contaminants are discovered.
- Tucson Water continues to take groundwater wells out of service upon any detection of PFAS compounds, even if the concentrations are below EPA's health advisory levels.

GW-3 Action D:

Participate in research projects to test novel treatment technologies for emerging contaminants.



Actions taken in 2025

- Tucson Water provided contaminated groundwater from well C-007A to OXbyEL Technologies, Inc. through Air Force-funded research. The research will evaluate low-cost PFAS destruction as a treatment process.
- During 2025, the EPA's spent PFAS resin pilot project was discontinued. In 2024, the City shipped approximately 10 gallons of spent resin from the ion exchange pilot project at TARP to the EPA Office of Research and Development to explore new methods for resin regeneration instead of landfill disposal or incinerating it.
- In 2025, Tucson Water and University of Arizona, Arizona Lab for Emerging Contaminants, researchers continued developing a smartphone-enabled, rapid detection method to classify PFAS contaminants in recycled water, groundwater, and drinking water samples. When compared with the laboratory results, the method successfully identified PFAS presence with 80% accuracy and determined the dominant PFAS type with 100% accuracy.

Publication: [Dip and taste PFAS to detect and classify from environmental water samples - ScienceDirect](#)

III. RECYCLED WATER



III. RECYCLED WATER

Tucson Water’s recycled water system celebrated its 40th anniversary in April 2024. In 1984, Tucson was one of the first cities in the country to begin recycling water by treating wastewater for irrigation and other non-drinking or non-potable water uses as a step to conserve groundwater.

At the right is a link to our 40th Anniversary video:



Tucson Water’s recharge and recovery system balances the demands of its reclaimed water system and is recognized globally as one of the earliest and most innovative methods for utilizing treated wastewater. This system helps to reduce the reliance on potable water sources and enhances the local water supply.

The first customer was a golf course, but the reclaimed system now delivers recycled water via purple pipes to parks, schools, municipal properties, and golf courses throughout the region, in addition to some residential customers. Any excess reclaimed water produced during the off-peak period that is not used by customers is put to good use and delivered to multiple recharge projects, replenishing the aquifer. In 2025, Tucson Water made additional investments in the reclaimed system to ensure the continued reliable delivery of high-quality recycled water.

Residents of Tucson strongly support the expansion of uses for recycled water. The City’s strategies for recycled water aim to maximize the use of this renewable resource. These strategies focus on the on-site reuse of recycled water for non-potable purposes, such as irrigation, toilet flushing, and cooling systems. Additionally, they include options for purifying recycled water to meet drinking water standards, known in Arizona as Advanced Water Purification (AWP), or previously referred to as Direct Potable Reuse.

With years of experience in operating water treatment systems like TARP, which employs many of the same technologies used for purifying recycled water, the City is well prepared to take the next steps in this process. In 2025, Pure Water Tucson, along with other communities worldwide, is investing in water purification technology to enhance drinking water supplies.

RW-1 Adopt new policies for water reuse in buildings

Onsite water reuse utilizes alternative water sources to reduce drinking water consumption for non-drinking purposes. As part of the 1W2100 Plan, Tucson Water aims to increase recycled water production and identify new customers, such as commercial, industrial, and multi-family residential properties. This may involve replumbing systems for new uses like manufacturing, cooling towers, irrigation, and toilet flushing.

The RW-1 section includes potential ordinances and outreach programs to engage these new customers, while assessing best practices and risks in expanding the recycled water customer base.

RW-1 Action A:

Research what other cities have done to promote, incentivize, and regulate onsite reuse for industrial, commercial, and large residential developments.



High
Priority



Near-Term

RW-1 Action B:

Provide regulatory and technical guidance for implementation of onsite reuse systems.



High
Priority



Near-Term

Actions taken in 2025 (To Support Actions A and B)

- In early 2025, a commercial and industrial project manager was appointed. This position primarily focuses on customer outreach, overseeing the turf replacement program, and managing customer relations for the reclaimed water system. Additional responsibilities include developing ordinances for the onsite use of recycled water, as well as creating incentives, guidelines, and training programs.
- The City is actively researching which incentives and ordinances effectively promote onsite reuse in other cities. The goal of this research is to identify successful operational and maintenance practices. Collaborative discussions will take place during conferences and through regional and national associations.
- Tucson Water continued its participation in the National Blue Ribbon Panel for Onsite Reuse through the WaterReuse Association. This group examines the safe and effective policies and procedures necessary for the development of onsite reuse applications.

RW-2 Begin purifying recycled water to drinking water standards

In 2025, draft regulations for purifying recycled water to meet drinking water standards continued to progress at the state level. The final rule, which outlines technical and operational requirements to ensure the highest standards in water treatment are met, was adopted by the Arizona Governor's Regulatory Review Council on March 4, 2025, marking a historic milestone in Arizona's water history. Implementing a treatment process to purify recycled water as a drinking water source is officially called Advanced Water Purification (AWP), and it will be carefully planned to evaluate benefits, barriers, and costs.

The ultimate objective of this strategy is to strengthen Tucson Water resiliency by beneficially reusing all available water to diversify our water portfolio with a reliable local water supply. Purifying recycled water for use as drinking water is identified as a potential long-term strategy to supplement the supplies in our 1W2100 Plan, but it is not yet a necessity.

Table 3. Recycled Water Projects Budget

Project	Amount	Project Progress Report	SCIA Funds	AZ WIFA Grant / Loan	Tucson Water CIP Funds
Demonstration Scale AWP Project	\$10,000,000 Preliminary cost	In Progress			✓
Full-Scale AWP Project	\$87,000,000	In Progress	✓		
Tres Rios Ina Road Connection	\$10,000,000	In Progress	✓	✓	✓
Shirley C. Scott Southeast Houghton Area Recharge Project (SHARP) Expansion	\$4,000,000	In Progress		✓	✓

RW-2 Action A:

Participate in the ADEQ regulation development process for direct potable reuse.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water staff have been meeting regularly with representatives from Pima County, Scottsdale, Phoenix, and ADEQ to discuss the interpretation of the AWP rule, which became effective on March 4, 2025. These meetings have focused on how to apply the guidelines of AWP as a new source of high-quality drinking water that meets or exceeds both federal and state regulatory standards. As the regulatory authority, ADEQ will provide guidance documents in the future to assist utilities with the permitting process.

RW-2 Action B:

Evaluate benefits and costs for direct potable reuse of recycled water.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water/City of Tucson was awarded funding from USBOR to design and build a 2.5 MGD AWP facility. In return, the City will conserve a total of 56,000 acre-feet of Colorado River Water over 10 years. Tucson Water's consultant has completed an initial estimate of the total project cost. This cost will be reassessed once the contractor's bid is finalized. The benefits of building an AWP plant include having a reliable, local, and drought-proof water source reducing reliance on imported water resources.

RW-2 Action C:

Survey to identify barriers to direct use of recycled water.



High
Priority



Near-Term

RW-2 Action D:

Develop a public outreach program to build confidence and support.



High
Priority



Near-Term

Actions taken in 2025 (To Support Actions C and D)

- The strategies and actions for AWP received overwhelming support during public outreach for the 1W2100 Plan. Tucson is among many communities globally investing in local water supply. In 2025, Tucson Water continued to develop a public engagement program aimed at building trust and support among community members and stakeholders.

This initiative aligns with state guidelines and is a fundamental aspect of responsible water stewardship, particularly regarding innovative water resource solutions like AWP. A key component of this public engagement effort is to encourage community participation.

The City and Tucson Water will offer multiple opportunities for individuals from various sectors to engage in the decision-making process related to all water sources, including AWP. In coordination with consultants, Tucson Water will submit the required outreach plan to meet regulatory requirements. Once the Pure Water Tucson demonstration facility is operational, public outreach will be a high priority use for that facility.



**PURE
WATER
TUCSON**

tucsononewater.com/pure-water-tucson

RW-2 Action E:

Implement demonstration-scale projects to address potential customer or stakeholder concerns.



High
Priority



Mid-Term

Actions taken in 2025

- Production from the demonstration facility will be less than 5 gallons per minute and will not contribute to the public water system. Purified water from the demonstration facility not directly used for tasting will continue to be recycled for beneficial use.

RW-2 Action F:

Implement a full-scale direct potable reuse project to fully utilize effluent recycled water as a water supply.



High
Priority



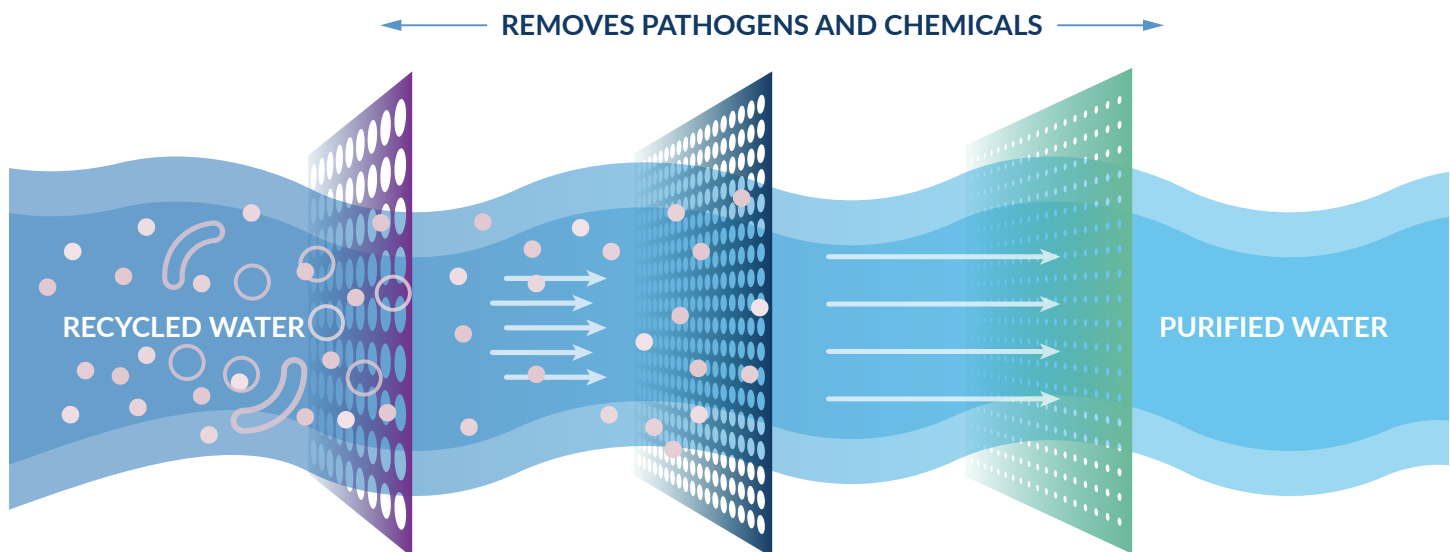
Mid-Term

Actions taken in 2025

- Tucson Water is in the process of hiring a design-builder through a progressive design-build contract. The selected design contractor is expected to be chosen in 2026. The full-scale AWP facility, which will treat and purify up to 2.5 million gallons per day, is anticipated to begin operations by 2031.

In the meantime, Tucson Water staff, in collaboration with Pima County, are sampling to characterize the feed water, studying the feasibility of different treatment options, and evaluating potential building sites. In the future, a study will be conducted to determine if the produced water has the potential to corrode pipelines.

- Tucson has engaged an independent advisory panel through the National Water Research Institute to evaluate the demonstration-scale treatment train, AWP's facility influent sampling plan, and other programmatic risks, to ensure the treatment selection provides the highest protection for our community.



A multi-step barrier system is used to remove pathogens and organics in the water; remove chemicals and byproducts from the water; and reduce water salinity to create purified water.

RW-2 Action G: Beneficially use all recycled water within the Tucson AMA.



High
Priority



Mid-Term

Actions taken in 2025

- Construction of the fourth basin at SHARP began in August 2025. SHARP stores recycled water for the benefit of aquifer replenishment in an area that has experienced declining water levels in recent years. The addition of the fourth basin increases the volume of recycled water delivered to SHARP for storage underground for future use. The project will be completed in 2026.
- An underground storage permit application for the Lower Santa Cruz River Managed Recharge Project (LSCMRP) is still under review by ADWR. Tucson Water, along with its regional partners, submitted the application in 2023. The effluent recharge project is a jointly operated facility that spans 17.9 miles along the Santa Cruz River, terminating just south of the Pinal County line. The application requests a total annual volume of 36,000 acre-feet.

The project exemplifies coordination and cooperation among agencies to effectively recharge effluent within the TAMA for the future benefit of residents.
- The engineering design for the Tres Rios Ina Road connection is currently underway, with pre-construction activities scheduled to begin in October. This project aims to establish a connection from Tres Rios at Ina Road to the existing reclaimed water distribution system on Ina Road. This initiative represents another step toward maximizing the retention and use of locally generated recycled water, which is owned by the City and produced by Pima County's Tres Rios Water Reclamation Facility.



Construction of the 4th recharge basin at SHARP

Figure 6. 2025 End Uses of Recycled Water

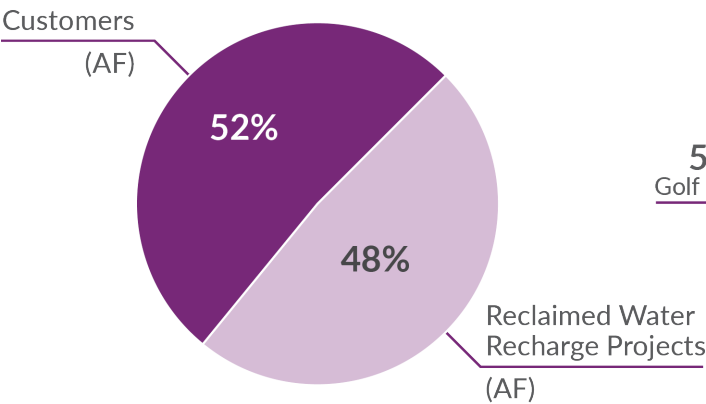
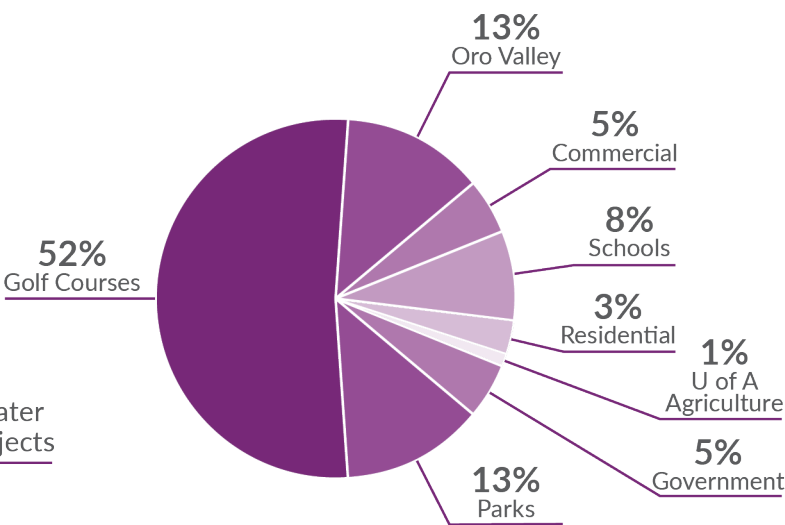


Figure 7. Recycled Water Users by Category



RW-6 Implement treatment technologies to address unregulated, emerging water quality issues

Tucson Water is implementing new treatment technologies to address unregulated emerging contaminants in recycled water. Historically, recycled water in the community has been mainly used for outdoor irrigation, which has significantly contributed to the conservation of drinking water supplies. However, as awareness of unregulated emerging contaminants grows, expanding the use of recycled water in Tucson may require additional treatment processes.

Tucson Water’s Sentry Program will continue to monitor specific locations within the recycled water system to assess the impacts and fate of these emerging (and unregulated) contaminants. An important partnership with the University of Arizona, recognized nationally for its extensive research on pathogen treatment, has also expanded to include investigations into emerging contaminants in recycled water. These studies, along with others, will help identify effective treatment technologies for customers.

Additionally, the water quality staff at Tucson Water also collaborates with research foundations and the local academic scientific community to study the latest treatment technologies.

RW-6 Action A:
Continue the Tucson Water Sentry Program to monitor emerging contaminants in recycled water.

RW-6 Action B:
Monitor the relative risk of emerging contaminants considering the end use.

Medium Priority

Near-Term

Medium Priority

Near-Term

Actions taken in 2025 (To support Actions A and B)

- The Sentry program has three, twice-a-year, sampling sites for recycled water: 1) 510, which monitors untreated influent to the Sweetwater reclamation facility; 2) 522, which monitors treated effluent from the facility; and 3) EW-007A, a Sweetwater Recharge Facility extraction well. The 2024 Sentry Program sampling at designated recycled water locations was also completed. The 2024 Sentry Program Report was released in June 2025.

RW-6 Action C:

Participate in research projects to test novel treatment technologies for emerging contaminants.



Medium
Priority



Mid-Term

RW-6 Action D:

Implement advanced water treatment to address unregulated emerging water quality issues considering the end use.



Medium
Priority



Mid-Term

Actions taken in 2025 (To support Actions C and D)

- Tucson Water collaborates with the University of Arizona's Environmental Science and Environmental and Chemical Engineering departments to evaluate remediation technologies for emerging contaminants. The Sweetwater Recharge Facility serves as an outdoor laboratory, allowing researchers to study how contaminants like PFAS and viruses move through soil. Tucson Water facilitates access for sampling at recharge basins and recovery wells, enabling the assessment of contaminant transport and the effectiveness of soil filtration.

- Tucson has renewed its membership with the Water and Environmental Technology Center, a National Science Foundation initiative focused on water and wastewater technology that is funded by public and private sector memberships.



WATER AND
ENVIRONMENTAL
TECHNOLOGY CENTER

The nationally recognized Water and Energy Sustainable Technology Center at Pima County's water reclamation facility promotes collaboration among the University of Arizona, Arizona State University, Temple University, industry, and government partners.

Collectively, the three universities and partners provide access to the latest technologies and innovative concepts that efficiently address water and environmental technology issues.

- A handheld instrument is being developed by the University of Arizona to be used to detect PFAS, chlorine, and microbiological contaminants found in recycled water. The ability to detect contaminants sooner rather than waiting for laboratory results is a benefit that can save time and money.
- In the future, a feasibility study will be conducted to determine where treatment should be implemented to address emerging contaminants in recycled water. The AWP demonstration facility will incorporate treatment technologies aimed at tackling these contaminants in recycled water.

IV. STORMWATER



IV. STORMWATER



Tucson is a leader in rain and stormwater harvesting, having implemented Green Stormwater Infrastructure (GSI) over the past 25 years through community efforts and City collaboration. Stormwater provides an essential alternative to potable and recycled water for outdoor irrigation.

Our strategies aim to integrate stormwater into the built environment, benefiting society, the economy, and the environment. This includes community education, strong institutional standards, and funding support. Continued collaboration with City departments and Pima County agencies is essential for effective flood control and stormwater management. We are dedicated to enhancing Tucson’s water sustainability through these stormwater strategies.

S-1 Explore opportunities for large scale stormwater projects with multiple benefits

The increased interest and opportunity to expand Tucson’s water supply portfolio led to the establishment of the Storm to Shade (S2S) Program. Launched by Tucson Water in 2020, the S2S Program aims to enhance the City’s water supply through stormwater harvesting. Initially introduced as a pilot initiative, the GSI fee was formally adopted by Mayor and Council in 2023, recognizing its long-term value to Tucson’s One Water management strategy. Funding for the program was further increased in 2025.

In 2022, Tucson Water expanded the program through a partnership with PCRFCD. Under an intergovernmental agreement, both entities collaborate to design, construct, fund, and maintain large-scale stormwater management projects on public lands within City limits. Tucson Water and the Parks Department oversee the landscaping, which provides environmental benefits such as reducing urban heat, supporting native ecosystems, and conserving water.

Since 2019, six projects have been constructed by the PCRFCD and maintained by Tucson Water’s S2S program, with one additional site currently under construction. Unlike smaller GSI installations, these larger projects utilize detention and retention basins, infiltration trenches, and dry wells to absorb greater volumes of stormwater.

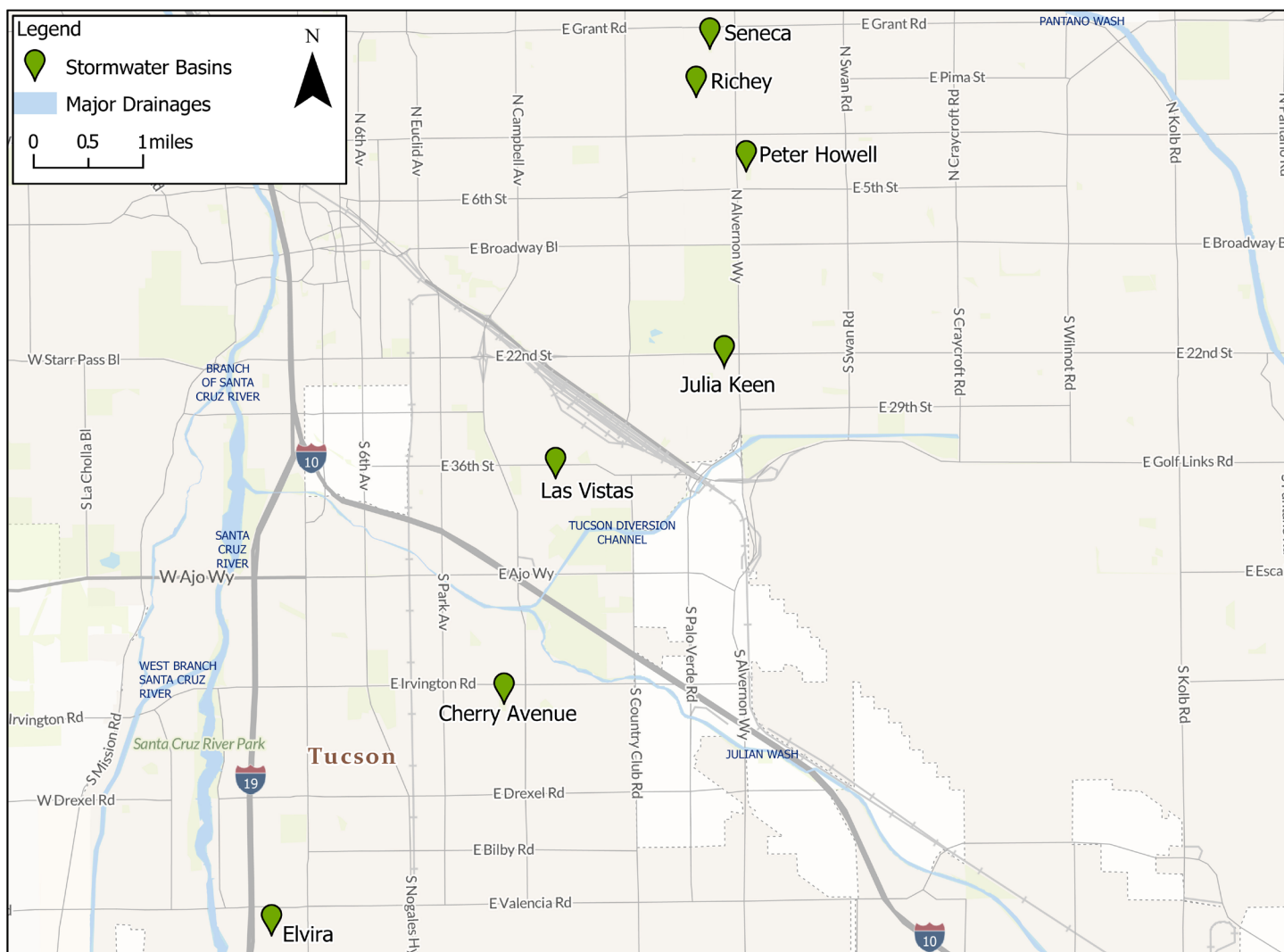
While vegetation may not be included in all designs, these systems help mitigate flooding, improve water quality, and offer the potential for aquifer recharge using a local, renewable resource. However, Arizona currently lacks a regulatory framework for awarding water storage credits for recharged stormwater.

Table 4. Stormwater Projects Budget

Project	Amount	Project Progress	Pima County RFCD Funding
Elvira Stormwater Park (El Vado)	\$1,093,055	Completed 2023	✓
Las Vistas Stormwater Park (Sunland Vista)	\$789,733	Completed 2023	✓
Peter Howell Stormwater Park (Alvernon)	\$264,532	Completed 2024	✓
Julia Keen Stormwater Park	\$TBD	Initiated 2025	✓

Note: Projects were funded and constructed by PCRFCD. These projects are maintained jointly by PCRFCD and the City’s S2S Program. S2S maintenance is funded through the GSI fee.

Figure 8. Large-Scale Stormwater Parks



S-1 Action A:

Use the Intergovernmental Agreement (IGA) with Pima County Flood Control to implement large-scale stormwater projects.



High
Priority

Ongoing

S-1 Action D:

Prioritize and implement large scale stormwater projects.



High
Priority

Mid-Term

Actions taken in 2025 (To support Actions A and D)

- The City is maintaining several existing projects in accordance with the IGA (Seneca Basin, Richey Basin, Peter Howell Stormwater Park, Cherry Avenue Park, Elvira Stormwater Park, and Las Vistas Stormwater Park). In 2025, Tucson spent \$68,861 to maintain existing projects and an additional \$2,672 for metering.

Typical maintenance involves ensuring basin inlets and outlets are functioning properly, vegetation is thriving and not obstructing critical sight lines or visibility requirements, stormwater is infiltrating within 48 hours, sites are free of trash and debris, and invasive plant species are controlled.

- Construction of Julia Keen Stormwater Park began in December 2025. The project is located within Parkview Park, a City-owned 3.5-acre neighborhood park within a section of the Citation Wash. Once completed, the project will alleviate flooding from nearby streets through stormwater capture and provide a green space, along with urban cooling benefits to the neighboring community. Three harvesting basins have a design capacity of 124,924 gallons and will be used to irrigate native trees and vegetation.
- City-County collaboration at the Rita Ranch Detention Basin continued throughout 2025. The basin captures runoff from the Rita Ranch community and anticipated future land development nearby is expected to increase the volume of water entering it. A key distinction between small-scale GSI and larger-scale stormwater capture under the IGA is that the latter employs larger detention and retention basins, infiltration trenches, dry wells, and other methods to manage and infiltrate greater volumes of stormwater into the ground.
- In 2025, Pima County installed three flow meters under the Old Vail Road bridge; meanwhile, Tucson Water's Source Water Division staff contracted a consultant to perform an electrical resistivity survey. The findings from this survey, along with the flowmeter data, will guide future stormwater management initiatives at the site. This includes identifying optimal locations for drilling a monitoring well.
- The Rita Ranch Site experienced several intense precipitation events during 2025, enabling the Source Water Division to collect and analyze stormwater samples. Source Water Division staff and USGS staff identified two locations for installing an autosampler, which will automatically collect stormwater samples when water levels in the concrete-lined channel reach a certain threshold.



Elvira Stormwater Park (El Vado) after a rain event

S-1 Action B:

Establish additional governance frameworks, funding structures, and strategies necessary for the implementation of large-scale stormwater projects.



High
Priority



Near-Term

Actions taken in 2025

- In 2025, the Mayor and Council increased the funding for GSI from 15 cents to 17 cents per one hundred cubic feet of water used, as reflected on every utility bill received by City customers. For the average residential customer, this change amounts to roughly \$1.14 more per month. The increase is expected to generate approximately \$500,000 annually to support the maintenance of GSI infrastructure.



Rita Ranch Stormwater Site after precipitation event

S-2 Integrate and align stormwater standards, policies, and practices from across the region

Stormwater has historically been underutilized compared to reclaimed, surface, or groundwater due to its unpredictability in terms of timing, quantity, and quality. Current guidelines for GSI lack consistency in installation and maintenance, making it difficult to measure the benefits of stormwater projects. The City has launched the S2S and Residential Rainwater Harvesting Rebate Programs to improve stormwater management in Tucson. These initiatives aim to establish better stormwater standards.

Additionally, a Low-Impact Development (LID) Ordinance is being developed to enhance local policies. Standardizing practices at a regional level will increase the effectiveness of stormwater projects, but it will require collaboration among various stakeholders.

S-2 Action A:

Develop standardized measures of water savings.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water estimates that the stormwater harvesting capacity of GSI assets funded by the City of Tucson is 2,143,461 gallons. In 2025, a new method of measuring stormwater harvesting capacity was used, and Tucson Water staff are in the process of finalizing and documenting the new method as a S2S Standard Operating Procedure (SOP). Implementation of the new method has improved the accuracy of stormwater harvesting capacity measurements, which resulted in a decrease in total reported capacity from 2024. Stormwater harvesting capacity measurement is voluntary.

S-2 Action B:

Establish a regional task force or working group consisting of representatives from local governments, water management entities, and relevant stakeholders.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water staff participated in workgroups, resource roundtables, and presentations with the Sonoran Urban Resilience and Green Stormwater Infrastructure Exchange (SURGE). SURGE is a peer learning network designed to facilitate knowledge sharing and promote innovation in stormwater management. The initiative addresses regional challenges across seven focus areas: policy and planning, cross-sector collaboration, community resilience and equity, climate-resilient design, conveying nature-based benefits, workforce development, and regenerative maintenance and stewardship. By 2025, SURGE included staff from Tucson Water, Pima County, the University of Arizona, the Sonoran Institute, the Watershed Management Group, and other organizations.

S-2 Action C:

Conduct an inventory and analysis of existing stormwater standards and policies across the region.



High
Priority



Near-Term

Actions taken in 2025

- A systematic review of stormwater policies was initiated during the development of the low-impact ordinance. The City and County collaborated to evaluate which policies are effective, which are ineffective, and which may conflict. They also discussed how to address the challenges posed by outdated policies. This collaborative effort will continue as they work towards creating a more streamlined stormwater program.

S-2 Action D:

Develop a toolkit or guidance document to support local governments in adopting and implementing consistent stormwater standards and policies.



High
Priority



Near-Term

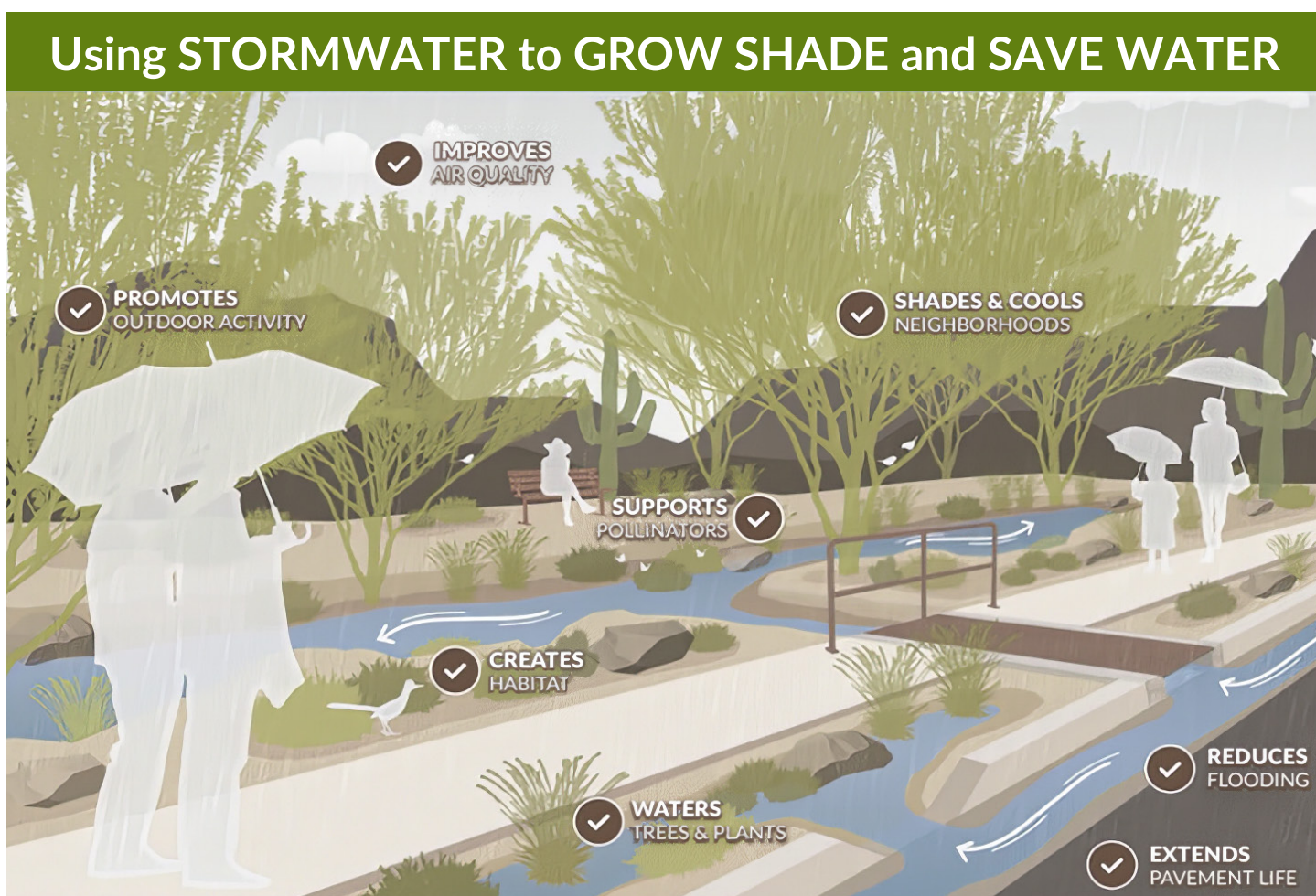
Actions taken in 2025

- As a result of the LID ordinance process, progress continued in developing resources that could support a toolkit and guidance document.

- University of Arizona conducted an empirical analysis and hydrologic modeling of four GSI parks—Cherry Avenue, Seneca, Richey, and Peter Howell—to evaluate long-term performance and post-construction management. Results showed stormwater capture varies widely by site due to local conditions; some parks retained minimal runoff, while others captured substantial volumes. Infiltration rates remained stable over the less-than-two-year study period.

Modeling and extreme event analyses indicated flood mitigation effectiveness depends heavily on rainfall intensity, with high-intensity storms exceeding basin capacity. Overall, the findings underscore the need for continued monitoring and adaptive design to strengthen resilient urban stormwater reuse strategies to guide stakeholders on standards and policies.

Figure 9. Green Stormwater Infrastructure Diagram



What is Green Stormwater Infrastructure (GSI)?

GSI is defined as landscape features that capture and infiltrate stormwater runoff from impermeable surfaces to support native vegetation.

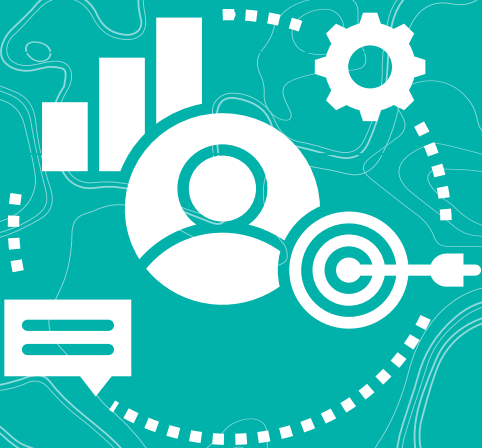
Storm to Shade (S2S)

is the City of Tucson's Green Stormwater Infrastructure Program. S2S installs and maintains GSI in public spaces throughout the City of Tucson like parks, streets, and City facilities. This work is funded by utility customers in the City of Tucson.

Why GSI?

GSI reduces the amount of municipal water needed to grow healthier plants and cool the surrounding urban environment.

V. DEMAND MANAGEMENT



V. DEMAND MANAGEMENT



Tucsonans have long embraced a culture of conservation, and Tucson Water continues to be a national leader in implementing water conservation policies and programs. Through decades of conservation initiatives, the Tucson Water service area has successfully reduced its overall water usage despite a growing population. As a result, the per capita water use has steadily decreased from 170 GPCD in 2002 to 129 GPCD in 2025.

Mayor and Council unanimously passed an ordinance that establishes regulations for large quantity water users at the August 2025 Mayor and Council meeting. Tucson has always been ahead of the curve in planning for our future, and this ordinance is aligned with that tradition.

Through its 1W2100 Plan and its supporting strategies, Tucson Water aims to assess existing conservation programs and identify opportunities for improvement while also continuing to protect vulnerable communities.

Demand management involves education, incentives, technology, and equity across the entire water portfolio, which encompasses surface water, groundwater, recycled water, and stormwater. It is essential to manage water demands fairly to adapt to changing and uncertain conditions while ensuring safe and reliable water delivery to customers. The demand management strategies aim to enhance the success of Tucson Water's conservation program.

Figure 10. Tucson's Historical Water Production

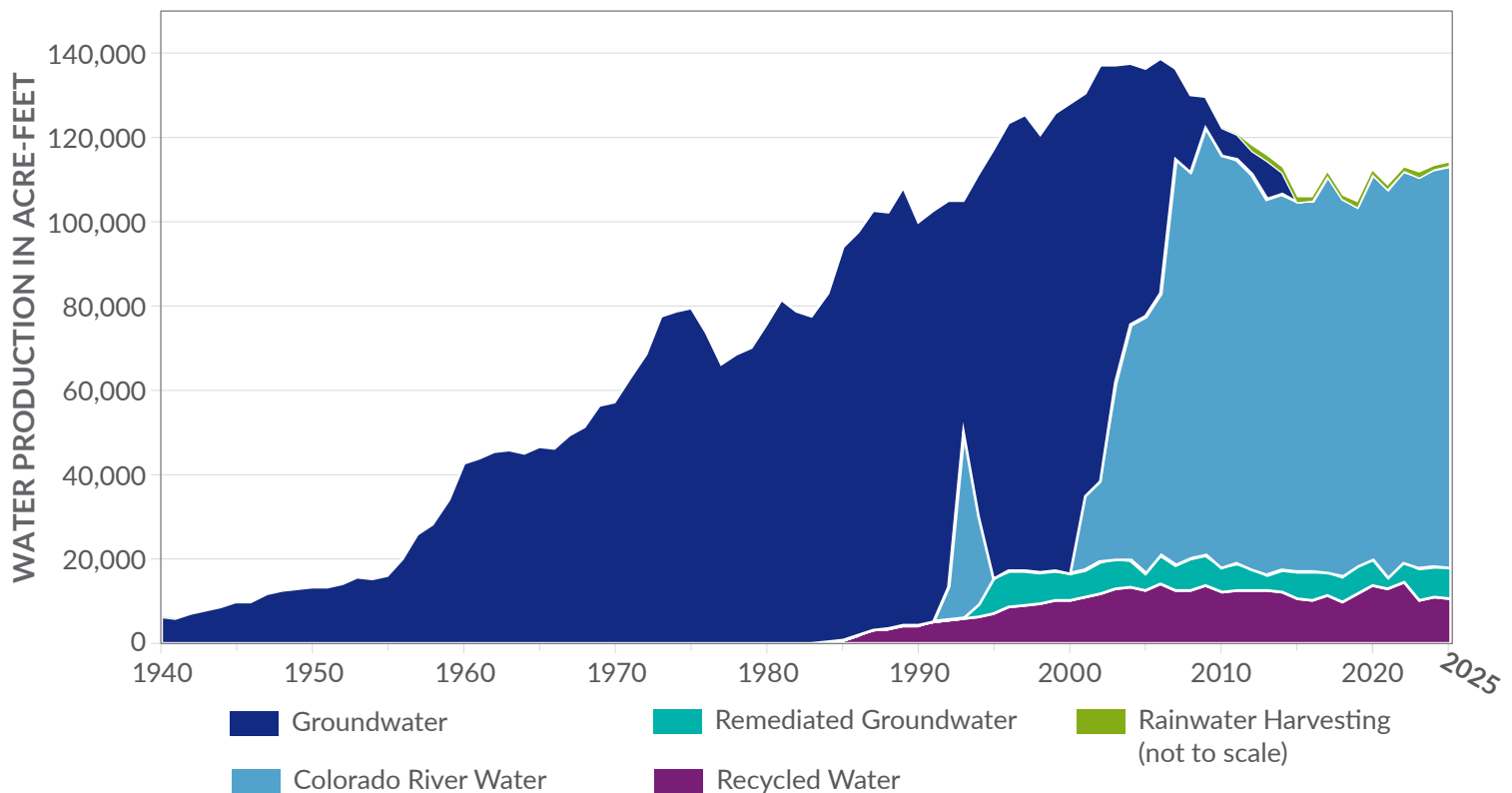


Table 5. Demand Management Projects Funding

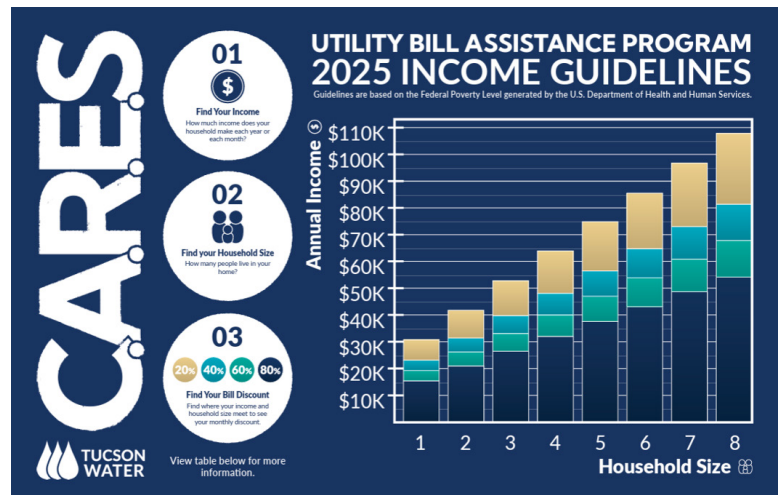
Project	Amount	Project Progress Report	Conservation Funding	AZWIFA Grant/ Loans	AZWIFA Conservation Grant	Tucson Water CIP Funding
Advanced Metering Infrastructure (AMI) Implementation Phase I and II	\$8,000,000	In progress			✓	✓
Turf Replacement & Non-functional Turf Removal Rebate Phase I	\$1,500,000	In progress	✓		✓	
Water Efficiency Retrofits for City of Tucson Affordable Housing	\$1,239,649	Grant awarded March 2024	✓		✓	
Turf Replacement & Non-functional Turf Removal Rebate Phase II	\$900,000	Grant awarded 2025			✓	
Water Efficiency Retrofits for Underserved Multi-family Customers	\$1,305,000	Grant awarded May 2024	✓		✓	
Lead Service Line Inventory	\$6,950,000	In progress		✓		✓

Demand Management – Incentive (I) Implementation Actions

I-1 Improve outreach for low-income assistance programs for homeowners and renters

Under the leadership of Mayor and Council, Tucson Water offers financial assistance that aligns with national guidelines to ensure customers have access to affordable, safe, and reliable drinking water. Tucson Water strives to improve outreach by offering bilingual customer service representatives and developing educational materials in both Spanish and English.

Tucson Water has continued its Community Assistance and Resources for Economic Stability (CARES) program. The CARES program offers financial assistance, such as monthly discounts and emergency hardship programs, and conservation resources to save money on utility bills. In 2025, the percentage of billing discounts was modified to assist a broader range of customers.



The Emergency Hardship Relief Adjustment is available for households facing emergencies, such as job loss, serious illness or injury, or the loss of an income earner. Additionally, a courtesy adjustment is provided for situations that result in high water bills due to leaks or accidents. Tucson Water CARES also offers other assistance programs to customers, regardless of their income.

tucsonaz.gov/Departments/Water/Your-Water-Bill/Financial-Assistance

Tucson Water has been actively removing older service lines on the public side and mapping this progress before the EPA 2021 Revised Lead and Copper Rule Revisions (LCRR) were established. A key element of the LCRR is public education and outreach, which includes updating the Consumer Confidence Report (CCR) to reflect advances in LCRR implementation. This initiative also involves providing public access to the service line inventory and replacement plan, as well as notifying customers in the event of exceedances and investigating the distribution system.

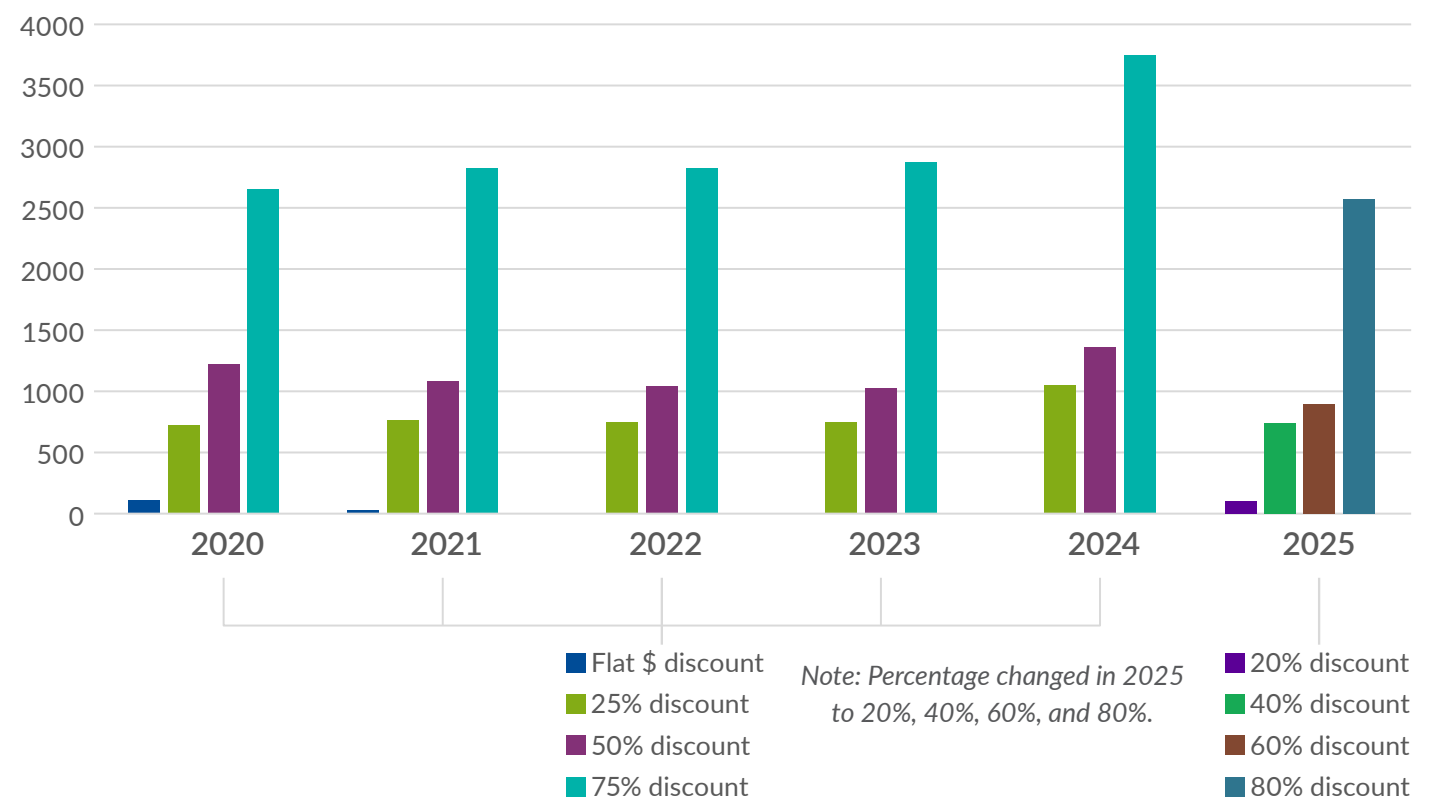
Tucson Water received funding from WIFA to develop inventories of lead service lines. These inventories will serve as a guide in the creation of a plan to replace lead service lines on private properties, ultimately improving drinking water quality for residents. This effort will also enable Tucson Water to better serve customers in low-income and disadvantaged communities.

tucsonaz.gov/Departments/Water/Water-Quality/lead-free

I-1 Action A:
Continue to monitor participation in low-income assistance programs.

 High Priority
 Ongoing

Figure 11. Low Income Program Participation



Actions taken in 2025

- Tucson Water has been actively monitoring participation in the Utility Bill Assistance Program. In 2025, the program provided \$1.8 million in customer bill discounts and distributed \$22,515 in federal low-income funds to support 4,336 eligible utility assistance customers. In October 2025, the program was expanded to increase both eligibility and discount levels, helping more households maintain access to reliable and affordable water service.
- By reducing the burden of a critical utility cost, this expansion directly advances the City’s Prosperity Initiative, Policy 3: Improve Housing Stability. The monthly discount is based on household income relative to the federal poverty level (FPL) and was recently enhanced with the addition of a fourth tier. Under the updated structure, qualifying customers receive discounts as follows: 80% at or below 100% of FPL, 60% at 125% of FPL, 40% at 150% of FPL, and 20% at 200% of FPL.
- These discount rates for qualified water, sewer, and garbage customers were established in accordance with guidelines from the U.S. Department of Health and Human Services. Additionally, Pima County adopted these new guidelines for sanitary sewer customers. The updated CARES guidelines have also expanded eligibility for the annual income assistance program to better align with the rising cost of living faced by Tucson residents.

- The Conservation team launched the WIFA Multifamily Upgrades Program, which provides funding to cover the costs of high-efficiency toilets, showerheads, bathtub diverters, kitchen and bathroom faucets, dishwashers, and clothes washers, including installation labor. This funding is available only for properties in underserved areas and aims to improve water efficiency, lower utility bills, and enhance resident comfort. The program has enrolled over 20 properties, ranging from four duplexes to apartment complexes with over 200 units. The program continues to enroll additional properties for retrofitting and will conclude when the WIFA grant funding is fully utilized, no later than the June 2026 deadline. A continuation of this program is currently being considered.
- Tucson Water, in partnership with Tucson Clean and Beautiful, initiated a pilot project targeting customers who fall into a gap income where they do not qualify as low-income but do not have disposable funds to install a rainwater harvesting system. This program is funded through a WIFA grant and is matched with Tucson Water's Rainwater Harvesting rebate program. The goal is to install 100 passive rainwater basin systems. Passive rain harvesting involves collecting rain runoff in basins or swales, which is different than active harvesting from rooftops into tanks or cisterns.



I-1 Action B:

Conduct targeted outreach to increase low-income assistance program utilization.



High
Priority

Near-Term

Actions taken in 2025

- The Conservation team collaborated with the Office of Equity to develop a tool aimed at identifying underserved areas for the WIFA Multifamily Upgrades Program. This tool utilized a subset of the Equity Priority Index, which combined multiple vulnerability factors into a single score displayed on a map. The map was categorized into five priority levels: high priority, moderate-high priority, moderate priority, low-moderate priority, and low priority. The factors considered included income, limited access to health insurance and transportation, and housing or rental cost burdens. This map layer was then overlaid with data from Tucson Water's multifamily customers. Letters were sent to customers in the high-priority and moderate-high priority areas, inviting them to participate in the program.
- Launched in September 2011, Tucson Water's Rainwater Harvesting Rebate Program encourages homeowners to install rainwater harvesting systems for landscape irrigation. The program for low-income households started in 2014 and is funded through a conservation fee applied to potable water sales. In 2025, the program supported the installation of 237 new systems, conserving approximately 14,377,375 gallons of water. Since its inception, the program has saved a total of 196,040,145 gallons, which is equivalent to 602 acre-feet. While these figures do not account for savings from systems installed outside of the rebate program, they clearly highlight the program's significant impact on water conservation.

Link to Low-Income Conservation Programs:

tucsonaz.gov/Departments/Water/Conservation/Low-Income-Conservation-Programs

- Tucson Water is enhancing its outreach efforts by employing bilingual customer service representatives and developing outreach and educational materials in both Spanish and English. The utility has engaged with local news media platforms, social media, and its website to inform customers about changes in eligibility for utility bill assistance and emergency hardship bill-reduction programs.

I-1 Action C:

Simplify the application processes for low-income assistance programs and provide customers with assistance in completing applications.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water maintained the easy-to-use CARES website to provide timely and accurate information that informs customers of their eligibility to participate in discount programs. The online application process is simplified with an easy-to-fill-in online form that requires only the minimum information and direct submission. Once submitted, a Tucson Water representative will contact the applicant within 72 hours. Tucson Water, in coordination with County representatives, will qualify customers for discounts on sewer, trash, and water at the same time. The CARES program enhances the outcomes for customers receiving assistance with their utility bills.

I-2 Increase water savings opportunities through incentive programs for residential and commercial customers

As of 2025, the Tucson community has saved over 6.5 billion gallons of water through conservation efforts over the past 17 years, thanks to various rebate programs and incentives. We are committed to ongoing improvements and are actively seeking funding to expand these initiatives. Tucson Water also supports customers who need assistance with their utility bills by providing free high-efficiency toilet replacements and discounted high-efficiency clothes washers, as high bills often indicate inefficient or leaking appliances.

During prolonged droughts or climate emergencies, it is crucial to adopt additional conservation measures. Tucson Water offers incentives for conservation, a tiered rate structure, water audits, and real-time usage information to help customers optimize their water savings.

I-2 Action A:

Continue to monitor participation rates, water savings, and return on investment for existing incentive programs.



High
Priority

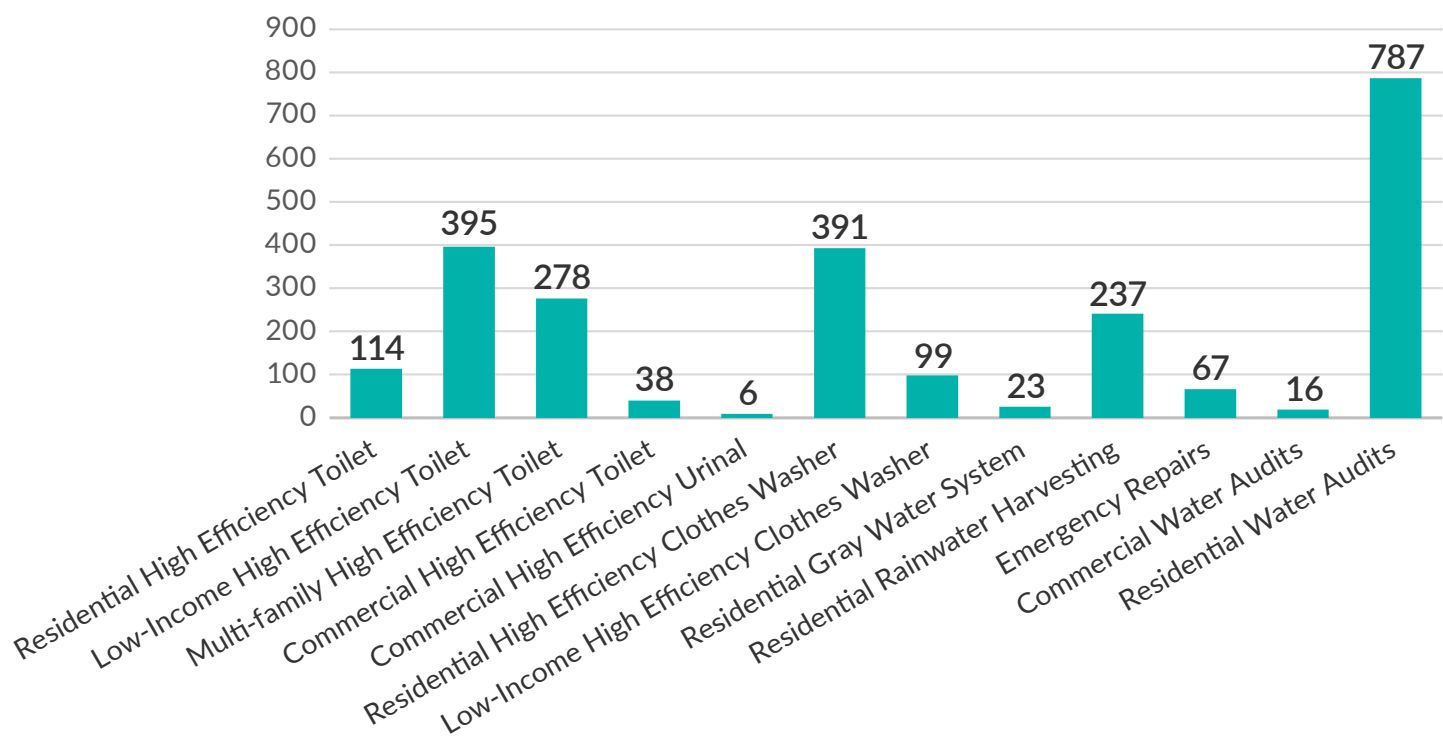


Ongoing

Actions taken in 2025

- Conservation program staff monitors the number of rebates, water savings, and cost per savings ratios in an annual report. The most recent report will be posted here upon Mayor and Council approval.
tucsonaz.gov/Departments/Water/Conservation
- The compilation of rebate data has significantly improved. Data from online forms is integrated into Microsoft Power BI daily. This interactive business intelligence platform enhances accessibility to rebate program data.

Figure 12. 2025 Annual Rebates and Audits



I-2 Action B:

Conduct targeted outreach to increase incentive program participation for high-demand customers such as multifamily complexes, Homeowners Associations (HOAs), commercial properties, schools, and other institutional customers.



High
Priority



Ongoing

Actions taken in 2025

- As part of the Drought Preparedness and Response Plan, the annual “high-use letter” campaign notifies customers who use 2.5 times more water than the average for their class or the established water use guidelines. This year, letters or emails were sent to 8,778 single-family customers, 203 multifamily customers, and 50 duplex/triplex customers, encouraging them to take advantage of conservation program resources, such as free water-efficiency check-ups and appliance rebates.

Customers who received a letter and scheduled an audit experienced an average reduction of 20% in their water usage.

I-2 Action C:

Adjust incentives, including rebates, focusing on high water use customers and customers with significant discretionary and/or outdoor water uses.



High
Priority



Near-Term

Actions taken in 2025

- A total of 120,000 square feet of ornamental, non-functional turf has been removed from multi-family, commercial, and HOA properties across 20 projects. This amount represents 60% of the 200,000 square feet goal established under WIFA. Additionally, about one-third of the projects have incorporated a rainwater harvesting component, which will collectively store nearly 10,000 gallons. The rebate also includes incentives for the installation of low-water-use trees; these incentives led to 115 trees being planted in the areas previously covered by ornamental turf. Lastly, a streamlined process for approving required landscape plans for each project was implemented in 2025, which helped turf conversion happen more frequently and efficiently.
- The conservation staff has decided to continue the turf removal rebate program; however, the incentive amount will be reduced by 50% once the WIFA funding has been exhausted. The incentives for rainwater harvesting basins and the installation of low-water-use trees will remain unchanged as we move into 2026.

tucsonaz.gov/Departments/Water/Conservation/Commercial-Multi-family-Customer-Rebates



Before turf removal



After turf removal

Demand Management – Monitoring and Mandates (MM) Strategies

M-1 Install “smart meters” that monitor water use in real-time, provide leak alerts, and inform water use habits

Advanced metering infrastructure (AMI), a system of smart meters that communicates with a customer information system (CIS) platform, has successfully demonstrated technological benefits in managing water resources for both customers and utilities. This technology allows for early detection of leaks resulting in quicker repair times reducing water loss. AMI provides customers with knowledge about their daily water usage, which can inform and empower customers to manage their water consumption leading to enhanced conservation and utility bill reduction.

In Tucson, AMI was advanced through pilot projects designed to assess customer satisfaction and the potential for water savings through conservation tracking methods. Although AMI is seen as a significant step toward enhancing conservation measures, its large-scale implementation is expensive with a projected total project cost of \$68 million.

Therefore, securing funding through grants was prioritized to help keep costs manageable for customers. Another notable benefit of AMI is the reduction of greenhouse gas emissions, as it eliminates the need to drive around to monitor 258,000 meters each month. Reductions like these will help us reach Tucson’s carbon-neutral goal by 2030.



Meter shop staff and leadership during New Meter test bench dedication

MM-1 Action A:

Conduct pilot programs to evaluate how using smart meters will affect customer consumption.



High
Priority



Near-Term

Actions taken in 2025

- The pilot project was successfully completed in 2025. A total of 100 Badger meters were installed during the pilot project to test if consistent communication with our customer information system occurred and to test programmed thresholds alerts to detect leaks. The testing demonstrated that all key components were effectively integrated when a leak alert was communicated from a smart meter to the customer information system leading to quick repair.

The pilot project provides confidence in the technology and confirms the hard work of countless hours upgrading the customer information system. The data provided from the initial pilot smart meters will continue to be evaluated over time to document water savings potential for Tucson customers.

MM-1 Action B:

Evaluate options and recommend a systems integration approach to best leverage smart meter data.



High
Priority



Near-Term

Actions taken in 2025

- Development of standard operating procedures (SOPs) and test cases were initiated as a component to standardize a consistent approach for AMI integration. SOPs will facilitate streamline data analysis, visualization practices, and data security.
- Tucson Water continued to identify business processes that will help leverage smart meters data and has completed planning efforts towards system integration of AMI technology and the utility's CIS platform using Microsoft Power BI software.

MM-1 Action C:

Implement utility-wide smart meter communication technology.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water's progress in implementing smart meter technology remains a high priority. Staff continued to work with a vendor to build an online customer portal. Customers will have private access to their portal allowing them to set up alerts and receive notifications by the system. The largest improvement for customers is the ability to view their daily usage.
- Itron's AMI Essentials for Water (Itron) was the selected infrastructure solution. Itron was contracted to implement the installation of their meter communication modules (endpoints), deploy a cellular network, and build a meter data management system.

The contract ensures that the AMI system has a 10-year full warranty on endpoints, then a prorated warranty for the subsequent 10 years through Itron. The 20-year combined warranty greatly decreases risk for TW customers.

- During a system meter assessment, Tucson Water identified 80,000 in-ground meters for replacement compatibility with AMI technology. The information guides planning during deployment phases.
- AMI deployment is planned for three phases. Phase I will focus on installation of approximately 20,000 recycled water smart meters to include City-owned meters, commercial meters, and large meters starting March 2026.

Phase II will follow later in 2026 with an additional 25,000 smart meters for high-priority residential customers.

Phase III will conclude in 2029 with deployment of the remaining 206,000 smart meters. Deployment of AMI in residential phases will be considered a priority for those customers with financial hardship.



Itron 500 W model endpoint installed on an active meter. Endpoints communicate through cellular network.

- Installation of a new meter testing bench was completed. The testing bench replaces outdated equipment and provides the ability to test the accuracy of a wider range of meters. The investment was partially funded through the AMI WIFA grant.



Meter bench test tanks save water by storing recirculated water during testing.



New meter bench improves the ability to test multiple meters including ultrasonic.

MM-1 Action D:

Develop a public action campaign to inform customers of benefits of smart meters and how to use real-time data to monitor and manage their water.



High
Priority

Near-Term

Actions taken in 2025

- Public outreach occurred on social media, newspapers, and the Tucson Water website. The website provides customers with general information about AMI, CIS, and digital utility transformation. More campaigns are being planned to provide guidance on logging into personal accounts, tracking usage, and offer background information about the AMI program.

tucsonaz.gov/Departments/Water/Dollars-at-Work/DUT

Demand Management – Education (E) Strategies

E-1 Conduct research on new technologies and approaches

Tucson's conservation programs are constantly evolving to ensure resilience in long-term water resource planning in the face of climate change. An overall broader perspective on what is possible is inspired by researching other desert-adaptive municipalities' conservation success stories. Often, this research process leads our program to identify new ideas and tools to make more informed decisions about demand management.

Tucson Water partners with research institutions and industry organizations to test new technologies via pilot programs, develop new programs, and improve current programs. Staff have been working to modernize and standardize its conservation program procedures, so they are Tucson-specific, readily available to the public, and easy for industry professionals and the community to follow. Educational engagement on conservation continues to help with water-use reduction in Tucson, as reflected by the continued low GPCD.

E-1 Action A:

Regularly research new technology and approaches used in conservation programs in other cities with similar climates.



High
Priority

Near-Term

Actions taken in 2025

- Tucson Water, along with other regional water providers, has created a website that offers information on swimming pool removal. This webpage provides details on removal options, financial benefits, a list of local contractors, and examples of projects before and after removal. It is estimated that removing an unwanted pool can save approximately 45,493 gallons of water annually.
- The conservation program hosted four pool removal workshops with about 225 attendees in total. These workshops were held in July, August, September, and October of 2025.

poolremovalhelp.org/



Before pool removal.



Pool removal beautifies and expands yard space while saving water.

E-1 Action B:

Collaborate with research institutions, including universities and other industry organizations, to advance knowledge and develop new water conservation measures.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water partnered with the Water Research Foundation on a project to collect data about indoor and outdoor uses of water for Tucson customers. Tucson Water contributed five years of water consumption data to the study and distributed a survey that received 1,821 responses from Tucson Water customers. The survey asked questions related to the number of fixtures inside customer homes and how they used water in their landscapes.
- The Alliance for Water Efficiency and the Brendle Group asked Tucson Water to participate in a Per Capita Water Use Calculation research project funded by the Water Research Foundation. Conservation program staff is participating in a technical advisory committee that will develop a standardized methodology to calculate how much water is used per person per day in specified regions, like utility service areas.
- Tucson Water partnered with PCRFC and the University of Arizona to develop residential and commercial water use baselines by combining consumption data with various land use attributes. The University of Arizona team is interested in Net Zero or water-neutral development, which is the idea that new developments are “neutral” to the water supply system by not increasing demand.
- One of the most challenging aspects of developing residential and commercial water use baselines is characterizing the types of land cover throughout the Tucson Water service area. Land cover types like turf, xeriscaping, and tree canopy are used to determine how much water is required for outdoor use. Conservation program staff worked with geospatial consultants Eagle Aerial and NV5 to create a proposal for commercial parcel water budgets.

E-1 Action C:

Develop a process for piloting new conservation technologies and evaluating their effectiveness.



High
Priority



Near-Term

Actions taken in 2025

- Tucson Water Conservation is partnering with a student from the University of Arizona’s Hydrology Department on a capstone project. This project aims to measure the actual capacity of basins and their infiltration rates. The goal is to compare the current methodologies and formulas used to assess basin capacity and infiltration, as well as to calculate the capture of one inch of rainfall from roof surfaces, which is used to determine rebate amounts.

E-1 Action D:

Conduct a conservation program review on a fixed frequency that includes a review of all existing programs and an evaluation process for new conservation ideas and suggestions.



High
Priority



Near-Term

Actions taken in 2025

- The Administrator of the Conservation and Stormwater Resources Division created a business plan that lays out detailed activities and staff resources needed to support the 1W2100 plan strategies. A needs analysis for all conservation program education, incentive, and outreach activities was conducted to ensure that all existing and proposed activities were aligned with 1W2100 strategies and actions.

- The evaluation of the water efficiency check-up program and the low-income, high-efficiency toilet replacement initiative was conducted to assess their impact on water savings. The replacement of low-income, high-efficiency toilets has resulted in an average reduction of 7.6% in water usage between 2018 and 2023. Additionally, residential water efficiency check-ups have been shown to decrease water consumption by an average of 20%.

E-2 Provide landscape training to reduce outdoor water use, with emphasis on resilient, desert-adapted landscapes

Tucson Water has been fortunate to serve a customer base that has historically exhibited a strong conservation ethic. Residential and non-residential sites that use native or desert-adaptive landscapes are commonly seen across the service area. To further advance conservation, Tucson Water partnered with the University of Arizona and launched the WaterSmart Program in 1990. The program was initially designed for homeowners to enhance the community's conservation ethic.

However, shortly after its inception, a need for training specifically tailored to landscape professionals was recognized, leading to the creation of the Smartscape Program. In 26 years, Smartscape has trained over 4,800 landscape professionals and provided classes to over 6,300 community members. Education and training opportunities continue to be an effective demand management strategy for outdoor water conservation, targeting residential homeowners through Zanjero water audits, workshops, public events, and the desert dweller guide.

Visit tucsonwaterrunsdeep.org/conservation for more tips.

E-2 Action A:

Continue to update and promote desert-adapted landscaping manual and landscape watering guidelines with digital distribution on City's website, brochures at landscaping stores, and in-person outreach at public events.



Medium
Priority



Ongoing

Actions taken in 2025

- Postcards about winter overseeding were sent to over 20 property management companies to inform property managers about the drawbacks of overseeding with winter rye grass. This campaign will be expanded in 2026, running from August to November, when most overseeding decisions are typically made by property managers.
- Tucson Water's monthly customer outreach newsletter, "Water Matters", offers monthly conservation messages and periodic feature articles on ways to conserve water, such as applying for rebates for turf replacement, planting native trees that require less irrigation water, stormwater runoff mitigation, and reduced contaminant loads to washes and arroyos.
- Rainwater harvesting signage was updated and offered to customers to display at their homes, helping celebrate their systems while promoting sustainable, water-efficient outdoor practices within their neighborhoods and communities. The signs are available in Spanish and were delivered and installed across multiple Wards.



E-2 Action B:

Provide landscape training to landscapers and green industry professionals who design, install, and manage landscapes.



Medium
Priority



Ongoing

Actions taken in 2025

- The Smartscape Program, in partnership with the University of Arizona's Cooperative Extension, facilitated a workforce development program. In 2025, 84 classes were held for 363 landscape professionals, including City personnel. A three-day bootcamp for City personnel responsible for City landscapes was redeveloped as Smartscape for Public Spaces.
- Storm to Shade has 13 maintenance contractors. They are all required to take Smartscape training; this extra step ensures consistent landscape methods throughout the City, reducing plant replacement cost while producing healthy shading plants.
- Tucson Water worked with the Watershed Management Group to revamp residential rainwater harvesting customer classes and hosted a workshop to update and train rainwater harvesting contractors on best practices and current rebate requirements.



City of Tucson staff attending the Smartscape Program bootcamp. Photo courtesy of Pima Smartscape.

E-2 Action C:

Partner with homeowner associations (HOAs) to promote water-efficient landscaping practices in common areas.



Medium
Priority



Actions taken in 2025

- The HOA Landscape Transformation Pilot Program, a collaboration between Tucson Water and the University of Arizona's Smartscape Program, ended in 2025. Five different HOAs participated in the program and received grant funding. Two of these HOAs took it a step further by applying for a turf removal rebate.
- Sixteen homeowner associations (HOAs) have applied for turf removal rebates, with eight of them successfully receiving the rebates. In 2025, these HOAs removed nearly 70,000 square feet of ornamental grass. As part of the program, participating HOAs were required to install low-water-use landscape materials and typically replaced their aging irrigation systems with more efficient watering systems. Additionally, conservation staff provided education to the HOA boards and their contractors on appropriate watering schedules for the new landscapes.

E-2 Action D:

Conduct residential landscaping retrofit workshops to educate homeowners on desert adaptive landscaping practices.



Medium
Priority



Actions taken in 2025

- Tucson Water continues to partner with Watershed Management Group and Sonoran Environmental Research Institute to facilitate rebate workshops, which are offered for free to any interested resident, online and in person, in English and Spanish.

Link to workshops: tucsonaz.gov/Departments/Water/Conservation/Residential-Customer-Rebates

VI. MONITORING AND EVALUATION

The actions and strategies outlined in this report will be monitored using various metrics specific to each water type evaluated in the demand management section. This includes annual tracking of groundwater production, surface water, recycled water, conservation rebates, and affordability. While the monitoring processes for these metrics are well established, the methods for tracking stormwater harvesting and large-scale recharge solutions are still being refined or developed.

In the coming years, the metrics related to agency collaboration and community engagement will become more quantifiable.

Community engagement is crucial for the successful implementation of Tucson's One Water program. It is important to understand how and why communication efforts are effective in a constantly evolving technological environment, as this knowledge enhances information exchange throughout the community.

Tucson will continue to invest in solar projects and explore the application of other types of renewable energy, such as in-pipe power generation, as water flows through selected areas of our distribution system.

Tucson Water uses the following metrics to track progress on its 1W2100 Plan.

Table 6. Metrics to Track Progress

Metric	Metric Description
<u>Annual Potable Production</u>	<i>Amount of recovered water produced and served to customers.</i>
<u>Annual Reclaimed Production</u>	<i>Amount of reclaimed water served to customers and the end uses of reclaimed water.</i>
<u>Annual Volume of Harvested Stormwater</u>	<i>The S2S program improved the method for measuring the capacity of green stormwater infrastructure projects.</i>
<u>Annual Groundwater Savings</u>	<i>The annual volume of groundwater stored by Tucson Water, CAGRD, and AWBA.</i>
<u>Historic Production Chart</u>	<i>Total volume of water produced by the utility annually broken down by the source of water (surface water, groundwater, recycled water, and stormwater), as well as relative proportions of each water source.</i>
<u>Gallons per Capita per Day</u>	<i>Annual GPCD, a common metric for comparing annual water use and water conservation effectiveness.</i>
<u>Conservation Program Rebates and Incentives</u>	<i>Number of customers who take advantage of water efficiency programs (e.g., annual number of rebates or audits) and the level of water savings achieved through those programs.</i>
<u>Affordability</u>	<i>Number of low-income customers who receive assistance annually and the associated assistance funding and customers demographics.</i>
<u>Agency Collaboration</u>	<i>Number and type of collaborative efforts with other agencies and organizations, such as the number of meetings held, the level of participation, and the quantitative outcomes of the collaborations, such as number of multi-benefit projects, number of new collaboratively developed water policies.</i>
<u>Community Engagement</u>	<i>One Water 2100 feedback, presentations, and public events.</i>
<u>Greenhouse Gas Emissions</u>	<i>Tucson Water's Greenhouse Gas Emissions inventory will be shared with the team that implements Tucson Resilient Together (the City's Climate Adaption and Action Plan).</i>

The last metric monitored by the City is greenhouse gas (GHG) emissions. Tucson Water recognizes that transporting water is energy-intensive and is implementing its own measures to reduce GHG emissions in line with the City's objectives. The department has taken proactive measures to lower the carbon footprint of water transportation by installing solar facilities at well sites, reservoirs, and recharge facilities to offset electricity consumption. Since 2020, the City has deployed solar panels with a total capacity of 7,325.46 kilowatts direct current (kWdc).

In addition, the Tucson Water solar installation at CAVSARP was finalized in 2025, marking the largest of its kind in Arizona, with a system capacity of 8,602.20 kWdc. This 1.16 million-square-foot array includes 16,725 solar modules and is projected to generate 514.42 gigawatt-hours of renewable energy over 28 years. The project was completed without upfront costs to the City and is expected to save \$3,368,344 in energy expenses over its lifetime.

Four additional projects are either under contract or under construction, adding 2,404.32 kWdc. Tucson remains committed to expanding solar initiatives and exploring other renewable energy sources, alongside strategies to combat extreme heat within the City.



Tucson Water Solar Project

Unpredictable climate conditions pose challenges to water supply management. Tucson Resilient Together is addressing climate change through various initiatives aimed at mitigating excessive heat. In 2020, Tucson launched the “Plant a Million Trees by 2030” campaign, which continued through 2025. This initiative targets underserved areas where investments to reduce the urban heat island effect are lacking.

The Mayor's Office, Urban Forestry Program, and community partners are actively supporting the Tucson Million Trees effort. Since 2020, approximately 200,000 trees have been planted or distributed across Tucson neighborhoods to promote Tree Equity. The launch of the City's TREECenter and the USDA-funded Grow Tucson urban forestry project has significantly amplified these efforts. In 2025, Tucson and its partners planted 20,514 trees.

The S2S Program's stormwater harvesting projects supplement water supplies to support healthy urban forests, demonstrating the collaborative efforts of various City departments for community benefit. Tucson is also investing in solar power and electric vehicle charging stations and has adopted the Resilient Southwest Building Code. Furthermore, Tucson's Climate Action Hub, established by Tucson Resilient Together, provides comprehensive information on the City's sustainability goals, initiatives, and progress toward a resilient future.

ClimateAction.TucsonAZ.gov

The submission of the third implementation report provides documentation on the progress of incorporating the 1W2100 Plan approach to value and responsibly manage all water resources. The guiding principles for Tucson's 1W2100 Plan are a commitment to resilience, equity, stewardship, and quality of life. The strategies and actions support the guiding principles through planning, education, incentives, and technology. For questions and comments on this 1W2100 Plan Implementation report, please email Tucson Water at 1W2100@tucsonaz.gov.

APPENDIX 1: LIST OF STRATEGIES

Supply - Surface Water (SW) Strategies

Strategy	Strategy Description
SW-1	Maximize the benefits of our current Colorado River water.
SW-2	Work with the State of Arizona to explore additional water supplies for the Central Arizona Project.
SW-3	Advocate for Tucson's allocation of Colorado River water through the Central Arizona Project in state and federal negotiations.

Supply - Groundwater (GW) Strategies

Strategy	Strategy Description
GW-1	Partner with regional water organizations to protect the aquifer.
GW-2	Accelerate groundwater cleanup efforts to make local supplies more available.
GW-3	Explore and invest in new treatment technologies to address unregulated, emerging water quality issues.

Supply - Recycled Water (RW) Strategies

Strategy	Strategy Description
RW-1	Adopt new policies for water reuse in buildings.
RW-2	Begin purifying recycled water to drinking water standards.
RW-6	Implement treatment technologies to address unregulated, emerging water quality issues.

Supply - Stormwater (S) Strategies

Strategy	Strategy Description
S-1	Explore opportunities for large scale stormwater projects with multiple benefits.
S-2	Integrate and align stormwater standards, policies, and practices across the region.

Demand Management - Incentive (I) Strategies

Strategy	Strategy Description
I-1	Improve outreach for low-income assistance programs for homeowners and renters.
I-2	Increase water savings opportunities through incentive programs for residential and commercial customers.

Demand Management - Monitoring and Mandates (MM) Strategies

Strategy	Strategy Description
MM-1	Install “smart meters” that monitor water use in real time, provide leak alerts, and inform water use habits.

Demand Management - Education (E) Strategies

Strategy	Strategy Description
E-1	Conduct research on new technologies and approaches.
E-2	Provide landscape training to reduce outdoor water use, with emphasis on resilient, desert adapted landscapes.

APPENDIX 2: STRATEGIES & ACTIONS PROGRESS

Supply - Surface Water (SW) Strategies

Strategy & Action	Action Description	Action Progress
SW-1 Action A	Continue to fully utilize Colorado River water with the use of CAVSARP, SAVSARP, Pima Mine Road Recharge Project, and groundwater savings facilities.	Ongoing 
SW-1 Action B	Annually update projected balance of groundwater storage credits to inform the adaptive management of Plan strategies.	Ongoing 
SW-1 Action C	Maintain and renew/replace infrastructure for storage and delivery of full Colorado River allocation.	Ongoing 
SW-1 Action D	Utilize groundwater storage credits as short-term transitional supplies during Colorado River allocation shortages while additional supplies are acquired, restored, and/or developed.	Initiated 
SW-1 Action E	Develop implementation triggers for alternative supplies and enhanced conservation measures to prepare for extended Colorado River allocation shortages.	Initiated 
SW-2 Action A	Collaborate with CAP, ADWR, and other Arizona utilities to improve regional cooperation on water issues.	Ongoing 
SW-2 Action B	Work proactively with CAP, ADWR, and other Arizona utilities to explore the availability, water quality, accessibility, and cost of alternative water resource options.	Ongoing 
SW-3 Action A	Actively participate in negotiations about how Colorado River water will be shared.	Ongoing 
SW-3 Action B	Participate in collaborative efforts to reduce the risk of Lake Mead falling to critical levels.	Ongoing 

Supply - Groundwater (GW) Strategies

Strategy & Action	Action Description	Action Progress
GW-1 Action A	Partner with ADEQ and other regional utilities to characterize groundwater contamination.	Ongoing 
GW-1 Action B	Participate in regional efforts to achieve and maintain safe yield for the Tucson AMA.	Ongoing 
GW-1 Action C	Consider regional solutions to address groundwater quality restoration where feasible.	Initiated 
GW-1 Action D	Expand groundwater monitoring network to support groundwater management activities and decision-making.	Initiated 

Strategy & Action	Action Description	Action Progress
GW-2 Action A	Implement water treatment solutions to address water quality issues from emerging contaminants.	Initiated 
GW-2 Action B	Prioritize and address areas of contamination and restore availability of groundwater wells.	Initiated 
GW-2 Action C	Fully remediate contaminated groundwater.	Initiated 
GW-3 Action A	Monitor the development of new Federal and State water quality regulations that could affect Tucson's future groundwater utilization potential.	Ongoing 
GW-3 Action B	Continue the Tucson Water Sentry Program to monitor unregulated and emerging contaminants in groundwater supplies.	Ongoing 
GW-3 Action C	Monitor the relative risk of emerging contaminants by comparing concentrations in groundwater supplies against Drinking Water Health Advisory levels and contamination risk for additional wells.	Ongoing 
GW-3 Action D	Participate in research projects to test novel treatment technologies for emerging contaminants.	Initiated 
GW-3 Action E	Implement advanced water treatment to address high-priority emerging water quality issues.	Initiated 

Supply - Recycled Water (RW) Strategies

Strategy & Action	Action Description	Action Progress
RW-1 Action A	Research what other cities have done to promote, incentivize, and regulate onsite reuse for industrial, commercial, and large residential developments.	Initiated 
RW-1 Action B	Provide regulatory and technical guidance for implementation of onsite reuse systems.	Initiated 
RW-1 Action C	Create incentives for onsite reuse in commercial and industrial properties.	Planning 
RW-1 Action D	Develop a targeted outreach campaign to garner interest from commercial, industrial, and multifamily residential customers to participate in a pilot program.	Planning 
RW-1 Action E	Implement pilot programs for commercial and industrial customers.	Planning 
RW-1 Action F	Develop training programs for the operation and maintenance of onsite reuse.	Planning 
RW-1 Action G	Develop ordinance for onsite non-potable water programs, including design criteria, permitting, reporting, and enforcement.	Planning 

Strategy & Action	Action Description	Action Progress
RW-1 Action H	Develop criteria to require onsite reuse for certain water uses in commercial and industrial properties.	Planning 
RW-2 Action A	Participate in the ADEQ regulation development process for direct potable reuse.	Initiated 
RW-2 Action B	Evaluate benefits and costs for direct potable reuse of recycled water.	Initiated 
RW-2 Action C	Conduct a survey to identify barriers to direct use of recycled water.	Initiated 
RW-2 Action D	Develop a public outreach program to build public confidence and support.	Initiated 
RW-2 Action E	Implement demonstration-scale projects to address potential customer or stakeholder concerns.	Initiated 
RW-2 Action F	Implement a full-scale direct potable reuse project to fully utilize effluent recycled water as a water supply.	Planning 
RW-2 Action G	Beneficially use all recycled water within the Tucson AMA.	Initiated 
RW-2 Action H	Implement advanced water treatment to address high-priority emerging water quality issues.	Planning 
RW-6 Action A	Continue the Tucson Water Sentry Program to monitor emerging contaminants in recycled water.	Initiated 
RW-6 Action B	Monitor the relative risk of emerging contaminants considering the end use.	Initiated 
RW-6 Action C	Participate in research projects to test novel treatment technologies for emerging contaminants.	Initiated 
RW-6 Action D	Implement advanced water treatment to address unregulated emerging water quality issues considering the end use.	Planning 

Supply - Stormwater (S) Strategies

Strategy & Action	Action Description	Action Progress
S-1 Action A	Use the intergovernmental agreement with Pima County Flood Control to implement large scale stormwater projects.	Ongoing 
S-1 Action B	Establish additional governance and funding structures and strategies necessary to implement large scale stormwater projects.	Initiated 
S-1 Action C	Conduct a study to identify areas that have the greatest potential for implementing large scale stormwater projects with multiple benefits.	Initiated 
S-1 Action D	Prioritize and implement large scale stormwater projects.	Initiated 
S-2 Action A	Develop standardized measures of water savings.	Initiated 
S-2 Action B	Establish a regional task force or working group consisting of representatives from local governments, water management entities, and relevant stakeholders.	Initiated 
S-2 Action C	Conduct an inventory and analysis of existing stormwater standards and policies across the region.	Initiated 
S-2 Action D	Develop a toolkit or guidance document to support local governments in adopting and implementing consistent stormwater standards and policies.	Initiated 

Demand Management - Incentive (I) Strategies

Strategy & Action	Action Description	Action Progress
I-1 Action A	Continue to monitor participation in low-income assistance programs.	Ongoing 
I-1 Action B	Conduct targeted outreach to increase low-income assistance program utilization.	Completed 
I-1 Action C	Simplify the application processes for low-income assistance programs and provide customers with assistance in completing applications.	Completed 
I-2 Action A	Continue to monitor participation rates, water savings, and return-on investment for existing incentive programs.	Ongoing 
I-2 Action B	Conduct targeted outreach to increase incentive program participation for high-demand customers such as multifamily complexes, HOAs, commercial properties, schools, and other institutional customers.	Ongoing 
I-2 Action C	Adjust incentives, including rebates, focusing on high water use customers and customers with significant discretionary and/or outdoor water uses.	Initiated 

Demand Management - Monitoring and Mandates (MM) Strategies

Strategy & Action	Action Description	Action Progress
MM-1 Action A	Conduct pilot programs to evaluate how using smart meters will affect customer consumption.	Completed 
MM-1 Action B	Evaluate options and recommend a systems integration approach to best leverage smart meter data.	Initiated 
MM-1 Action C	Implement utility wide smart meter communication technology.	Initiated 
MM-1 Action D	Develop a public education campaign to inform customers of the benefits of smart meters and how to use real-time data to monitor and manage their water use.	Initiated 
MM-1 Action E	Use smart meter data to improve conservation measure effectiveness tracking.	Planning 
MM-1 Action F	Use smart meter data to create standards against which residential customers can measure their own usage.	Planning 

Demand Management - Education (E) Strategies

Strategy & Action	Action Description	Action Progress
E-1 Action A	Regularly research new technology and approaches used in conservation programs in other cities with similar climates.	Initiated 
E-1 Action B	Collaborate with research institutions, including universities and other industry organizations, to advance knowledge and develop new water conservation measures.	Initiated 
E-1 Action C	Develop a process for piloting new conservation technologies and evaluating their effectiveness.	Initiated 
E-1 Action D	Conduct a conservation program review on a fixed frequency that includes a review of all existing programs and an evaluation process for new conservation ideas and suggestions.	Initiated 
E-1 Action A	Continue to update and promote desert-adapted landscaping manual and landscape watering guidelines with digital distribution on City's website, brochures at landscaping stores, and in-person outreach at public events.	Ongoing 
E-2 Action B	Provide landscape training to landscapers and green industry professionals who design, install, and manage landscapes.	Ongoing 
E-2 Action C	Partner with homeowner associations to promote water-efficient landscaping practices in common areas.	Ongoing 
E-2 Action D	Conduct residential landscaping retrofit workshops to educate homeowners on desert adaptive landscaping practices.	Initiated 



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