



## **Utility Profile & Water Conservation Plan for Municipal and Wholesale Water Use**

*Developed to Meet Requirements  
Outlined in 30 TAC § 288.2 and § 288.5*

**May 1, 2019**

**Austin Water  
City of Austin, Texas  
PWS # TX2270001**



## Utility Profile & Water Conservation Plan

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Austin Water prepared this Utility Profile & Water Conservation Plan for Municipal and Wholesale Water Use to comply with Title 30 Texas Administrative Code §288.2 and 288.5. The utility profile is used to convey information about the City of Austin's (the City's) water and wastewater system to the Texas Commission on Environmental Quality (TCEQ). The water conservation plan provides an overview of Austin's current and future water conservation initiatives within the framework recommended by forms TCEQ-10218 and 20162.

## UTILITY PROFILE

### POPULATION & SERVICE AREA DATA

The City's service area includes City retail customers and wholesale customers. Several wholesale customers' service areas extend outside the City's service area because of the wholesale customer's infrastructure design and layout, operational limitations, or water supply demands.

Current Service Area Data			
	Retail	Wholesale	Total
Water Service Area Size (square miles)			
	242.98	Wholesale Service: 32.74 Emergency Service Only: 13.40 Total: 46.14	289.12
Current Population Served			
Water Service	1,015,642	62,280	1,077,922
Wastewater Service	993,054	55,320	1,048,374

Historical Population Served			
	Water - Retail	Water - Wholesale	Wastewater*
2018	994,752	60,999	1,026,203
2017	973,338	59,686	1,003,476
2016	954,648	58,540	977,053
2015	926,624	56,822	947,943
2014	896,363	54,966	917,416

\*Wastewater served population includes retail and wholesale estimates

Projected Service Area Population			
	Water - Retail	Water - Wholesale	Wastewater
2020	1,050,239	51,393	1,071,212
2030	1,280,236	62,648	1,305,802
2040	1,510,239	67,521	1,533,707
2050	1,731,187	77,399	1,758,088
2060	1,963,397	87,781	1,993,907

Service area size was determined through a Geographic Information System process identifying served parcels.

Historical and current served population is based on the City Demographer's estimate of the City's population (*within the City's limited and full purpose jurisdictions*) and the population of the surrounding counties. This estimate is updated annually. Projected population is estimated by using growth rate projections developed by city demographer for total served water population in 2016 for the Water Forward planning project. The same growth rate is applied to retail served water population and total served wastewater population.

Appendix A includes a map showing Austin Water's retail service area, emergency water service area, wholesale service area, and Certificate of Convenience and Necessity (CCN) area.

### CUSTOMER DATA

#### Customer Connections

The table below shows the current number of active connections for treated water users.

Current Number of Active Connections			
	Metered	Not-Metered	Total
<b>Residential*</b>	217,579	0	217,201
<i>Single-Family</i>	211,190	0	210,780
<i>Multi-Family</i>	6,389	0	6,421
<b>Commercial</b>	17,354	0	17,825
<b>Industrial (Large Volume)</b>	9	0	9
<b>Institutional</b>	440	0	19
<b>Agriculture</b>	0	0	0
<b>Other (Wholesale)</b>	48	0	48

\* Includes multi-family use

The table below shows the number of new connections per year for treated water users for the most recent three calendar years.

Number of New Connections for the Past Three Calendar Years			
	2016	2017	2018
<b>Residential*</b>	3,464	3,118	3,983
<i>Single-Family</i>	2,873	3,150	3,907
<i>Multi-Family</i>	591	-32	76
<b>Commercial</b>	-178	148	333
<b>Industrial (Large Volume)</b>	0	1	0
<b>Institutional (University of Texas)</b>	0	0	0
<b>Agriculture</b>	0	0	0
<b>Other (Wholesale)</b>	-1	0	-1

\* Includes multi-family use

## High Volume Customers

The table below shows annual water use for the five highest volume customers of Austin Water in the previous calendar year.

Usage by High Volume Retail Customers in CY 2018			
	Customer Name	Usage ( 1,000 gallons/year)	Treated or Raw Water
1	Samsung	2,280,138	Treated
2	Travis County WCID #10	758,978	Treated
3	NXP USA, INC	570,423	Treated
4	Wells Branch MUD	438,910	Treated
5	University of Texas	340,839	Treated

## Wholesale Customers

All water delivered to wholesale contracts is treated water. Following is a list of City wholesale customers, the contracted amount of potable water, and their annual use for CY 2018.

Wholesale Customer Contracts and Water Usage		
Wholesale Customer	Contracted Amount (acre-feet)	Water Delivered in CY18 (acre-feet)
<b>Water &amp; Wastewater</b>		
City of Manor	1,680.22	0.01
City of Rollingwood	1,120.14	369.39
City of Sunset Valley	715.77	269.56
North Austin MUD #1	no contractual limitation	958.05
Northtown MUD	no contractual limitation	798.24
Southwest Water Company -Mid-Tex	970.46 Phase 1 1,576.99 Phase 2	146.13
Wells Branch MUD	no contractual limitation	1,346.97
<b>Water Only</b>		
Aqua Texas-Morningside	52.42	6.55
Aqua Texas - Nighthawk WSC	42.70	42.23
Aqua Texas-Rivercrest	1,120.14	364.93
Creedmoor-Maha WSC	838.76	203.02
High Valley WSC	683.29	16.19
Marsha WSC	55.24	40.19
Southwest Water Company - Windermere	2,240.29	2.11
Travis County WCID #10	3,360.43	2,329.22
Village of San Leanna	325.83	13.25
<b>Water Emergency</b>		
Travis County MUD #4	no contractual limitations	0
Travis County WCID 17	no contractual limitations	0

### WATER USE DATA FOR SERVICE AREA

In the following two tables, the first shows the total amount of raw water delivered at point of diversion(s) from Austin's water treatment plants for the previous five years for all water uses and the second shows the total amount of water diverted for municipal use. The data was determined from a master meter located at the point of diversion.

Monthly Diversions for All Water Uses <i>(in acre-feet)</i>					
	2014	2015	2016	2017	2018
January	9,760	9,684	10,135	10,641	11,072
February	8,947	8,731	10,122	9,879	9,537
March	9,960	9,884	10,990	11,259	11,290
April	10,868	10,487	10,558	11,613	11,655
May	11,897	10,261	10,862	13,100	13,540
June	11,519	10,798	12,226	13,394	14,324
July	13,341	14,148	15,441	15,838	15,244
August	15,254	16,604	13,685	14,941	16,835
September	12,630	14,279	13,256	13,428	12,422
October	12,911	13,793	13,706	12,759	11,545
November	10,270	10,420	11,237	11,611	10,539
December	9,672	10,087	10,677	10,737	10,608
<b>TOTALS</b>	<b>137,027</b>	<b>139,175</b>	<b>142,895</b>	<b>149,199</b>	<b>148,612</b>

Total Amount of Water Diverted for Municipal Use <i>(in acre-feet)</i>	
Year	Total Water Diversions
CY 2014	137,027
CY 2015	139,175
CY 2016	142,895
CY 2017	149,199
CY 2018	148,612

The table below shows historical water sales over the past five calendar years broken out by customer category.

Historical Water Sales <i>(in thousand gallons)</i>					
	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018
<b>Residential</b>	22,806,058.4	22,262,116.1	22,975,702.4	23,554,450.2	23,569,603.2
Single-Family	14,228,606.7	13,555,634.2	13,621,856.3	13,964,121.1	14,055,144.0
Multi-Family	8,577,451.7	8,706,481.9	9,353,846.1	9,590,329.1	9,514,459.2
<b>Commercial</b>	10,373,327.2	9,338,981.8	9,819,033.5	9,984,837.7	10,571,262.4
<b>Industrial</b>					
Large Volume	2,578,067.6	2,779,436.2	3,067,259.0	3,267,871.2	3,301,733.7
<b>Institutional</b>	413,604.9	994,655.1	1,047,272.7	1,102,332.0	1,000,354.5



<b>Wholesale</b>	2,581,324.8	2,339,004.1	2,476,472.3	2,640,391.4	2,250,345.3
<b>Agriculture</b>	0	0	0	0	0
<b>TOTALS</b>	<b>38,752,382.9</b>	<b>37,714,193.3</b>	<b>39,385,739.9</b>	<b>40,549,882.5</b>	<b>40,693,299.1</b>

### WATER SUPPLY SYSTEM DATA

#### Water Supply Sources

Austin Water receives 100 percent surface water from the Colorado River through a combination of run-of-river water rights granted by the State of Texas and a water supply contract with the Lower Colorado River Authority (LCRA).

In 1999, the City secured a firm water supply totaling 325,000 acre-feet/year (AF/yr) through a key water supply contract with the LCRA using stored water in the Highland Lakes and other sources to back up Austin's run-of-river water rights, which are among the oldest in the basin. Under this 1999 agreement, which amended a previous 1987 agreement, Austin prepaid the LCRA for reservation and use fees. Future water use payments to the LCRA will be triggered when Austin's annual average use for two consecutive calendar years exceeds 201,000 AF/yr. This has provided a conservation incentive for Austin, as the year after this trigger is reached, the City will begin paying for water diversion amounts above 150,000 AF/yr. The term of the 1999 agreement extends through the year 2050 with an option for the City to renew the agreement for an additional 50-year period through the year 2100.

In 2007, the City entered into a supplemental water supply agreement with the LCRA for an additional 250,000 AF/yr of firm water to be planned and purchased at a future time, likely incrementally, for future needs beyond the 1999 contract's 325,000 AF/yr level.

#### Treatment & Distribution System

For more than 100 years, Austin Water, the city-owned water utility, has been committed to providing clean, safe, reliable, high-quality, sustainable, and affordable water to its customers. Austin Water owns and operates three major surface water treatment plants (WTPs) – Davis and Ullrich, which draw water from Lake Austin, and Handcox (*formerly WTP4*), which draws water from Lake Travis.

These WTPs currently have a combined water treatment capacity of 335 million gallons per day (MGD), including 14 MG of elevated and 158 MG of ground storage capacity. Less than 3 percent of filter backwash is recycled to the head of the plants. The system comprises 3,929 miles of water mains, 9 major pressure zones, 47 water pumping stations and local boosters, and 38 city-maintained reservoirs with 176 million gallons of effective storage capacity. The table on the next page has a summary of current plant capacities.

Austin Water Treatment Plants & Capacity		
Plant Name	Year Constructed	Treatment Capacity (million gallons/day)
Davis	1954	118 <sup>a</sup>
Ullrich	1969	167 <sup>b</sup>
Handcox (WTP4)	2014	50 <sup>c</sup>
<b>Total</b>		<b>335</b>

a) Expanded in 1963, 1977, 1987, and 1999.

b) Modernized in 1993 to meet the higher standards of the Safe Drinking Water Act and expanded in 1987 and 2000. Capacity expansion from 100 to 167 MGD completed in 2008.

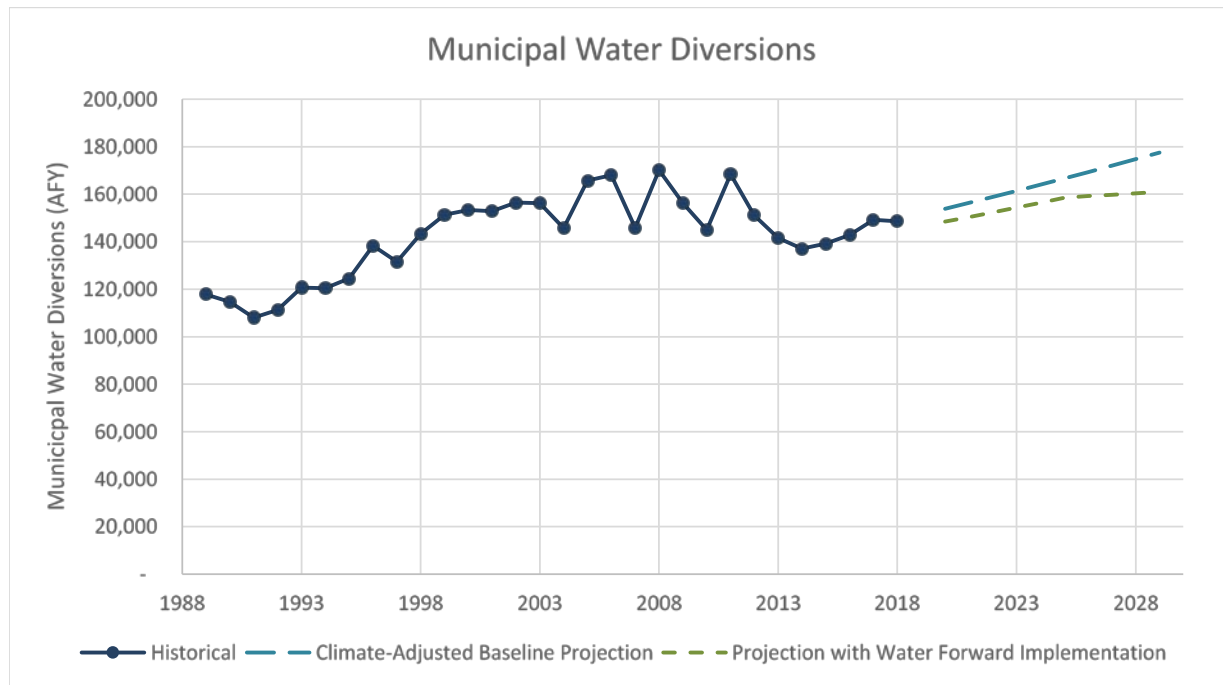
c) Capacity can be expanded to 300 MGD over time

### Projected Water Demands

Projected water supply demands for the City's service area over the next ten years are shown in the table below and the chart on the following page. They are based on population trends, historical water use, economic growth, and expected conservation savings.

Projected diversions were estimated using baseline future water demands and estimated Water Forward strategy savings developed as part of the Water Forward process. The baseline future water demands were developed from an average of 2013, 2014, and 2015 water consumption and represent future conditions based on demographic projections of population, housing, and employment in Austin, along with projected passive conservation. A climate adjustment factor was applied to the baseline future water demands. Savings from Water Forward strategies, which would be expected to reduce demand for potable water, were subtracted from the climate-adjusted baseline demand to generate projected diversions.

Estimated Water Supply Requirements for the Next Ten Years		
	Population	Projected Diversions (acre-feet)
<b>CY 2020</b>	1,101,632	148,444
<b>CY 2021</b>	1,123,665	150,375
<b>CY 2022</b>	1,146,138	152,345
<b>CY 2023</b>	1,169,061	154,355
<b>CY 2024</b>	1,192,442	156,405
<b>CY 2025</b>	1,216,291	158,486
<b>CY 2026</b>	1,240,617	159,191
<b>CY 2027</b>	1,265,429	159,733
<b>CY 2028</b>	1,290,738	160,316
<b>CY 2029</b>	1,316,553	160,941



## WASTEWATER SYSTEM DATA

The design capacity of the Austin Water wastewater treatment plants is currently 152 million gallons per day (MGD).

The City has two major wastewater treatment plants that provide wastewater treatment for approximately 97 percent of City customers: Walnut Creek (Walnut Creek) Wastewater Treatment Plant (WWTP) and South Austin Regional (SAR) WWTP. Both Walnut Creek and SAR discharge most of their treated effluent to the Colorado River. Some of the treated effluent from these plants is used as reclaimed water for golf course irrigation, cooling tower, and other non-potable uses.

The City also has a major wastewater treatment facility that handles biosolids (*Hornsby Bend WWTP*). Sludge is transferred to the Hornsby Bend Biosolids Management Facility for composting and subsequent production of an EPA-approved, nutrient-rich compost known as Dillo Dirt™, which is used in Austin parks and sold to the public.

In addition to the major plants, the City has eight small wastewater treatment plants that serve small areas in their vicinity and has an ownership interest in the Brushy Creek Regional Wastewater System. Together they serve the remaining three percent of City customers. Most of these plants discharge their treated effluent to the Colorado River. The Brushy Creek Regional Wastewater System, however, discharges to the San Gabriel River, a tributary of the Brazos River. Others irrigate golf courses and do not discharge to the surface waters.

The City is the owner or has an ownership interest of all these wastewater plants. Austin Water operates and maintains all the plants except for the Brushy Creek Regional Wastewater Treatment Plant, which is operated by the Brazos River Authority. This plant only provides wastewater treatment for a very small portion of City retail customers.

Appendix B shows the wastewater treatment plant permits. Appendix C shows a map of the large wastewater treatment plants, and Appendix D shows a map of the small wastewater treatment plants.

### **Use of Treated Effluent**

Walnut Creek Wastewater Treatment Plant uses approximately 2.85 million gallons per day (MGD) of treated effluent for plant washdown and chlorination/dechlorination.

South Austin Regional (SAR) Wastewater Treatment Plant uses approximately 2.28 MGD of treated effluent for plant washdown and chlorination/dechlorination.

Hornsby Bend uses an additional 0.5 MGD of treated effluent from SAR. Also, Hornsby Bend does on-site irrigation from an on-site pond system (*not treated effluent from the plants*).

### **Reclaimed Water System**

Austin Water's reclaimed water program began in 1974, when the Williamson Creek Wastewater Treatment Plant provided effluent for irrigation at the adjacent Jimmy Clay Golf Course. Since then, the reclaimed system has grown considerably. Now, more than 63 miles of reclaimed water mains and water lines run in specially colored purple pipes beneath Austin streets - and that length continues to increase.

Using reclaimed water benefits the potable water system by reducing demand for potable water for non-potable uses, including irrigation, cooling tower makeup, ornamental ponds, manufacturing, and toilet flushing. The water is clear with no odor and has been treated for virtually any use not requiring higher-quality drinking water.

The City's Water Reclamation Initiative, enacted in 1990, accelerated expansion of the reclaimed water system by establishing it as a key program for meeting current and future non-potable water demands. Highlights of this system expansion include:

- 2010 - the 51st Street Tower, which serves the central Austin area, was brought online.
- 2011 - the reclaimed system was expanded to Austin Bergstrom International Airport, which is anticipated to save 25 million gallons of drinking water annually.
- 2012 - reclaimed water "filling stations" were created so tanker trucks could use this water for irrigation, road construction, dust control, and utility location.
- 2015 - began implementation of a requirement that new commercial developments or redevelopments within 250 feet of a reclaimed water main must connect for irrigation, cooling and other significant non-potable water uses.

- 2017 - the Capitol Complex Reclaimed Water Main Project, serving in and around the state capitol, was completed.
- 2018 - the Junction 420 Main serving downtown Austin was completed.

The reclaimed water initiative, which is an integral part of Austin's water conservation program, saves on average about 1.4 billion gallons of drinking water each year. With the adoption of Water Forward, Austin's integrated water resource plan, the reclaimed water system is anticipated to see further expansion.

### Wastewater Data for Service Area

Austin Water's wastewater system serves approximately 97 percent of the City's water system service area. The treated volume includes those wholesale wastewater customers that receive wastewater service by the City. The table below shows the monthly volume of wastewater treated at Walnut Creek and SAR WWTPs over the past five years.

Monthly Volume of Wastewater Treated ( <i>in thousand gallons</i> )					
	2014	2015	2016	2017	2018
<b>January</b>	2,958,857	3,588,744	3,302,821	3,517,409	3,018,927
<b>February</b>	2,616,069	2,916,689	2,843,328	3,027,088	2,730,428
<b>March</b>	2,958,363	3,727,607	3,549,427	3,480,629	3,253,296
<b>April</b>	2,863,012	3,135,223	3,589,162	3,197,467	3,076,612
<b>May</b>	3,250,590	5,284,639	4,105,590	3,122,297	3,211,043
<b>June</b>	3,166,813	4,157,666	3,715,438	3,131,600	2,880,580
<b>July</b>	3,020,524	3,182,701	3,053,643	2,963,453	2,990,358
<b>August</b>	2,861,121	2,936,836	3,676,794	3,544,360	2,715,917
<b>September</b>	3,124,872	2,826,702	3,083,104	3,115,341	3,126,416
<b>October</b>	2,943,382	3,264,236	2,901,655	3,118,339	3,764,817
<b>November</b>	3,060,340	3,733,212	2,865,503	2,757,564	3,235,879
<b>December</b>	2,924,309	3,766,459	2,958,663	2,998,574	3,716,573
<b>TOTALS</b>	<b>35,748,250</b>	<b>42,520,713</b>	<b>39,645,128</b>	<b>37,974,121</b>	<b>37,720,846</b>

### **WATER CONSERVATION PLAN FOR MUNICIPAL & WHOLESALE WATER USE**

This plan provides information about Austin's water conservation efforts, including a brief history of Austin's conservation program, current integrated water resource planning efforts and upcoming programs, and five- and ten-year water savings goals.

#### **CONSERVATION PROGRAM HISTORY**

Austin's water conservation program began in 1983, with an ordinance allowing the City to implement temporary water use restrictions in response to infrastructure constraints. At that time, Austin viewed water demand management primarily as a crisis response tool rather than an ongoing conservation strategy. Since the 1980s, as water demand increased with significant population growth and resulting land development, Austin began to focus on using water conservation measures as a means of extending the available water supply, lowering greenhouse gas emissions, and extending infrastructure capacity.

Initially, Austin's conservation program focused more on rebates and incentives, such as toilet rebates and rain barrel distribution, to achieve high volumes of water savings and/or provide customer water use education. Over time, measures such as toilet retrofits and clothes washer rebates reached saturation and were phased out.

In 2007, Austin strengthened and prioritized its conservation focus with the adoption of a City Council-created water conservation task force's recommendations for strategies to reduce peak day water use by one percent per year for ten years. This was anticipated to result in a 25 million gallon per day reduction from peak use by 2017. In 2010, a second task force proposed additional water use reduction measures beyond the 2007 recommendations. This led to City Council adopting a resolution to reduce water use to no more than 140 gallons per capita per day by 2020.

Austin's proactivity in embracing water conservation as a core value and setting ambitious conservation goals coupled with a resounding response from Austin residents has produced a dramatic decline in water use:

- Total gallons per capita per day water use fell from 190 in fiscal year 2006 to 138 in FY 2013 to 126 in fiscal year 2018. This meant the goal of reaching 140 GPCD was met seven years ahead of schedule.
- The goal set in 2007 to reduce peak daily water demand by one percent per year over ten years was also met early and in less than half the time despite unprecedented population growth.
- Overall water use has significantly declined since 2006 despite approximately 240,000 new residents being added to Austin Water's service area. Total pumpage dropped from 56.6 billion gallons in fiscal year 2006 to 48.5 billion gallons in fiscal year 2018.



In 2016, Austin's conservation program was recognized as best in the state on the Texas Water Conservation Scorecard. The Texas Living Waters Project, a collaboration of conservation groups working to ensure fresh water in our state, conducted an in-depth analysis and developed the ranking system for water conservation efforts of more than 300 water utilities in Texas. The Scorecard relied on publicly accessible information from water conservation plans and reports, water loss audits, utility websites, and other such sources.

The recent historic drought led to progressively more focus on implementing measures to sharply reduce discretionary outdoor water use. As a mature program, Austin is currently looking at measures to help it achieve aggressive conservation goals such as embedding conservation into new development, piloting new water saving technologies, increasing reclaimed and alternative water use, reducing system water loss, and addressing sectors with high potential water savings.

### **CURRENT CONSERVATION PROGRAM STRATEGIES**

#### **Water Use Management**

Austin Water's Conservation Division implements and enforces a comprehensive Water Conservation Code (*Chapter 6-4 of City Code*) that applies to all retail water customers. This code includes a baseline Conservation Stage with some of the strongest year-round water use restrictions in the country.

One of its largest water savings and peak day water use reduction measures is a restriction, adopted in 2016, limiting the use of automatic irrigation systems to no more than once a week for up to fifteen hours and hose-end sprinklers to no more than twice a week for up to thirty hours. This schedule gives more efficient irrigation methods more time to water. This code includes time of day restrictions that allow irrigation to occur only before 10:00 a.m. or after 7:00 p.m. on a designated outdoor water use day unless a hand-held hose or bucket is used. It also contains prohibitions on water waste, which include failing to repair a controllable leak, operating an irrigation system with excessive pressure that creates misting, allowing water to spray onto or over a paved surface, and allowing irrigation water to run off into the street or pond in parking lots or paved areas.

If customers have a newly installed landscape that needs additional watering days to become established, they must apply for a variance from the mandatory watering schedule. To qualify for this variance, the landscape must be a Xeriscape and the installed plants must be low or very low water use xeric varieties selected from Austin Water's approved plant list.

Additional water use restrictions during Conservation Stage include commercial power/pressure washing equipment efficiency requirements, time of day limits on operating commercial patio misters, and requirements that restaurants serve water only on request and lodging facilities offer towel/linen reuse programs.

### Mandatory Efficiency Inspections

To help promote water savings in the commercial sector, the Water Conservation Code includes requirements for the following efficiency inspections, which became effective in 2013:

- *Commercial Facility Irrigation Inspection*
  - Commercial, multi-family and City facilities one acre in size or larger must complete an irrigation evaluation every two years. This evaluation, which must be completed by an Austin Water Authorized Irrigation Inspector, includes a station by station inspection to look for water waste violations. If a violation is found, the customer must turn off the affected portion of the system until repairs are made.
- *Commercial Vehicle Wash Facility Efficiency Inspection*
  - Commercial, multi-family and City facilities with vehicle wash equipment that uses potable water must complete an annual efficiency inspection conducted by a Texas-licensed plumber. Only vehicles wash facilities that have successfully completed this inspection are allowed to operate.

To further promote water savings by commercial customers, Austin Water's Conservation Division implements an additional efficiency inspection, which was approved by City Council in 2017, as part of the adoption of local amendments to the 2015 Uniform Mechanical Code §1126.0(5) and 1226.0.1:

- *Cooling Tower Efficiency Program*
  - All properties with cooling towers must register their towers and submit annual inspection reports performed by an independent third-party Texas-licensed mechanical or chemical engineer or a person holding a TDLR Texas Air Conditioning and Refrigeration License (Class A) with a combined endorsement for process cooling and refrigeration. Registration information helps to identify potential water-saving upgrades and rebates and promotes reclaimed and alternative on-site sources of water for cooling tower make-up and other non-potable water demands.

### Rebates, Incentives, and Free Tools

Austin Water has developed a wide variety of water conservation programs targeted to all customer classes. Along with rebate programs and financial incentives, the City offers free indoor and outdoor conservation tools to help its single-family (SF), Multi-family (MF), and Commercial, Industrial and Institutional (CII) customers save water. Residential retail customers of Austin's wholesale customers are eligible to participate in many of these programs.

An overview of Austin's current program offerings is summarized below:

- **3C Business Challenge (CII)** – The 3C Business Challenge is a “desktop” water-efficiency self-auditing tool that helps CII customers evaluate how water is used at their



facilities. Austin Water staff review submitted checklists, recommend ways to improve water efficiency, and suggest rebates to help with costs for water-efficient upgrades.

- **Free Digital Home Water Use Reports (SF)** - Austin Water has contracted with Dropcountr, Inc., to offer free home digital water use reports to its residential customers. These reports, which are available by mobile app and/or by internet, can help residents save both water and money by providing historical water use and rate tiers, comparisons to similar and efficient homes, water saving tips and links to applicable rebate programs.
- **WaterWise Partnership Program (CII)** - Austin Water offers free tools and recognition to businesses that show their commitment to conservation by using water-efficient measures and practices.
- **Free Water Conservation Tools (SF)** - Free tools available to residential customers include water-efficient showerheads that use 1.5 gallons per minute (GPM), kitchen faucet aerators that use 1.5 GPM and bathroom faucet aerators that use 0.5 GPM. To help save water outdoors, customers may pick up free soil moisture meters from Austin Water or check out a digital hose timer or sunlight calculator from the Austin Public Library.
- **Free Irrigation System Evaluations (SF)** - To promote outdoor water savings, qualifying customers may receive free irrigation system evaluations performed by a licensed irrigator from Austin Water. Customers must have an in-ground sprinkler system that has used either more than 25,000 gallons in one month or more than 20,000 gallons in two consecutive months during the current irrigation season. These evaluations can help residents set an efficient watering schedule and identify the need for system repairs and upgrades. Austin Water also provides information and templates to customers wishing to perform a self-audit of their irrigation systems.
- **Bucks for Business Rebate (CII)** – Commercial customers can receive rebates of up to \$100,000 for equipment and process upgrades that save water and exceed water-efficiency requirements. Rebates under this program include but are not limited to air conditioner (AC) condensate recovery systems, ozone treatment systems for large commercial laundry facilities, cooling tower efficiency upgrades, process water reuse and recycling systems.
- **Commercial Kitchen Rebate (CII)** – This program offers rebates ranging from \$40 to \$2,500 for each eligible item installed to help with costs for replacing commercial food service equipment with more water-efficient models, such as Environmental Protection Agency (EPA) WaterSense / ENERGY STAR® labeled commercial kitchen equipment.
- **Irrigation Upgrade Rebate (SF)** Provides up to \$400 to residential customers for making water-efficient improvements to an existing irrigation system. New systems and expansions to existing systems are not eligible for this program.

- **Irrigation System Improvement Rebate (CII / MF)** – Commercial and multi-family customers may receive up to \$5,000 for installing a central-computer irrigation controller system. Additional rebates are available for installing flow sensors, multi-stream nozzles, and master valves.
- **Landscape Survival Tools Rebate (SF)** – Residents can receive up to \$120 (\$40 for mulch, \$50 for compost, and \$30 for core aeration service) for taking steps to help retain soil moisture, which can help to keep a yard healthy while saving water.
- **Low-Income Efficiency Programs (SF / MF)** – Austin Water collaborates with Austin Energy (AE) to provide free high-efficiency faucet aerators and showerheads to low-income customers through AE's Weatherization Assistance Program. AW also partners with AE to provide free high-efficiency faucet aerators and showerheads to multi-family facilities with low income tenants through AE's Multi-family Efficiency Program.
- **Pool Cover Rebate (SF)** – Residential customers can receive a rebate for half of the purchase price up to \$50 for a new manual pool cover, or up to \$200 for a new permanent, mechanical pool cover. A properly fitted pool cover can reduce water lost to evaporation and lower pool maintenance costs.
- **Pressure Regulating Valve Rebate (SF / MF)** – Residential customers can receive up to \$100 and multi-family customers can receive up to \$500 for the purchase and installation of a Pressure Regulating Valve (PRV). Qualifying properties must have an initial water pressure of 80 pounds per square inch or higher without a PRV installed. A PRV can reduce water waste by lowering water pressure and prevent damage to pipes and water fixtures from undue wear.
- **Rainwater Harvesting Rebate (SF / MF / CII)** – Residential, multi-family, and commercial customers who install equipment for capturing rainwater can receive \$0.50 per gallon of capacity for non-pressurized systems and \$1.00 per gallon for pressurized systems up to half of the equipment cost up to a \$5,000 per site maximum.
- **Water Efficiency Audit Rebate (CII)** – Commercial customers may receive 75 percent of the cost up to \$5,000 for an independent audit of their facility to identify potential water and cost savings. Audited facilities must be separately metered and use at least 100,000 gallons of water a year to qualify.
- **Watering Timer Rebate (SF)** – Residents can receive 50 percent of the purchase price up to \$40 for purchasing up to two hose timers. These timers, which are easily added to existing hose-end sprinklers, provide customers with more control over hose-end watering and make it easier to comply with the watering schedule.

- **WaterWise Landscape Rebate** (SF / MF HOAs) – For converting turf grass to native plant beds, residential customers may receive \$35 for every 100 square feet converted (*500 square foot minimum*) up to a maximum rebate of \$1,750. Multi-family homeowner associations may receive \$25 for every 100 square feet converted (*1,000 square foot minimum*) up to \$5,000.
- **WaterWise Rainscape Rebate** (SF / Schools) – Residents and schools can receive \$0.30 per square foot converted (*100 square foot minimum*) up to \$500 for installing landscape features, such as berms, terraces, swales, rain gardens, porous pavement, to keep rainwater on the property.

Rebates and financial incentives are tied to specific conservation goals, such as the reduction of peak-day demand from outdoor usage that results in increased treatment capacity and distribution costs, or the reduction of average-day demand (*year-round indoor and commercial use*) to avoid the costs of developing additional, long-term water supplies. For detailed information about each program, please see <http://www.austintexas.gov/departments/water-conservation-rebates>.

### Best Management Practices

Austin Water implements a wide range of Best Management Practices (BMPs) in its water conservation program as tools to reduce water use to meet city / state conservation goals, reduce peak daily demand, delay increases in water supply costs, and maintain the city's reputation for environmental stewardship as a core value.

The table below provides a summary showing how Austin Water's conservation programs correspond to the 26 BMPs for municipal water users found in the Texas Water Development Board's 2013 *Water Conservation Best Management Practices* guide found at <https://www.twdb.texas.gov/conservation/BMPs/Mun/index.asp>.

BMP	Implementation Components
<b>Conservation Coordinator</b>	Austin has a dedicated Water Conservation Division with 20 staff, including a Water Conservation Division Manager who serves as Conservation Coordinator. Staff responsibilities include customer service, research, data analysis, program planning, regulatory compliance, and enforcement.
<b>Cost Effective Analysis</b>	For current and potential conservation programs, Austin quantifies actual or estimated savings using various calculators, tracking tools, and national/state guidance to determine potential cost/benefit and effectiveness towards achieving conservation goals. Conservation efforts may also be specifically directed to high use sectors, customer groups or water use categories with the highest potential for water savings. Programs with less than a favorable cost/benefit ratio may still be used on a temporary or pilot basis to evaluate or promote new or innovative technology, penetrate hard-to-

	<p>reach markets, increase public awareness, or achieve water savings faster in response to drought or other water shortage.</p> <p>Austin continually evaluates programs to determine whether they should be modified, phased out, or new programs implemented. Changes are generally based on updated cost benefit analysis, new studies and information, federal manufacturing requirements, promotion of innovative technology, penetration of hard to reach markets, integrated water resource planning, or changes in codes and ordinances.</p>
<b>Water Survey for Single-Family &amp; Multi-Family Customers</b>	<p>Austin offers a variety of free tools and educational materials to help residents evaluate their water use and look for areas where efficiency improvements can be made. These include water use and irrigation runtime calculators, free Dropcountr digital home water use reports, free showerheads &amp; faucet aerators, free irrigation system evaluations by licensed irrigators from Austin Water, templates for irrigation system self-audits, checkout of digital hose timers and sunlight calculators through the public library system, information on leak detection &amp; repair, and rebates/incentives for improving water efficiency.</p>
<b>Water Conservation Pricing</b>	<p>Austin has a five-tiered inclining block rate structure for single-family residential customers that is among the steepest in the country and has resulted in a dramatic reduction in the amount of water sold at the highest tiers.</p> <p>Commercial and multi-family customers are encouraged to save water during the irrigation season through peak and off-peak rates.</p> <p>For more detailed information, please see page 32-33 of this report.</p>
<b>Wholesale Agency Assistance Programs</b>	<p>Austin provides technical assistance with conservation efforts as requested by its wholesale customers. Retail customers of Austin's wholesale customers are eligible to participate in most of Austin's conservation rebate and incentive programs.</p> <p>Wholesale customers have individual water rates established through contracts. New, amended, extended, or renewed wholesale water supply contracts must include language stating that the wholesale customer will adhere to Austin's water management ordinance and establish a conservation program similar to the one enforced by Austin.</p>
<b>Metering of All New Connections and Retrofit of Existing Connections</b>	<p>Austin universally meters all customers and routinely tests meters for accuracy.</p> <p>In January 2016, Austin Water launched an Advanced Metering Infrastructure (AMI) Steering Committee, charged with the responsibility of evaluating, recommending and directing actions to implement AMI for the Austin Water service area.</p> <p>Austin Water has been conducting several AMI pilot projects to study how AMI will change the behavior of utility customers and how to use AMI to improve Austin Water's customer services.</p>

<b>System Water Audit and Water Loss</b>	<p>Austin Water conducts annual Water Loss Audits according to Texas Water Development Board methodology and has dedicated one FTE specifically for addressing water loss. It routinely analyzes consumption data for zero-reads and suspicious patterns for City retail customers and wholesale master meters. In 2012, Austin launched an ongoing program to replace and upgrade aging water lines. It uses acoustic technology to inspect more than 500 miles of water lines for leaks each year. Austin Water has also initiated an accelerated leak response and repair program that has proven highly successful.</p> <p>For more detailed information about Austin's water loss reduction efforts, please see pages 27-29 of this report.</p>
<b>Athletic Field Conservation</b>	<p>Austin Water meets regularly with Austin Independent School District (AISD) facilities staff to discuss system efficiency upgrades and participation in available irrigation system central controller rebates. Austin has used data loggers on water meters to identify flows that would indicate leaks and worked with AISD staff on leak reduction efforts. Austin Water has also helped fund water efficiency audits for seven highest water using campuses.</p>
<b>Golf Course Conservation</b>	<p>None of Austin's golf courses use treated drinking water for irrigation and most use reclaimed water from Austin's purple pipe system.</p> <p>Austin Water also offers rebates of up to \$5,000 to commercial and multi-family customers for irrigation system improvements including: central computer irrigation controller systems; master valves; flow sensors; and multi-trajectory rotor nozzles.</p>
<b>Landscape Irrigation Conservation and Incentives</b>	<p>Austin Water enforces a mandatory year-round watering schedule for all customers that limits use of automatic irrigation to no more than once a week and hose-end sprinklers to no more than twice a week. Commercial, multi-family and City facilities one acre in size or larger must complete an irrigation system efficiency inspection every two years.</p> <p>Rebates are available to residential customers for improving irrigation system efficiency, replacing turf, and installing mulch/compost/core aeration service. Rebates for installing a central irrigation controller system are available to commercial, industrial, and institutional customers.</p> <p>Austin Water offers an annual WaterWise Irrigation Professional Seminar that provides continuing education credits toward license renewal for licensed irrigators. Covered topics include water-efficient irrigation systems, water conservation programs, the mandatory watering schedule, electrical troubleshooting, irrigation auditing, and turf grass watering requirements.</p>
<b>Park Conservation</b>	<p>Austin Water has installed smart meters at ten of Austin's Parks and Recreation Department (PARC) facilities so that the Aquatics and Athletics divisions can better track and understand water consumption with the goal of reducing overall operating costs. Austin Water has also helped fund water efficiency audits at eight PARC</p>

	<p>facilities and provided rebates to PARD for water efficiency upgrades at multiple Aquatics facilities.</p> <p>Austin Water provides reclaimed water for park conservation. It also offers rebates of up to \$5,000 to commercial and multi-family customers for irrigation system improvements including: central computer irrigation controller systems; master valves; flow sensors; and multi-trajectory rotor nozzles.</p>
<b>Residential Landscape Irrigation Evaluations</b>	<p>Austin Water offers free irrigation system evaluations by licensed irrigators to residential customers to help them use their systems more efficiently. To qualify, the customer must have used more than 25,000 gallons in one month or more than 20,000 gallons in two consecutive months during the current irrigation season. It also makes information about how to perform a self-audit of a system available online.</p> <p>City code requires commercial, multi-family, and City municipal facilities one-acre or larger in size to have an evaluation of any permanently installed irrigation system performed every two years by an Austin Water Authorized Irrigation Inspector.</p>
<b>Public Information</b>	<p>In addition to press releases, Austin regularly advertises in local newspapers, and on radio and television stations. It also communicates conservation information through its website, e-newsletters, and a variety of social media. Austin also offers a speaker's bureau that gives presentations to area groups and provides staff/materials to promote water efficiency at festivals and other events.</p> <p>For more detailed information, please see pages 29-32 of this report.</p>
<b>School Education</b>	<p>For elementary students, Austin provides the Dowser Dan musical program which focuses on conservation education. In partnership with the Colorado River Alliance (CRA), Austin Independent School District, and other local entities, Austin Water, is proud to expand its current set of youth education programs to include the Texas Colorado River Mobile Learning Experience. For more detailed information, please see page 29 of this report.</p>
<b>Partnerships with Nonprofit Organizations</b>	<p>Grow Green, which is a partnership between the City of Austin and the Texas AgriLife Extension Services, offers fact sheets with landscaping design, installation, and maintenance recommendations. It also provides a Native and Adaptive Plant Guide with information about plants that thrive in the Central Texas climate.</p> <p>Austin Water partners with Austin Energy and Texas Gas to provide low income residential and multi-family customers holistic water and energy efficiency evaluations, free high efficiency water and energy fixtures, and other assistance to save water and energy and their associated costs.</p>
<b>Conservation Programs for Industrial, Commercial,</b>	<p>Austin offers many rebate/incentive programs to help its industrial, commercial, and institutional customers reduce their water use through water efficiency audits, equipment and process equipment upgrades, and use of alternative water sources. For more detailed information about program offerings, please see pages 12-15 of this</p>



<b>and Institutional Accounts</b>	<p>report.</p> <p>Austin City Code requires Industrial, Commercial, and Institutional facilities one-acre or larger in size to have an evaluation of any permanently installed irrigation system performed every two years by an Austin Water Authorized Irrigation Inspector.</p> <p>Austin Water and the Lower Colorado River Authority hold an annual free water conservation technical workshop in September for industrial, commercial and institutional customers and facility managers and engineers on water saving measures, technologies, and rebate programs.</p> <p>The City of Austin created the nation's first green building program in 1990. Austin Energy Green Building (AEGB) is now the nation's most successful sustainable building program. AEGB encourages the design and construction of more sustainable homes and buildings by using an Austin-specific rating system for energy and water efficiency above the baseline code requirements. Certain scores above the baseline code are required through zoning ordinances for new development in high growth areas.</p> <p>In 2010, Austin adopted the Innovative Commercial Landscape Ordinance, which serves as both a water quality and conservation tool. This change to the land development code requires new commercial developments to direct stormwater to an area at least 50 percent of the size of the required landscape. Means for conveying stormwater to landscapes vary and range from passive to active methods, several of which can count towards receiving water quality credit. To limit non-essential irrigation, commercial customers may choose whether to install permanent irrigation in the peripheral regions of the property, and undisturbed vegetation will count towards the "50 percent requirement."</p>
<b>Residential Clothes Washer Incentive Program</b>	<p>No longer actively implemented due to market penetration of EnergyStar labeled efficient washers.</p> <p>Austin Water began offering the residential WashWise Rebate in 1998. It modified the program over the years to adjust for new equipment, technologies, and pricing.</p> <p>According to the BMP Guide, utilities should design residential clothes washer incentive programs so as to increase market share of efficient clothes washers to at least 20 percent by the end of the second year of implementation. It also recommends that utilities periodically analyze several factors, including local vendor inventories and types of machines for sale; determining local and state market sales; and surveying customers about the types of machines they have. If this reveals that a rebate program has become ineffective, even if the number of rebates issued is high, the BMP Guide endorses adjusting or eliminating the program to ensure proper water savings investment instead of a reward for free ridership.</p> <p>Conservation staff conducted a search of area retailers' websites in February and March 2013, to determine efficiency of machines readily available in Austin. This search found approximately 80 percent of clothes washers to be water-efficient according to the Consortium for Energy Efficiency (CEE) Clothes Washer Qualifying</p>

	<p>Product List published in February 2013. A customer survey administered in 2012 also indicated that water-efficient washers had become commonplace. This survey, done by the National Research Center as part of Austin's participation in the Alliance for Water Efficiency's Residential End Uses of Water Study Update, went out to a random sample of Austin Water residential customers. Of the 118 returned surveys, 65.5 percent of customers reported having a water and energy efficient (Energy Star) clothes washer in their home. Of the 83.6 percent of respondents who reported that their households have taken actions to conserve water in the last several years, 41 percent reported having installed a water-efficient clothes washer as one of the actions taken.</p> <p>Changes in market conditions that resulted in better availability of water-efficient washing machines and the presence of stronger federal efficiency standards, led Austin Water to determine that this rebate was no longer a significant tool for promoting water-efficiency. The residential WashWise Rebate ended in June 2013.</p>
<b>Residential Toilet Replacement Program</b>	<p>No longer actively implementing this program after reaching market saturation.</p> <p>Beginning in the 1990s, Austin Water offered both rebate and voucher programs to encourage residents in homes built prior to 1992 to replace existing toilets that used more than 1.6 gallons per flush (gpf) with water-efficient models. With the Free Toilet Program, customers could receive vouchers that allowed them to pick up free high-efficiency toilets from the City's contracted vendor while the Toilet Rebate Program provided rebates of up to \$200 per toilet to assist with the purchase and installation of WaterSense labeled toilets. Both programs proved very popular and resulted in accelerating replacement of about 93,000 toilets in single-family homes and about 62,000 in multi-family residences.</p> <p>Based on national replacement rate and end use data, combined with program participation, Austin Water estimated that 80 percent of residential and 88 percent of multi-family toilets had been replaced by the end of 2010. Additionally, revisions to Austin's plumbing code that became effective in October 2010 required all toilets installed in new construction or in retrofits to use no more than 1.28 gpf. As a result, Austin Water ended its toilet replacement programs by the end of FY 2011.</p>
<b>Showerhead, Aerator, and Toilet Flapper Retrofit</b>	<p>Austin Water offers free showerheads, in regular and soap-up valve models, which use 1.5 gallons per minute. Customers may also receive free bathroom faucet aerators that use 0.5 gallons per minute and kitchen faucet aerators that use 1.5 gallons per minute. These materials are available at the Water Conservation office and at various community outreach events.</p>
<b>Water Wise Landscape Design and Conversion Programs</b>	<p>Austin offers three rebate programs – the Landscape Survival Tools Rebate, the WaterWise Landscape Rebate, and the WaterWise Rainscape Rebate - to encourage customers to make regionally appropriate plant selections and reduce water used on landscapes. For more information about these rebates, please see pages 12-15 of this report.</p>



	<p>To encourage water-efficient choices when installing new turf or landscape vegetation, customers may receive a variance from Austin's once a week watering schedule to allow extra watering during the establishment period only if the new landscape is a Xeriscape. To qualify, plants must be listed as either "low water usage" or "very low water usage" on the Austin Water Xeriscape Plant list. Plant material at mature growth must cover at least 50 percent of the new landscape's area.</p> <p>Austin Water also worked with the Home Builders Association of Greater Austin to develop and introduce their Sensible Landscaping for Central Texas guide for homebuilders and homeowners. This guidance document includes information about landscape design, regionally appropriate plant selection, landscape and soil management, as well as irrigation design and maintenance. It contains a manual, checklists, and other resource materials to help developers and homeowners in making water-efficient landscape choices. All Home Builders Association of Greater Austin members have adopted these voluntary guidelines and provide this landscape option to new home buyers.</p>
<b>New Construction Graywater</b>	<p>In recent years, Austin revised its plumbing code and permitting process to make it easier to install gray water collection systems. It also developed guidance manuals to assist customers in selecting, designing and installing onsite water reuse systems, and meeting the City's permitting requirements related to these systems. With the adoption of the Water Forward integrated water resource plan, Austin is now prioritizing development of alternative water incentives and ordinances to encourage installation of alternative water systems and require dual plumbing in new commercial developments.</p>
<b>Rainwater Harvesting and Condensate Reuse</b>	<p>Austin Water began its rainwater harvesting offerings, with a program that sold rainbarrels directly to the public at a subsidized price. This program was discontinued in early 2009 due to the increased availability of rainbarrels by local vendors, operational expenses in relation to water savings, and the carbon footprint created from shipping the barrels to Austin.</p> <p>It also initially offered two rebate programs: a Rainbarrel Rebate for rainbarrel purchases and a Rainwater Harvesting Rebate for larger systems. In July 2010, these programs were combined into one capacity-based program to encourage installation of larger capacity systems. The current rebate is for up to \$5,000 per site (<i>lifetime limit</i>).</p> <p>Air conditioning condensate recovery and reuse systems in industrial, commercial and institutional facilities are eligible for rebates under the "Bucks for Business" rebate program.</p>
<b>Water Reuse</b>	<p>Austin Water's reclaimed water program began in 1974 and has grown considerably since then. Now, more than 63 miles of reclaimed water mains and water lines run beneath Austin streets - and that length continues to increase. The reclaimed water</p>

	<p>initiative, an integral part of Austin's water conservation program, saves on average about 1.4 billion gallons of drinking water each year.</p> <p>For more detailed information about Austin's reclaimed program, please see pages 8-9 of this report.</p>
<b>Prohibition on Wasting Water</b>	<p>Since the 1990s, Austin's City Code has included prohibitions on water waste. Austin currently implements and enforces the following year-round water restrictions:</p> <ul style="list-style-type: none"> <li>- Customers may water only on assigned day(s) based on street address: <ul style="list-style-type: none"> <li><i>Residential:</i> <ul style="list-style-type: none"> <li>▪ Hose-end Sprinklers – up to twice a week before 10am and/or after 7pm</li> <li>▪ Automatic Irrigation – once a week before 10am and/or after 7pm (Residential customers may also water a second day with a hose-end sprinkler)</li> </ul> </li> <li><i>Commercial / Multi-family / Public Schools</i> <ul style="list-style-type: none"> <li>▪ Hose-end Sprinklers or Automatic Irrigation – once a week before 10 am and/or after 7pm</li> </ul> </li> </ul> </li> <li>- Wasting water is prohibited, including: <ul style="list-style-type: none"> <li>▪ Failing to repair a controllable leak, including a broken sprinkler head, a broken or leaking pipe, or a leaking valve.</li> <li>▪ Operating a permanently installed irrigation system with a broken head; a head that is out of adjustment where the arc of the spray head is over a street, parking area, or other impervious surface; or a head that is misting because of high water pressure</li> <li>▪ Allowing water to run off a property so that a trail of water extends into a street, parking area, or other impervious surface for 50 feet or more</li> <li>▪ Allowing water to pond to a depth greater than ¼ inch in a street, parking area, or other impervious surface</li> </ul> </li> <li>- Additional restrictions: <ul style="list-style-type: none"> <li>▪ Home vehicle washing allowed if an auto shut-off hose or bucket is used</li> <li>▪ Charity car washes may only be held at a commercial carwash</li> <li>▪ Ornamental fountains must recirculate water</li> <li>▪ Restaurants may not serve water unless requested by a customer</li> <li>▪ Lodging facilities must offer a towel/linen reuse program</li> <li>▪ Patio misters at commercial properties (<i>including restaurants and bars</i>) may only operate between 4 pm and midnight</li> <li>▪ Commercial power / pressure washing equipment must meet efficiency requirements</li> <li>▪ Commercial efficiency inspections required for irrigation systems at properties over one acre, vehicle wash facilities and cooling towers</li> </ul> </li> </ul> <p>Water Conservation's dedicated enforcement staff follow a rotating patrol schedule to look for violations. Violations are handled administratively as a fine on the customer's water bill. For detailed information about the water use restrictions, please see <a href="http://www.austintexas.gov/department/watering-restrictions">http://www.austintexas.gov/department/watering-restrictions</a>.</p>

<p><b>Conservation Ordinance Planning and Development</b></p>	<p>Austin Water's Conservation Division implements a comprehensive conservation code (<i>Chapter 6-4 of City Code</i>), with the goal of balancing conservation of the water supply with the desire to sustain the local economy and the natural surroundings, tree canopy and vegetation that are unique to Austin. The public, organizations, and businesses are encouraged to take part in code revision processes by attending workshops to discuss how the City should regulate water use and providing input on proposed measures.</p> <p>The following are examples of ordinances adopted by Austin's City Council to address water efficiency:</p> <p><b>2007</b></p> <ul style="list-style-type: none"> <li>– Year-round prohibition on automatic irrigation system use between 10 a.m. and 7 p.m.</li> <li>– No more than 2X week residential watering May thru Sept; commercial year-round</li> </ul> <p><b>2008</b></p> <ul style="list-style-type: none"> <li>– Submeters required in new multi-family and mixed-use facilities</li> <li>– HET urinals (0.5 gpf) required for new construction and retrofits</li> <li>– Commercial food waste and garbage disposal units prohibited</li> <li>– Liquid ring surgical and dental vacuum pumps prohibited</li> <li>– New or replacement cooling towers must achieve at least 5 cycles of concentration and have conductivity controllers, makeup and blowdown meters, overflow alarms, drift eliminators</li> <li>– Car wash equipment efficiency and facility certification requirements</li> <li>– Automatic irrigation system design standards for new commercial and multi-family residential properties</li> <li>– Commercial landscape soil depth and plant requirements adopted</li> </ul> <p><b>2010</b></p> <ul style="list-style-type: none"> <li>– HET 1.28 gpf toilets required for facilities built or renovated on or after Oct 1, 2010; waterless urinals allowed</li> <li>– Innovative Commercial Landscape Ordinance requiring new commercial developments to capture storm water to prevent runoff and for landscape irrigation.</li> </ul> <p><b>2011</b></p> <ul style="list-style-type: none"> <li>– Stormwater retention and irrigation required for new commercial properties</li> </ul> <p><b>2012</b></p> <ul style="list-style-type: none"> <li>– Year-round 2X week watering schedule for all customers</li> <li>– Mandatory reclaimed water hook-up [implemented May 2015]</li> <li>– Revised rate structure to compress residential rate tiers including 5th Tier to now apply to residential use above 20,000 gallons per month</li> <li>– Mandatory irrigation system audits every two years for commercial/multi-family/city properties over one acre</li> <li>– Mandatory annual vehicle wash facility efficiency assessment for commercial, multi-family and city facilities</li> </ul>
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	<ul style="list-style-type: none"> <li>– Administrative enforcement process/penalties for water use violations</li> <li>– Water may be served only on demand at restaurants and hotels must have towel/linen exchange programs</li> </ul>
<b>2016</b>	<ul style="list-style-type: none"> <li>– Year round 1X week for automatic irrigation systems</li> </ul>
<b>2017</b>	<ul style="list-style-type: none"> <li>– New commercial and multifamily facilities must install AC condensate capture and use systems, install steam boilers with steam condensate return systems, and reuse cooling tower blowdown for on-site non-potable water demands or provide at least 10% of the cooling tower's make-up water from on-site alternative water sources</li> </ul>
<b>2018</b>	<ul style="list-style-type: none"> <li>– Cooling tower registration and inspection requirement</li> </ul>

### **Alliance for Water Efficiency G480 Leaderboard**

In July 2018, Austin's conservation program achieved a Platinum rating on the Alliance for Water Efficiency G480 Leaderboard. The G480 Water Conservation Program Operation and Management Standard is part of the American Water Works Association's G-series of voluntary management standards that demonstrate outcome-oriented practices and policies that go above established regulations and set a benchmark for excellence, including:

- Dedicated staff for conservation efforts (*point of contact*),
- Conservation planning,
- Integrated resources planning,
- Public information and education,
- Water waste ordinance,
- Universal metering practices,
- Non-promotional water rate,
- Monthly or bimonthly billing based on metered use,
- Landscape efficiency program, and
- Water loss control program.

As an independent industry advocate, the Alliance for Water Efficiency evaluates submissions from member agencies and awards platinum, gold, or silver recognition to indicate level of compliance with AWWA's G480 standard. Austin's grade of Platinum indicates 100 percent compliance with all recommended best practices for an effective conservation program. Austin Water became the fifth agency in the nation to complete the rigorous recognition process, the third to achieve Platinum rating, and the largest participating agency to date. Please see <http://www.allianceforwaterefficiency.org/g480leaderboard.aspx> for more information about the G480 Leaderboard.

### **Program Quantification & Evaluation**

Austin Water quantifies and documents actual or estimated water savings for its various conservation measures and incentive programs to determine their potential cost/benefit and

effectiveness towards achieving the city's conservation goals. This includes the development of "digests" for each program and use of the information in the Alliance for Water Efficiency Conservation Tracking Tool. Some of the estimated water savings are based on national studies, but increasingly more are based on local Austin-specific information. Depending upon the age and specificity of the study or research to the Austin area, the digest information is ranked according to confidence level and the frequency in which the information needs to be reviewed and updated. The digests are "living" documents that are always in the process of being updated as new studies or information become available, or to reflect changes in the program or the city's codes and ordinances. Information from the digests is also used to determine whether to add, modify, or terminate a program.

### **WATER FORWARD: AUSTIN'S INTEGRATED WATER RESOURCE PLAN**

On November 29, 2018, after more than three years of public input, Austin's City Council adopted Water Forward, a long-term integrated water resources plan to manage Austin's water resources over the next 100 years. This plan was in response to a 2014 task force recommendation that emerged from the historic 2008-2016 drought where cumulative inflows to the Highland Lakes were lower than the worst drought of record which occurred 1947–1957. During the 2008-2016 drought, lakes that supply Austin's drinking water fell to historically low levels. Climate scientists also projected that the Central Texas region would see longer, deeper periods of drought punctuated by heavy rain events resulting from a changing climate. In response, Austin began in 2015 to develop a plan to address the long term need to increase sustainability, reliability, and diversity of Austin's water supplies.

Water Forward's guiding principles include:

- Recognizing that the Colorado River is Austin's core supply, continue a strong relationship between the City and the LCRA to ensure its reliability;
- Continuing Austin's focus on water conservation and water use efficiency;
- Continuing to protect Austin's natural environment;
- Aligning with other City planning efforts, such as the Imagine Austin comprehensive plan priority program "Sustainably Manage our Water Resources"; and
- Strengthening long-term sustainability, reliability, and diversity of Austin's water supply through maximizing local water resources.

### **Water Forward Demand Reduction and Reuse Strategies**

The Water Forward plan was developed using a holistic planning approach that balances multiple objectives such as water reliability, social, environmental, and economic benefits, and ease of implementation. A major component of Water Forward is the development and implementation of both new and expanded demand management and reuse strategies that include, but are not limited to:

- New ordinances to require dual plumbing and onsite reuse in new larger commercial and multi-family development,
- New landscape transformation ordinances,
- New ordinances requiring water use information submittal from new development (benchmarking),
- Expansion of existing centralized reclaimed water system connection requirements,
- Expanding existing alternative water, landscape transformation, and irrigation system efficiency rebates,
- Deployment of advanced metering infrastructure (AMI), and
- Reducing losses from pipes in the utility's water distribution system by enhancing current water loss reduction programs.

Austin Water is leading the implementation of Water Forward. The Water Forward adaptive management plan will guide implementation timelines with the flexibility to change to address possible uncertainties in the future.

To view the complete Water Forward plan and get detailed information about the planning process, please visit <http://austintexas.gov/waterforward>.

### WATER CONSERVATION GOALS

The Water Forward strategies listed above are complementary to Austin's current extensive list of water conservation programs and incentives. The conservation goals in the table below were developed using Water Forward savings estimates and GPCD projections generated by the Water Forward Disaggregated Demand Model. The goals represent the projected short-term savings from the initial development and implementation of the Water Forward strategies expected to come online over the next five and ten years, as well as ongoing conservation and reuse programs.

Five- & Ten-Year Goals for Water Savings from Conservation				
	Historic 5-Year Average	2018 Baseline	2024 Goal	2029 Goal
<b>Total GPCD</b>	126	126	119	106
<b>Residential GPCD</b>	67	65	61	55

Water demand can fluctuate greatly depending on weather conditions. Hot and dry years typically raise demand while colder and wetter years lower it. The water savings goals in this Conservation Plan reflect reductions in water use resulting from year-round Conservation Stage measures and conservation programming rather than drought response efforts.



### **WATER LOSS CONTROL**

Austin Water has undertaken a comprehensive effort to manage water loss resulting from leaks, reduce non-revenue water, and improve the quality of data in water loss estimates.

#### **Leak Detection & Repair**

Austin Water has staff that performs leak detection, and it also contracts for leak detection services to locate subsurface leaks in the water distribution system. Through these efforts, Austin Water uses acoustic technology to inspect more than 500 miles of water lines for leaks each year. In addition, Austin Water has piloted satellite leak detection to search for leaks on a system-wide basis and uses smart ball technology to search for leaks inside of large transmission mains.

To ensure the reliability of Austin's water distribution system, Austin Water has implemented "Renewing Austin", an ongoing program to replace and upgrade aging water lines. The program targets mains with a history of leakage incidents for replacement, instead of repeatedly fixing small sections of the mains as leaks occur.

Austin Water has also initiated an accelerated leak response and repair program, which included adding additional staff, that has proven highly successful, with most leaks now repaired in one day or less and about 90 percent of emergency leaks responded to within three hours.

#### **Unaccounted-For Water Uses (*Non-Revenue Water Uses*)**

Austin Water implemented a comprehensive plan to reduce non-revenue retail water use. It routinely analyzes consumption data for zero-reads and suspicious patterns for City retail customers and wholesale master meters. Austin Water coordinates with City of Austin Utilities Revenue Measurement Control staff to investigate meter tampering and water theft. Additionally, theft from City hydrants can be reported to Austin 3-1-1, as advertised on numerous water hydrants in areas with high construction traffic. Finally, all unmetered water drawn from hydrants and used by other City departments is tracked and reported to Austin Water.

### **WATER LOSS GOALS**

It is expected that water loss percentages will fluctuate annually with weather and demand conditions, and that some fluctuation will result from improved data collection. Austin Water conducts annual Water Loss Audits according to Texas Water Development Board methodology and has made significant progress in reducing non-revenue water while improving data validity scores. Austin Water has dedicated one FTE specifically for addressing water loss.

The table on the following page shows water loss, which is the difference between water diverted or treated and water delivered or sold, over the past five years.

Historical Water Loss			
	Amount ( <i>billion gallons</i> )	Infrastructure Leakage Index	Loss in Gallons Per Capita per Day
<b>2018*</b>	7.055	3.84	19.2
<b>2017</b>	7.464	4.21	21.0
<b>2016</b>	5.973	3.31	17.1
<b>2015</b>	6.713	3.88	19.8
<b>2014</b>	5.636	3.17	17.2

\*Preliminary

The five-year averages for Water Loss gallons per capita per day (GPCD) and Infrastructure Leakage Index (ILI) used the water loss audits from FY 2014 through CY 2018. They were calculated using the retail population and with all sales to wholesale customers subtracted out of water produced and water billed.

Five- & Ten-Year Water Loss Reduction Goals				
	Historic 5-year Average	Baseline*	CY 2024 Goal	CY 2029 Goal
<b>Water Loss (GPCD)</b>	18.9	19.3	11	11
<b>Infrastructure Leakage Index</b>	3.46	3.84	2.6	2.4

\*Preliminary

Austin Water has chosen to provide the ILI instead of percentage losses. Austin Water considers percentage losses to be a poor performance measurement, as it is driven by total consumption more than losses, and therefore can provide trends that are misleading when considering water loss. It is also important to note that water loss is not driven by population like water use, so losses per capita per day is also a poor performance measure.

### RECORD MANAGEMENT SYSTEM FOR CITY RETAIL CUSTOMERS & WHOLESALE MASTER METERS

Daily water pumping records are maintained at the treatment facilities. The City maintains records of water distribution and sales through a central billing system which segregates water sales into Single-family Residential, Multi-family, Commercial, Wholesale, and Large Volume Industrial user classes which are then charged different rates for water and wastewater services.

The Customer Care and Billing database (CC&B) provides a central location for water billing information. Austin Water also maintains a wholesale database that allows for monitoring compliance with wholesale customer contract provisions. A separate database, IPS, serves as the database of record asset management and tracking work orders and service requests. IPS interfaces with Geographic Information System information to allow mapping of utility distribution lines, hydrants and meters, and to geographically track service requests.



### **METERING DEVICES**

Austin Water's customer meters are specified to be accurate upon installation between 98.5 and 101.5 percent for the majority of flow ranges, dropping to 95-101 percent at the lowest edge of the flow range. Each meter of 1½ inches or larger is tested before installation, and 10 percent of the smaller meters are tested. Three inch or larger meters are tested routinely through a contract with a private firm. A study of the accuracy of installed meters two inches and smaller has shown an average accuracy of just under 98 percent. Small meters are replaced when a problem is suspected as replacement is more cost effective than repair for two inch and smaller meters.

For wholesale customers, Austin Water staff annually tests master meters that are three inches and above. The accuracy range considered acceptable for these meters varies according to the specifics of each wholesale customer's contract but are generally required to be within a  $\pm 1.5$  percent accuracy range. Wholesale customer master meters of less than three inches are periodically replaced by Austin Water staff.

### **UNIVERSAL METERING**

Austin Water universally meters all customers. Wholesale customers have one or more master meters. All master meters are routinely tested as part of their contract with the City.

### **CONTINUING PUBLIC EDUCATION & INFORMATION**

With one of the most extensive water conservation programs in the nation, Austin plays a leadership role in conservation at the regional, state, and national levels, and shares experiences and resources with other water providers to promote conservation innovation and effectiveness. Austin Water uses public education and community outreach as a means of encouraging participation in water conservation programs and incentives, as well as to build awareness about water use restrictions.

#### **School Education Programs**

Austin Water offers the *Dowser Dan* musical program, which targets kindergarten through fourth grade students in areas served by Austin Water. This program educates children and teachers about water conservation through a 45-minute presentation and accompanying worksheets and materials. The *Dowser Dan* program, which began in the 1990s, reaches approximately 16,000 students each year.

In 2015, the Texas Colorado River Rolling Exhibit, also known as the Mobile River, was launched in partnership with the Austin Independent School District, Austin Water, and the Colorado River Alliance. The Mobile River, which is housed inside a 40-foot trailer and functions as a mobile science museum, features interactive exhibits and hands-on activities.

### **Advertisements / Program Marketing / Branding**

Advertising provides citizens with information about water conservation and programs available to encourage water conservation. Austin Water regularly places advertisements in the *Austin American-Statesman* newspaper as well as in neighborhood newspapers, local radio, television stations, and social media. Local celebrities have appeared in several television and radio commercials to promote the watering schedule and discourage the waste of water. Additionally, information is provided directly to customers in utility bills and through direct mail outs to high water users.

In 2016, Austin Water developed new branding protocols and templates to use as tools for creating consistent messaging. This was done as part of an effort to ensure all program applications and informational materials have a similar look and feel across utility divisions, are streamlined, contain up to date information, and use plain language to improve readability. The Water Conservation Division updated its program applications and guidelines to provide clear information about program requirements and developed checklists to help customers meet all program requirements.

### **Electronic Newsletters**

In March 2004, Austin Water's Conservation Division began the "WaterWise Newsletter" as part of an effort to communicate more regularly with customers and increase participation in water conservation initiatives. The newsletter is distributed electronically to a database of approximately 30,000 customers. Customer email addresses are collected from program applications and information requests, and visitors to the Water Conservation website are encouraged to self-subscribe by providing an email address.

In 2013, Austin Water launched the "WaterWise Commercial Newsletter" with conservation information related to commercial, industrial and institutional customers.

### **Workshops, Presentations and Outreach Programs**

Austin Water offers free workshops to educate the public on water conservation techniques and available programs. The Industrial, Commercial and Institutional Water Conservation Technical Workshop, which is put on jointly by Austin Water and the Lower Colorado River Authority, is an annual technical workshop on water saving measures, technologies, and rebate programs for industrial, commercial and institutional customers, facility managers and engineers.

Residential customers may attend "Controller 101" Workshops, which are free hands-on workshops provided by Austin Water to review how irrigation controllers work and to find out about hidden features that can help save water and money. The Irrigation System Maintenance for Efficiency Workshop teaches basic maintenance skills to maximize performance and efficiency of irrigation systems to manage landscapes and to reduce watering costs.

The WaterWise Irrigation Professional Seminars include information on water-efficient irrigation systems, water conservation programs, the mandatory watering schedule, electrical troubleshooting, irrigation auditing, and turf grass-watering requirements. This seminar provides continuing education credits toward license renewal for licensed irrigators.

Austin Water is a member of the Central Texas Water Efficiency Network, a coalition of regional water agencies and water advocacy groups, which meets to share information and promote water efficiency education, legislation, programs, technologies, and all other integral components of water conservation to have a regional impact on water supplies and use. This network organizes the annual Central Texas Water Conservation Symposium, a one-day regional event aimed at providing conservation education to about 160 water professionals each year.

Austin Water also participates in festivals, school events, and informational fairs by providing staff and materials to promote water conservation. In 2009, Austin Water developed a Water Conservation Speakers Bureau, which allows area groups to schedule Austin Water staff members to speak on topics including, but not limited to, conservation measures, irrigation, leak detection, and water waste. Each year, Austin Water typically participates in more than 100 events and programs.

### **Web Page / Social Networking**

Austin Water provides a wide range of water conservation information on its website, [www.WaterWiseAustin.org](http://www.WaterWiseAustin.org). All water conservation programs offered by the City, including the various rebate and free water use audit programs, are described on the website. For customer convenience, program applications are also available on-line. Tips on strategies for reducing indoor and outdoor water use are provided for both businesses and residents.

Austin Water incorporates social media into its communication efforts by providing updates on conservation-related topics via Facebook, Twitter, Instagram, Nextdoor, and YouTube. From attention-getting graphics, informative videos, and a personable approach, Austin Water is able to capture a wide audience. Currently, Austin Water has over 7,600 followers on Twitter, over 830 on Instagram, and almost 4,700 on Facebook.

### **Evaluation of Education & Outreach Efforts**

In 2018, Austin Water set a goal to improve the utility's scores on the J.D. Power Water Utility Residential Customer Satisfaction Study to be higher than the regional average (*with a long-term goal to be the regional leader*) for each topic surveyed. The utility created a team to develop metrics for measuring effectiveness of efforts taken to obtain this goal. This team determined that initial focus should be on Communications. Communications was selected because customer awareness was determined as a factor of each survey topic. Recent J.D. Power study results showed the frequency of utility communication was "just right", while at the same time revealing lack of awareness about the utility and its services. Austin Water's Public Information Office (PIO)

intends to produce messaging that is simple, retainable, and effective to work towards the final goal.

Based on its research, the team decided to focus on increasing the number of social media impressions per month to evaluate its impact on the Communications score. Social media is an interactive and flexible format that can offer real-time feedback on communications. It also allows for rapid updates in quickly changing conditions. This metric complements on-going PIO efforts to expand the reach of its social media presence.

An impression is broadly defined as any interaction between a piece of content and an audience member. Key performance indicators for measuring social media impressions include both traffic data and numbers for each of the following:

- Clicks,
- Likes,
- Shares,
- Comments,
- Brand mentions,
- Profile visits,
- Active followers,
- Total followers, and
- Times of reposts.

Austin Water PIO is monitoring the number of impressions on Facebook, Twitter, and Instagram over an 18- to 24-month period and will compare the results against each J.D. Power Communications wave score. For this metric, AW defines impressions as a total summation of the reach on Facebook, and impressions on Twitter and Instagram. Facebook reach is defined as number of viewed posts. Twitter Impressions are defined as the number of times a picture has been viewed. Instagram Impressions are defined as the total number of interactions or engagement

### NON-PROMOTIONAL WATER RATE STRUCTURE

To keep costs affordable for essential uses while discouraging excessive use, Austin Water has a five-tiered inclining block rate structure for single-family residential customers. This inclining rate structure, which is among the steepest in the country, has resulted in a dramatic reduction in the amount of water sold at the highest tiers.

Commercial and multi-family customers are encouraged to conserve water during the irrigation season through peak and off-peak rates, as illustrated in the table below.

#### Austin Water Volumetric Rate Structure (effective May 1, 2018)

Amount Used	Volume Unit Charge (per 1,000 gallons)
<b>Single Family Residential</b>	
0-2,000 gallons	\$2.89
2,001-6,000 gallons	\$4.81
6,001-11,000 gallons	\$8.34
11,001-20,000 gallons	\$12.70
Over 20,000 gallons	\$14.21

Multi-Family	
Off Peak (November-June)	\$4.53
Peak (July-October)	\$5.00
Commercial	
Off Peak (November-June)	\$5.27
Peak (July-October)	\$5.66

Wholesale customers and several large volume/industrial customers have individual rates established through negotiated contracts.

### RESERVOIR SYSTEMS OPERATIONS PLAN

LCRA owns and operates the key water supply reservoirs in the region, lakes Travis and Buchanan. LCRA operates these reservoirs in accordance with its state-approved Water Management Plan. This plan, which governs operation of the Highland Lakes to supply water to users throughout the lower Colorado River basin, is reviewed periodically to keep pace with growing water demands and improved information. It was first approved in 1989, and has been updated in 1991, 1992, 1999, 2010, and 2015.

A link to the current plan, which enables LCRA to adapt its operations as water supply conditions change, is available at <https://www.lcra.org/water/water-supply-planning/water-management-plan-for-lower-colorado-river-basin/Pages/default.aspx>.

Both Lake Austin and Lady Bird Lake, also on the lower Colorado River, are owned by the City of Austin and are operated as pass-through pools.

### CONTRACT REQUIREMENTS FOR SUCCESSIVE CUSTOMER CONSERVATION

All new, amended, extended, or renewed wholesale water supply contracts must include language stating that the wholesale customer will adhere to the City's water management ordinance and establish a water conservation program similar to the one enforced by the City. Enforcement of these ordinances is the responsibility of the entities receiving City wholesale water. The City is willing to assist as requested by the wholesale entity.

All new, amended, extended, or renewed wholesale water supply contracts are required to include language stating that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of 30 TAC Chapter 288. However, all City wholesale customers only resell City wholesale water to their retail customers. The City's wholesale customers do not sell City wholesale water to another utility that then resells the water to its retail customers (i.e. successive wholesale customers). Therefore; the requirement related to successive wholesale customers does not apply to the City.

### CONSERVATION PLAN ADOPTION & ENFORCEMENT

#### Public Input

Austin Water conducted an extensive public input process over a three-year period as part of developing the Water Forward integrated water resource plan. This plan provides the framework for determining the conservation planning measures and water savings goals that will be implemented over the next century. In developing Water Forward, the utility got input from the Austin Water Integrated Resources Planning Community Task Force, which was composed of Mayor and Council-appointed community leaders and Ex Officio members from several City departments. The Water Forward planning process also included extensive input from the public. Austin Water collected public input at more than 80 outreach events, including five Water Forward Public Workshops, four Targeted Stakeholder Meetings, and 10 Summer Series events (*one in each City Council district*). Austin Water delivered presentations and/or outreach materials at more than 60 community events, information sharing sessions, community group meetings/seminars/professional events, and district town halls. The input received was used throughout the process of developing the plan and preparing the draft recommendations.

The Utility Profile and Water Conservation Plan is anticipated to be presented at meetings of the Resource Management Commission in March 2019 and the Water and Wastewater Commission in April 2019.

#### Plan Adoption

Austin City Council is expected to review the 2019 Utility Profile & Water Conservation Plan for Municipal and Wholesale Water Use on April 11, 2019. Once reviewed and approved the following statement will be included in the Plan:

“Authority to implement this plan is granted by the Austin City Council. Austin City Council approved the 2019 Utility Profile & Water Conservation Plan for Municipal and Wholesale Water Use on April 11, 2019.” The signed resolution showing plan adoption can be found in Appendix E.

#### Enforcement

Austin Water enforces the Water Conservation Code through routine patrols by its dedicated enforcement staff and by following up on water waste reports received through the Austin 3-1-1 hotline. Customers found to be in violation of this code may be penalized by having an administrative fine placed on their water bill or by being charged with a Class C Misdemeanor in municipal court. Failure to submit a required efficiency inspection by its due date may also result in customer fines.

### **COORDINATION WITH REGIONAL WATER PLANNING GROUP(S)**

The Austin Water service area is located within the Region K Planning Group. Austin Water has provided a copy of this water conservation plan to the Region K Planning Group. A copy of the transmittal letter can be found in Appendix F.

### **PLAN REVIEW & UPDATE**

Austin Water staff review conservation programs and targets annually. The Utility Profile and Water Conservation Plan for Municipal and Wholesale Water Use is reviewed and updated every five years according to TCEQ requirements under Title 30 Texas Administrative Code §288.30 or more frequently as needed to reflect changes in water conservation policy. Wholesale customers are provided any updates of the City's water conservation ordinance(s). The next revision of the plan is expected not later than May 1, 2024.

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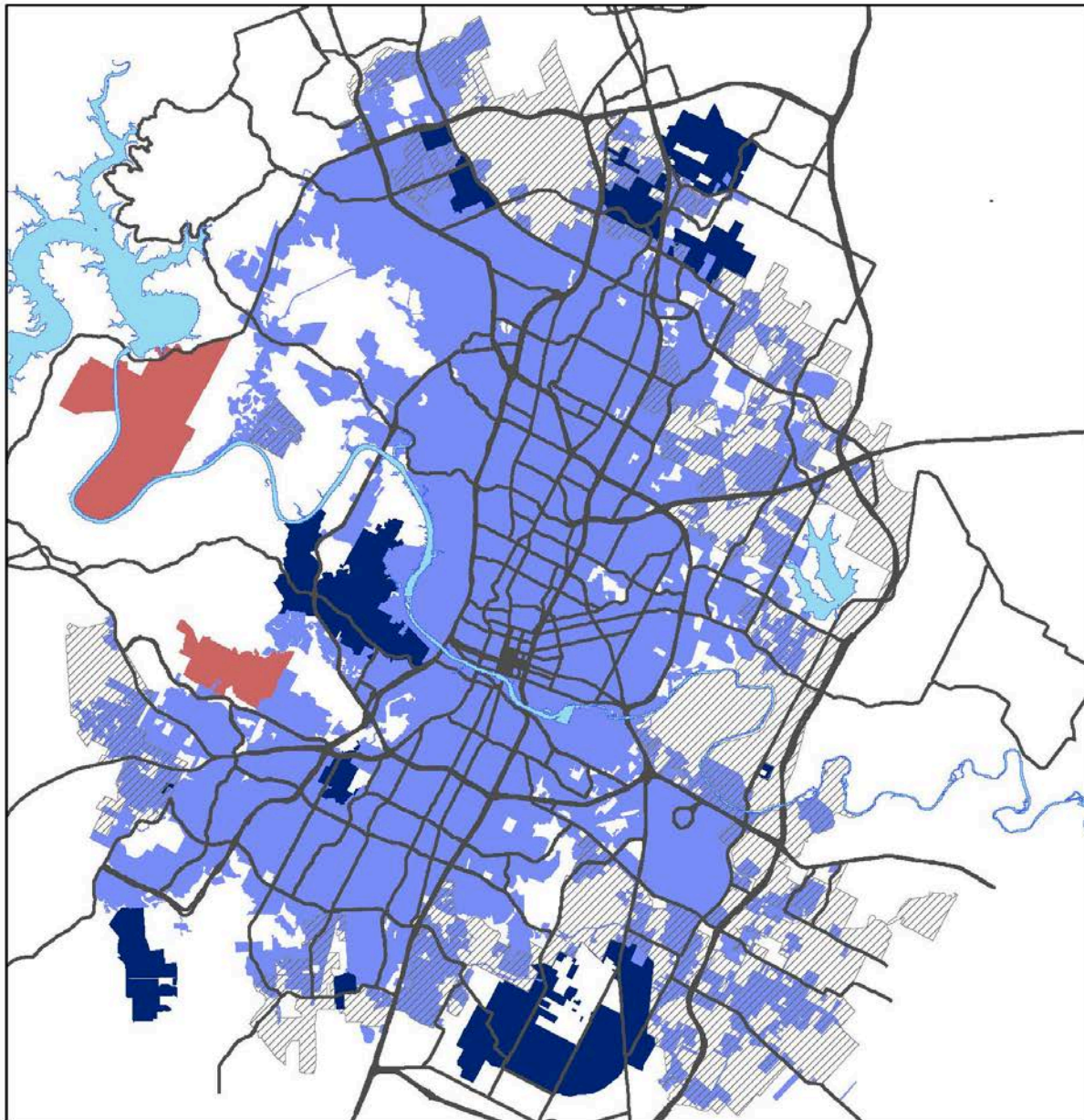


**APPENDIX A**

**Map of Service Areas & Certificate of  
Convenience and Necessity Area**

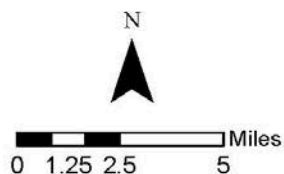
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**Legend**

- AW Retail Service
- AW Emergency Service
- AW Wholesale Service
- AW Water CCN



City of Austin  
Austin Water  
February 2019



**Austin Water Service Area Map**

Produced by Systems Planning

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## **APPENDIX B**

### **Wastewater Treatment Plants and Permits**

DRAFT

### **City of Austin (CN600135198) Austin Water**

Plants 1 through 8 are permitted to discharge to a stream. Plants 9 through 12 are not permitted to discharge to the waters of the state.

Permitted flows are expressed as monthly averages unless specified otherwise. Effluent quality is expressed as monthly average (unless specified otherwise) and written after the permitted average flow in the following order: 5-day Carbonaceous Biochemical Oxygen Demand (CBOD<sub>5</sub>)/Total Suspended Solids (TSS)/Ammonia-Nitrogen (NH<sub>3</sub>-N)/Total Phosphorus (TP), when applicable. For Balcones, Onion Creek, Lost Creek, River Place and Thoroughbred Farms, the effluent limit is on 5-Day Biochemical Oxygen Demand (BOD<sub>5</sub>), and not on CBOD<sub>5</sub>.

1. Walnut Creek Wastewater Treatment Plant, TPDES Permit No. WQ0010543011, EPA ID No. TX0046981, RN101607901, 75 MGD (annual average), 10/15/2 (monthly average) and 5/5/2 (annual average) to the Colorado River
2. South Austin Regional Wastewater Treatment Plant, TPDES Permit No. WQ0010543012, EPA ID No. TX0071889, RN101607794, 75 MGD (annual average), 10/15/2 (monthly average) and 5/5/2 (annual average) to the Colorado River
3. Wild Horse Ranch Wastewater Treatment Plant, TPDES Permit No. WQ0010543013, EPA ID No. TX0124800, RN103014577, 0.75 MGD, 5/5/2/1 to a tributary of Gilleland Creek
4. Taylor Lane Wastewater Treatment Plant, TPDES permit No. WQ0010543014, EPA ID No. TX0129950, RN105331755, 0.1 MGD, 5/5/2/1 to Gilleland Creek
5. Pearce Lane Wastewater Treatment Plant, TPDES Permit No. WQ0010543015, EPA ID No. TX0132934, RN106066715, 0.15 MGD, 5/5/2/1 to a tributary of Dry Creek
6. Thoroughbred Farms Wastewater Treatment Plant, TPDES Permit No. WQ0014459001, EPA ID No. TX0067466, RN101265254, 0.065 MGD, 20/20 to Dry Creek
7. Dessau Wastewater Treatment Plant, TPDES Permit No. WQ0012971001, EPA ID No. TX0097870, RN102077328, 0.5 MGD, 10/15/3 to a tributary of Harris Branch
8. Brushy Creek Regional Wastewater Treatment Plant (Co-permittee with City of Round Rock, City of Cedar Park, and Brazos River Authority), TPDES Permit No. WQ010264002, EPA ID No. TX0101940, RN10082260, 21.5 MGD (annual average), 10/15/2, to Brushy Creek
9. Balcones Water Reclamation Plant, TCEQ Permit No. WQ0011363001, RN102095114, no discharge, irrigation of golf course, 0.292 MGD/10
10. Lost Creek Water Reclamation Plant, TCEQ Permit No. WQ0011319001, RN100641653, no discharge, irrigation of golf course, 0.42 MGD, 10/15

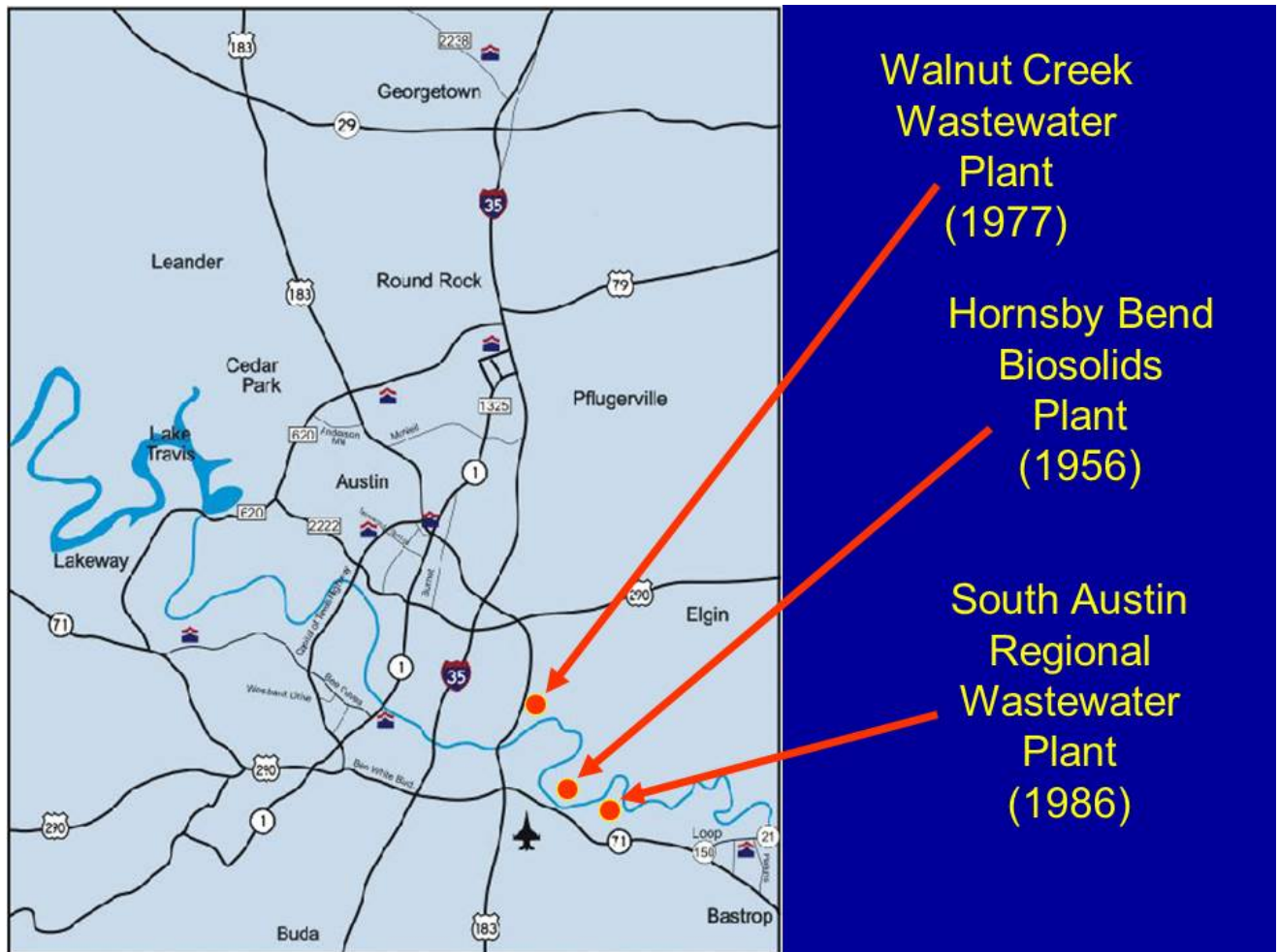
11. River Place Water Reclamation Plant, TCEQ Permit No. WQ0011514001, RN100843283, no discharge, irrigation of golf course, 0.207 MGD, 5/5

12. Hornsby Bend Biosolids Management Plant, TCEQ Permit No. WQ0003823000, EPA ID No. TXL0050005, RN100816685, biosolids treatment plant, no discharge

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## **APPENDIX C**

### **Map of Large Wastewater Treatment Plants**

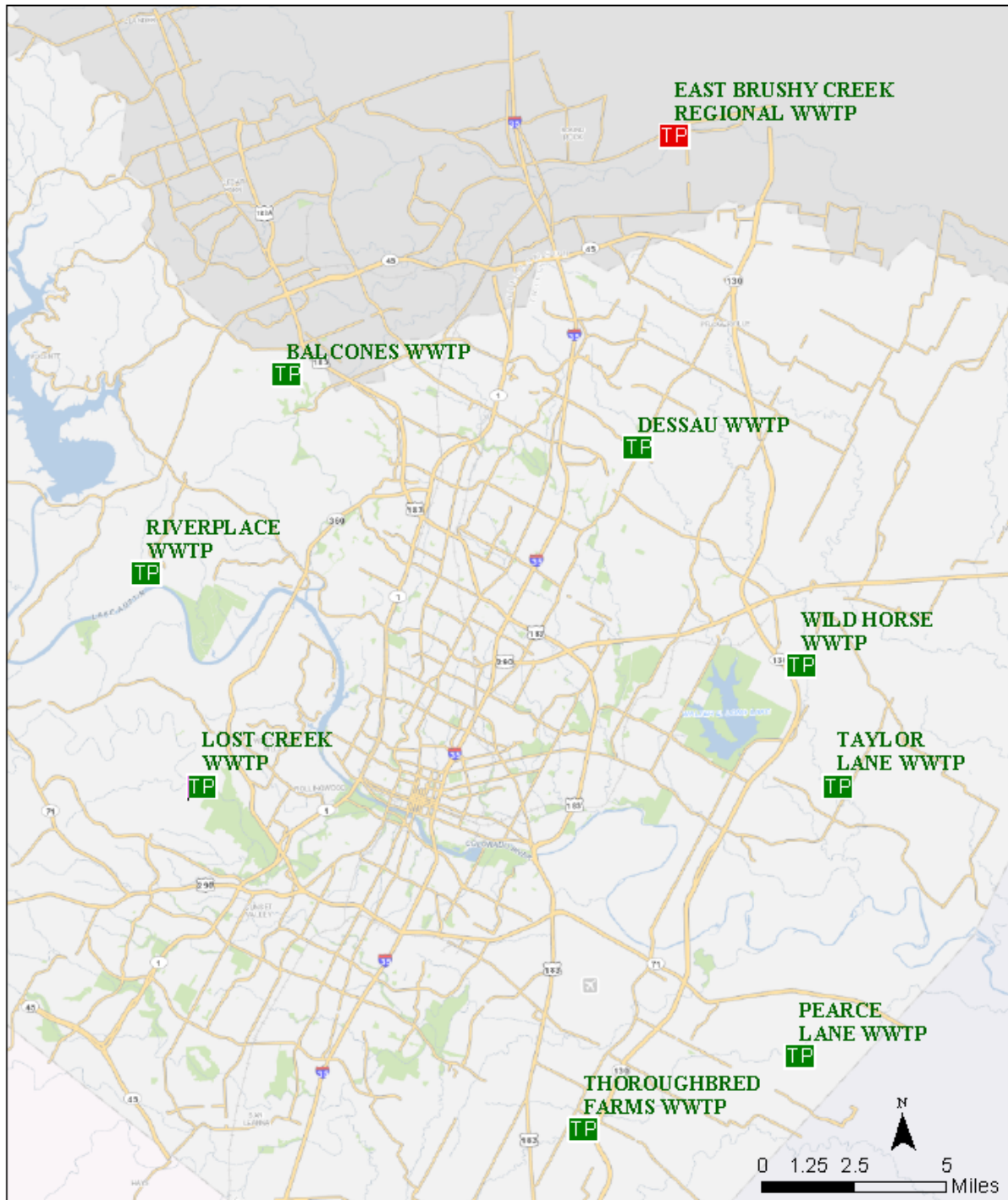


## **APPENDIX D**

### **Map of Small Wastewater Treatment Plants**

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Austin's Small WWTP

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City of Austin  
Austin Water  
February 2019



Produced by GIS Services

**APPENDIX E**

**Signed Resolution Showing Plan Adoption**

DRAFT

Resolution showing plan adoption will be inserted here after the Council approval process is complete

**APPENDIX F**

**Copy of Transmittal Letter to Regional Planning Group**

DRAFT

Copy of transmittal letter to Region K will be inserted here after the Council approval process is complete

DRAFT