



City of Prescott



Background

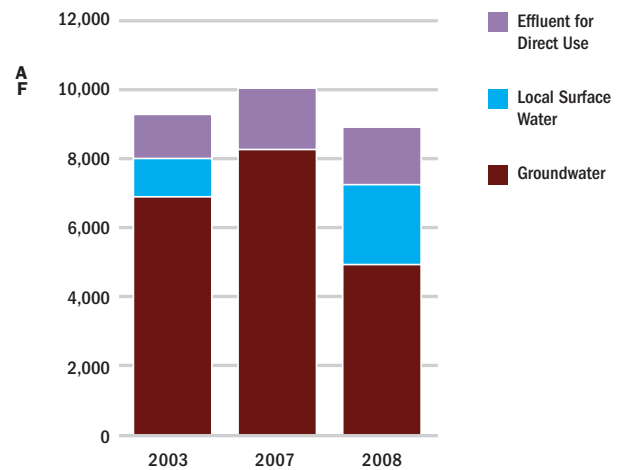
The city of Prescott is the county seat of Yavapai County, and has an estimated population of 43,573 residents.* The city is located about 100 miles southwest of Flagstaff, between the Sierra Prieta Mountains to the west and Black Hills to the east.

At an elevation of 5,368 feet, Prescott is in the Central Highlands Transition Zone physiographic province. The city has an annual average precipitation of 11.8 inches, average high temperatures in the summer of 90.4 degrees (°F), and average low temperatures in the winter of 24.9 degrees (°F).†

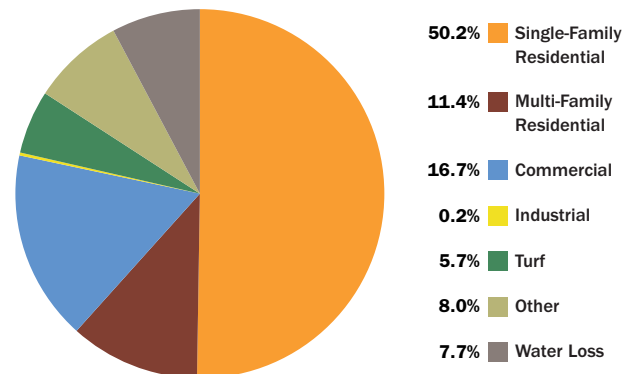
Water Supply and Deliveries

Prescott's water supply is pumped from groundwater wells in the Chino Valley and Prescott area; however, a portion of this groundwater was originally sourced from local lakes and then recharged to the aquifer. In 2008, 50% of the total water deliveries in Prescott were used by single-family residential accounts. The commercial sector, the second-highest water user in the city, used more than the government, construction, turf, and industrial sectors combined.

SOURCES OF WATER FOR PRESCOTT



2008 WATER USE IN PRESCOTT



* Arizona Department of Commerce. 2009. *Arizona population estimates, 2009*. Available at: <http://www.azcommerce.com/econinfo/demographics/Population+Estimates.html> (accessed May 5, 2010.)

† Western Regional Climate Center. 2009. Climatological summary: Prescott-Ernest A. Love Field Airport. <http://www.wrcc.dri.edu/summary/prc.az.html> (accessed July 13, 2010).



Per Capita

The city of Prescott reduced its system-wide total gallons per capita per day (GPCD) water use from 2003-2008 (-13.6% change), and significantly reduced its single-family residential (-29% change) and system-wide potable (-18% change) GPCD over the same time period.

Prescott GPCD

Per Capita Water Use	2003	2007	2008
Single-Family Residential ^a	137	114	98
System-Wide Potable ^b	154	144	126
System-Wide Total ^c	193	189	167

^a Treated water deliveries to single-family accounts ÷ single-family residential population

^b Total treated water delivered ÷ service area population

^c Total raw water from all supply sources + direct effluent use ÷ service area population

Rate Structure

Prescott uses a four-tier inclining block rate for single-family residential water accounts.

Usage Per Dwelling Unit	Cost
0–3,000 gallons	\$2.86 per 1,000 gallons
3,001–10,000 gallons	\$4.30 per 1,000 gallons
10,001–20,000 gallons	\$6.45 per 1,000 gallons
Over 20,000 gallons	\$12.90 per 1,000 gallons

Single-family residential accounts have a base service fee of \$6.60 and an additional alternate water resource fee of \$0.65 per 1,000 gallons. The base fee comprises 12% of the average customer’s monthly bill for 10,000 gallons. The slope of the city’s average price curve is 0.1284, indicating that the average price of water increases significantly as consumption volume increases.

Conservation Measures

The city of Prescott is regulated in the Prescott Active Management Area as a large municipal provider under the Modified Non Per Capita Conservation Program (NPCCP). As a Tier 2 municipal provider, Prescott is required to implement a public education program and five additional water conservation best management

practices (BMPs). The city has implemented 23 additional BMPs, but will be evaluated for compliance with the Modified NPCCP on the following five:^{*}

- 1.1 – Local and/or Regional Messaging Program
- 2.2 – Youth Conservation Education Program
- 3.4 – Residential Interior Retrofit Program
- 5.8 – Landscape Watering Restrictions
- 6.9 – Landscape Conversion Incentives

Customer Rebates

The city offers several popular water conservation credits. For the 2010 fiscal year, \$85,900 of allocated funding has already been exhausted by the following credits:[†]

- *Turf removal* – \$0.50 per square foot, up to \$800 for residential accounts and \$2,000 for nonresidential accounts.
- *Automatic drip systems* – \$150 credit.
- *Rainwater catchment* – \$0.10 per gallon for catch capacity, minimum of a 500-gallon system, maximum credit of \$500.
- *Low-flow toilet* – \$100 credit for 1.6-GPF toilet.
- *High-efficiency toilet* – \$150 credit for 1.28-GPF toilet.
- *Dual-flush toilet* – \$150 credit for toilet that is 0.8-GPF/1.6-GPF or less.
- *Low-flow urinals* – \$100 credit for urinal that is 1.0-GPF or less.
- *Waterless urinals* – \$125 credit.
- *Low-flow showerhead* – \$10 credit.
- *Leak repair* – \$20 per leak, maximum \$50.
- *Certified irrigation audit* – \$100 credit.

Ordinances/Rules

Water Conservation Code Regulations[‡] – The code establishes maximum flow rates for plumbing fixtures and other devices, and applies to all new construction and the replacement of fixtures in all existing structures. Covered

^{*} ADWR List of Best Management Practices (adapted from the 2nd Modification to the Third Management Plan Chapter 5, May 2008).

[†] PRESCOTT, ARIZ., ORDINANCE 4691-0934 (APRIL 10, 2009).

[‡] PRESCOTT, ARIZ., CODE, § 3-10-3(A) (2010).



fixtures include toilets, urinals, showerheads, faucets, and public restrooms.

Time-of-Day Watering Restrictions* – Outdoor spray irrigation and airborne watering shall only be permitted during the hours between 8:00 p.m. and 8:00 a.m. during the period April 15 through November 1.

Low-Water-Use, Drought-Tolerant Plant List† – All plants within any publicly owned right-of-way may be irrigated with groundwater only if the plants are listed on the ADWR Low-Water-Use Plant List.

Artificial Lakes and Fountains‡,§ – The use of treated, metered, potable water from the municipal water supply system for the purpose of filling or refilling private artificial lakes is prohibited. Spray-type fountains are also prohibited.

Water Meter Tests¶ – Should any consumer doubt the correctness of his water meter or water bill, the consumer may have his meter retested and/or reread by submitting a written application to the city and paying a fee of \$35. If, during a meter test, an error is found exceeding 4%, allowance shall be made covering a period not to exceed the prior billing and the current consumption to date of removal of the meter. Should an error be found exceeding 4%, all of the expenses incurred in the meter removal and replacement shall be borne by the city, and the \$35 deposit refunded to the consumer.

Tampering with the Water System** – It shall be unlawful for any person to break, deface, alter, tamper with, or damage any hydrant, pipe, or other water system appliance or fixture, or in any other manner interfere with the operation of any part of the water system of the city.

Water Consumers Not to Supply Water to Others†† – Consumers (other than a private line system) shall not supply water or allow water to be carried or run through a hose or pipe to any premises other than that described

* *Id.* § 3-10-14.

† Prescott Active Management Area. 2006. Low water use draught tolerant plant list: Official regulatory list for the Arizona Department of Water Resources Prescott Active Management Area. Available at: <http://www.cityofprescott.net/documents/> (accessed June 29, 2010).

‡ PRESCOTT, ARIZ., CODE, § 3-10-5 (2010).

§ *Id.* § 3-10-9.

¶ *Id.* § 2-1-25.

** *Id.* § 2-1-36.

†† *Id.* § 2-1-27.

in the application, agreement, or contract without first having received written permission from the city.

Failure of Consumer to Comply with Regulations‡‡ – The city may refuse to furnish water or sewer services to the premises of any applicant who fails to meet all the applicable conditions and terms of the regulations or requirements set forth in the city code relating to water or sewer service.

Water Flowing Upon Streets§§ – It shall be unlawful for any person, firm, or entity to allow potable water used for irrigation to flow into or upon a public street, alley, public right-of-way, or adjoining property.

Education

Educational Materials – The city of Prescott has developed and branded a WaterSmart logo that is used on all conservation program communications. WaterSmart cards with different water conservation topics (ranging from leak detection to rainwater harvesting to Xeriscape principles) are included in each month's utility bills and are also distributed regionally. The city of Prescott also maintains a website containing water conservation information and applications for water conservation incentive programs.

Regional Messaging Program – Prescott is a member of the Upper Verde River Watershed Protection Coalition (UVRWPC). The UVRWPC supports the creation of regional water conservation best management practices, which they disseminate over regional radio spots that cover a wide range of water conservation issues. The UVRWPC provides links to the audio files of these BMP radio spots on its website.

School-Based Education – The city of Prescott supports Project WET. The water conservation coordinator is a certified Project WET facilitator and participates in Project WET events and training in Prescott. The city has also sponsored many teacher trainings and water festivals, along with funding conservation education grants for Project WET teachers.

‡‡ *Id.* § 2-1-35.

§§ *Id.* § 3-10-10.



Implementation of Conservation Measures

Prescott tracks its conservation programs in a systematic way and provides this information to customers on the city’s website.* The credits implemented between July 2006 and June 2010 are listed below, along with an estimate of the annual water savings these measures are achieving:

Incentive	Number of Products/Activities	Projected Savings (Gallons per Year)
Turf grass removal	216	9,918,772
Leaks repaired	354	1,178,550
High-efficiency clothes washers	538	2,325,236
Hot water recirculation pumps	146	319,740
Low-flow toilets	1,502	10,964,600
Low-flow showerheads	547	3,744,900
Waterless urinals	20	41,600
Irrigation audits	11	220,000
Rainwater harvesting systems	10	71,734
Automatic drip irrigation	66	1,782,660

Prescott estimates that these incentives have saved approximately 236 AF of water since inception, at an average cost of \$1,509 per AF of water saved. The average customer who participates in the incentive program receives about \$172 worth of credits to his water bill and saves approximately 102 gallons of water per household per day or 37,310 gallons per year.

Prescott’s watering restriction ordinance has also produced measureable results. In 2006, there were 13 days above 12 MGD. The time-of-day watering ordinance went into effect in 2006, and for 2007 only four days were above 12 MGD. The year 2008 had no days above 12 MGD, and four days above 10 MGD, with the highest day of 10.8 MGD. The year 2009 had only two days above 10 MGD, with the highest day of 10.5 MGD.†

* City of Prescott, Arizona. 2010. Water conservation. <http://www.cityofprescott.net/services/water/conservation.php> (accessed June 25, 2010).

† Arizona Department of Water Resources. September 18, 2009. Official notice of provider profile approval, Modified Non-Per Capita Conservation Program, 56-003017.0000, City of Prescott.

Funding for Conservation

In 2008, Prescott had a conservation budget of \$143,000, approximately 0.5% of the total water utility’s budget. The city has one full-time employee in the water conservation department, and each year spends about \$2.98 per customer on water conservation programs.

Goals for Conservation Savings

Through the safe yield committee, the city of Prescott adopted a goal to promote water conservation by all users and providers in the city of Prescott water service area. The goal seeks to reduce total annual water consumption, with an emphasis on reducing water demand during the summer peak use period, and uses the following strategies:

- Extensive water conservation education and publicity (awareness)
- Water conservation incentive programs (utility bill credit)
- Revised and improved conservation regulations and enforcement
- Research of structured water rates (tiered rate structure)

Water Loss

In 2008, the city of Prescott recorded 564 AF (183 million gallons) of water loss, representing 7.7% of total supplies. Data collected for additional years indicate that Prescott consistently maintains water loss in the 7% to 8% range.

Supply-Side Efficiency Measures

The city of Prescott includes a line item in its yearly budget for system leak detection. The program focuses on large sections of infrastructure throughout the system. Approximately five years ago, the city started a project to replace all meters sized 2” and smaller, which includes all residential meters. This program should be complete by the end of 2010.



Effluent Use

The city recognizes the importance of recovering as much of the water used by customers as possible.* As such, the city's water management policy prohibits new golf courses to develop on the city's municipal water or effluent system. In 2008, the city utilized all of the effluent it produced, providing 1,653 AF (37%) to direct uses and recharging the remainder (2,862 AF). The city also maximized effluent use in 2003 and 2007.

Additional Information

The water conservation department is currently working with the parks department on improving water use efficiency at local open spaces. The program, named "Conserve to Enhance," seeks to reduce water use through the use of below-ground irrigation systems, removing select areas of turf grass, and exploring other grass cultivars that use less water and may be better suited for Prescott's climate.

Prescott's water conservation staff contributed substantially to a regional Yavapai County water conservation awareness handbook. The handbook is a resource designed to guide and assist citizens in their efforts to conserve water, with an emphasis on the reduction of outdoor water use. It contains detailed information about water and the water cycle, Yavapai County environs, the energy/water connection, and several examples of low-water-using landscape plants and plans.

* City of Prescott, Arizona. 2008. Drought management plan, see section III(C).