City of Peoria

Background

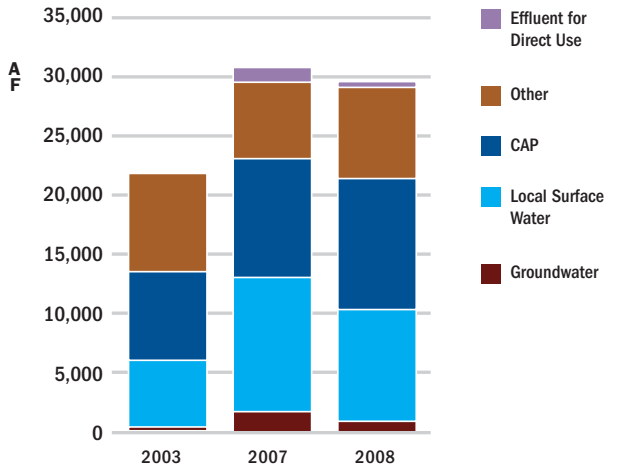
The city of Peoria lies within the Salt River Valley, covering approximately 181 square miles—including Lake Pleasant. An estimated 158,712 people live in the city,* which forms the northwestern corner of the Phoenix metropolitan area.

Peoria is located in the Basin and Range physiographical province at the foot of the Central Mountain Region (the transition zone between the Basin and Range and the Colorado Plateau province). The city receives an average of 9.0 inches of precipitation per year, with average summer highs and winter lows of 100 and 40.9 degrees (ºF), respectively.†

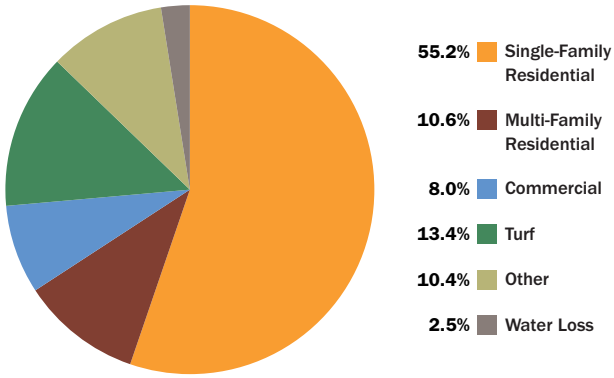
Water Supply and Deliveries

The city of Peoria relies upon a diversified water supply portfolio, including local surface water from the Salt River Project (SRP; Salt and Verde Rivers), imported water from the Colorado River via the Central Arizona Project (CAP), and recovered water (recharged surface water and effluent) labeled as "Other" in the figure below. More than half of Peoria's water supply was delivered to single-family residential accounts in 2008, with turf irrigation as the second-largest water user.

SOURCES OF WATER FOR PEORIA



2008 WATER USE IN PEORIA



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

† IDcide Local Information Data Server. Peoria, AZ weather. http://www.idcide.com/weather/az/peoria.htm (accessed April 13, 2010).

Per Capita

The city of Peoria reduced its gallons per capita per day (GPCD) water use from 2003-2008 across all metrics: single-family residential (-4.1% change), system-wide potable (-1.5% change), and system-wide total (-2.7% change).

Peoria GPCD

Per Capita Water Use	2003	2007	2008
Single-Family Residential [a]	130	129	125
System-Wide Potable [b]	164	176	161
System-Wide Total [c]	173	194	168

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

The city of Peoria uses a four-tier inclining block rate for single-family residential water accounts.

Usage Per Dwelling Unit	Cost
2,000–5,000 gallons	$1.49 per 1,000 gallons
6,000–10,000 gallons	$2.69 per 1,000 gallons
11,000–25,000 gallons	$3.24 per 1,000 gallons
Over 26,000 gallons	$3.85 per 1,000 gallons

Residential accounts have a base service fee of $16.84 (1" meter), which includes the first 1,000 gallons of water used. The base fee represents approximately 46% of an average customer's monthly bill for 10,000 gallons. The slope of the city's average price curve is 0.0031, indicating that the price of water remains relatively constant as consumption increases.

Conservation Measures

The city of Peoria is regulated in the Phoenix Active Management Area as a large municipal provider under the Total GPCD Program. According to the Arizona Department of Water Resources, Peoria is currently in compliance with the requirements of the Total GPCD Program. The city has no current plans to transition to a different regulatory program.

Customer Rebates

The intent of the rebate program is to encourage permanent water reduction inside and outside of the home. Qualifying customers who install specific water-saving features may receive a credit on their utility bill.* Certain requirements are required for each type of rebate:

- *High-efficiency toilet* – $75 for replacing a 3.5-GPF or higher toilet with an EPA WaterSense-labeled toilet (1.28-GPF).
- *Xeriscape conversion* – $715 maximum for replacing turf with low-water-use landscaping.
- *New home Xeriscape* – $150 for customers who choose Xeriscape landscaping for a new home.
- *Hot water recirculator* – $100 for installing a recirculation system.
- *Irrigation timer* – $30, must have certain features.
- *Indoor retrofit kits* – Free for homes built prior to 1990.

Ordinances/Rules

Principles of Sound Water Management – In 2007, the city adopted the "Principles of Sound Water Management," with a mission to implement collaborative, innovative water policies to ensure long-term sustainability, economic vitality, and quality of life in Peoria. The principles emphasize the importance of water conservation, fiscal responsibility, and maintaining a redundant water supply. Peoria was the first city in Arizona to develop and implement such an integrated set of principles governing water management.

Unnecessary Waste and Leaks† **–** Customers shall prevent unnecessary waste of water and keep all water outlets closed when not in actual use. The city may immediately terminate the water supply where any such waste occurs. Water running off a landscaped area to another area where the water is not beneficially used is prohibited.

International Plumbing Code – Peoria adopted the International Plumbing Code in 2006, which sets specific requirements for plumbing practices, fixtures, and appliances.

* City of Peoria, Arizona. Water conservation: Rebate program. http://www.peoriaaz.gov/content2.aspx?ID=1273 (accessed June 15, 2010).

† Peoria, Ariz., Code § 25-53 (1992).

Reclaimed Water Service Required* – New turf facilities of 10 acres or more that are located within a half mile of a reclaimed water service line, including right-of-way landscaping, parks, retention and detention basins, designated open space, and golf course developments, shall use reclaimed water for irrigation purposes.

Minimum Supply Requirements† – All new large-scale developments must provide a water plan that provides a sufficient redundant (back-up) water supply source that is hydrologically separate and distinct from the primary supply of water.

Unauthorized Shutdown of Water Mains‡ – Only authorized city personnel shall operate water valves or perform other work for the shutdown of the city water mains.

Water Meters§ – Any obstruction, alteration, or tampering with city-owned meters by an individual other than authorized city personnel shall be subject to a civil sanction not to exceed $1,000.

Water Customer Negligence¶ – The cost of any damage to the city water system that requires any repairs or replacements shall be added to that customer's bill, together with a 20% administrative fee. If such charges are not paid, water service may be discontinued.

Testing Water Meter Accuracy** – Any customer may have his meter tested for accuracy by the city. If the meter registers a divergence from accuracy greater than 3%, the customer's deposit shall be refunded and an adjustment will be made in the water service bill.

Education

Monthly Water Conservation Column – The city writes a monthly homeowner association water conservation column that highlights certain aspects of water conservation and provides general information on Peoria's programs to readers.

Landscaping Workshops and Presentations – Peoria offers 10-12 free water conservation and landscape classes per year, with an emphasis on low-water-use landscaping, plant selection, and proper irrigation. Classes are advertised in newspapers, utility bill inserts, and websites for the city, Arizona Municipal Water Users Association, and "Water — Use it Wisely." Water conservation staff also provides information and presentations on water conservation to local organizations upon request.

Peoria's Desert Fusion Garden – Approximately a quarter acre of land outside city hall has been converted from grass to low-water-use landscape. The garden illustrates the principles of Xeriscape, with a focus on showing creative plant combinations that can be translated into residential settings.

Think About Xeriscape Video Series – A 30-minute film and four five-minute segments airing on Peoria Channel 11 inform viewers about Xeriscape principles, converting to Xeriscape, and the city's rebate program.

On-site Landscaping and Water Use Conservation Consultations – Peoria provides on-site consultations regarding low-water-use landscaping and efficient watering practices with Xeriscape conversion inspections.

Homeowner Associations Meetings – City staff attends 5-10 meetings annually to discuss the rebate program, Xeriscape conversion, landscape watering, and all additional water conservation information.

AMWUA Membership – As a member of Arizona Municipal Water Users Association, Peoria participates in the "Water — Use It Wisely" messaging campaign, SmartScape Training Program, outreach at tradeshows and conferences, and the distribution of AMWUA brochures, such as "Landscape Plants for the Arizona Desert" and "Watering by the Numbers."

EPA WaterSense Program – Peoria is a WaterSense promotional partner and promotes the WaterSense program through its website and via special campaigns, such as "Fix a Leak Week."

Home Water Audit Kits for Homeowners – The city offers free how-to-do water audit kits that are distributed in water conservation packets upon request.

School Programs – The city provides free water conservation school assemblies on water resources and conservation, and free workbooks for elementary school students at the completion of the show.

* *Id. § 25-63.*
† *Id. § 25-20.*
‡ *Id. § 25-10.*
§ *Id. § 25-25.*
¶ *Id. § 25-7.*
** *Id. § 25-27.*

Implementation of Conservation Measures

Peoria tracks the number of rebates and funding it has distributed through its financial incentive program. Since program inception, the following results have been tallied:

Program	Rebates	Funding
High-efficiency toilet	169	$ 18,450
Xeriscape conversion	352	$ 66,385
New home Xeriscape	3	$ 450
Hot water recirculator	1,677	$ 167,700
Irrigation timer	128	$ 3,473
Total	2,329	$ 256,458

The city has also provided, free to its customers, 97 indoor retrofit kits, 994 home water audit kits, and 800 on-site landscaping and water use consultations.

Funding for Conservation

In 2009 (FY 2010), Peoria had a conservation budget of $300,000, approximately 1.3% of the total water utility's budget. The city has 1.5 full-time-equivalent employees in the water conservation program, and spends about $1.90 per customer per year on water conservation programs.

Goals for Conservation Savings

The Water Conservation Division goal is to reduce overall water consumption in the city of Peoria. Water conservation is an important complement to the city's water resource portfolio. The city has determined that there is a need to look for future opportunities to save water, and is actively pursuing revisions to city code to incent further conservation.

Water Loss

In 2008, the city recorded 721 AF (234.9 million gallons) of water loss, an exceptionally low 2.5% system loss. Over the period of data collection, Peoria consistently maintained water loss at or below 5%.

Supply-Side Efficiency Measures

The quantity of water ordered and delivered to the city by CAP and SRP, as well as the water pumped from wells, is frequently compared to the amount of water treated, distributed, and sold, allowing for rapid identification of potential monitoring, metering, and usage concerns. Tracking is assisted through the use of geographic information systems (GIS) and supervisory control and data acquisition (SCADA) systems.

The water conservation department interacts with other city departments to take an active part in monitoring their use, equipment, and data. For example, the fire department meters usage when flushing fire hydrants.

Peoria aggressively maintains its 897 miles of water distribution system to mitigate and prevent leaks through a detailed maintenance program. The city also engages in an active meter replacement program.

Effluent Use

The city generated 7,929 AF effluent in 2008, and recharged 7,625 AF (96%) of this total through several different recharge facilities, including the Beardsley Road Water Reclamation Facility (WRF) and Agua Fria Recharge Site. A small percentage of effluent is delivered for direct use in Peoria, predominantly at one large-scale residential development, where it is used for landscape irrigation of golf courses and parks.

Peoria is in the process of installing the backbone for its A+ reclaimed water distribution system from the city's Butler Drive WRF to service the city hall campus area and proposed community park 2, to be located adjacent to the Butler Drive WRF, supported in part by an ARRA grant from the Bureau of Reclamation. The reclaimed water will be used at the municipal car wash, for cooling towers, and for outdoor irrigation.

The city's goal is to increase the direct reuse of reclaimed water wherever possible, particularly in new, master-planned communities.

Additional Information

Peoria has been monitoring the energy usage within its water distribution system and taking steps to improve efficiency over the past few years. Water treatment plants have been retrofitted with more efficient motors, a photovoltaic solar system was installed at one reclamation facility, and the groundwater well system is operated using the more cost-efficient wells, when possible.