

City of Yuma



Background

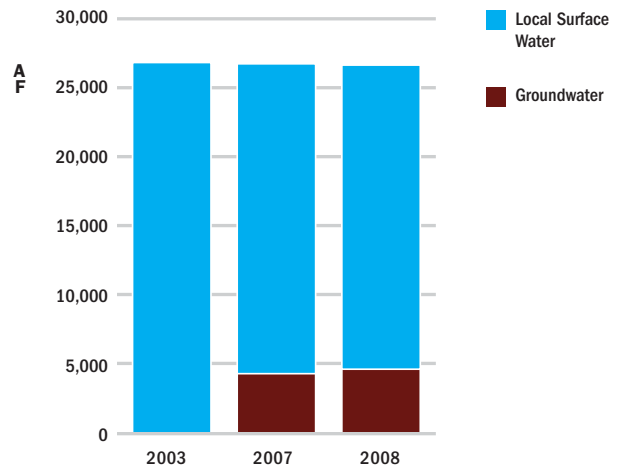
Yuma is the county seat of Yuma County and has an estimated population of 94,361 residents.* The city is located in the southeastern corner of Arizona, at the confluence of the Gila and Colorado Rivers.

Yuma lies within the Sonoran Desert and the Basin and Range physiographic province. Annual precipitation is 3.01 inches, with average summer maximum temperatures and winter minimum temperatures of 100 and 45.8 degrees (°F), respectively.†

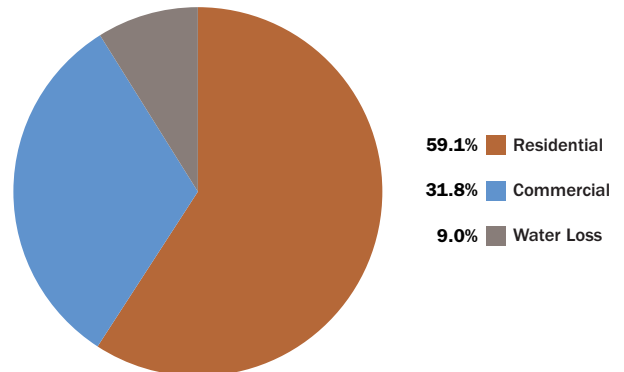
Water Supply and Deliveries

The main source of water for the city of Yuma is the Colorado River. In 2006, however, growth prompted the drilling of new groundwater wells to balance treatment plant capacity and provide additional water supplies. In 2008, the residential sector received almost 60% of total water supplied in Yuma.

SOURCES OF WATER FOR YUMA



2008 WATER USE IN YUMA



* 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. Yuma, AZ weather. <http://www.idcide.com/weather/az/yuma.htm> (accessed May 5, 2010).



Per Capita

The city of Yuma has maintained gallons per capita per day (GPCD) water use at close to the same levels from 2003 to 2008 across all metrics: residential (-1% change); system-wide potable (-1%); and system-wide total (-1%).

Yuma GPCD			
Per Capita Water Use	2003	2007	2008
Residential ^a	152	151	150
System-Wide Potable ^b	234	233	231
System-Wide Total ^c	234	233	231

^a Treated water deliveries to residential accounts ÷ service area 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 Yuma uses a three-tier inclining block rate for individual residential water accounts inside the city. Yuma’s billing system is based on meter size, and does not split residential units with a 1” meter from commercial accounts with a 5/8” meter.*

Usage Per Dwelling Unit	Cost
0–7,480 gallons (0–10 Ccf)	\$1.42 per 748 gallons (per Ccf)
7,481–22,440 gallons (10.01–30 Ccf)	\$1.52 per 748 gallons (per Ccf)
Over 22,441 gallons (over 30 Ccf)	\$1.75 per 748 gallons (per Ccf)

Single-family residential accounts have a base service fee of \$15.68, which represents approximately 45% of the average customer’s monthly bill for 10,000 gallons. The slope of the city’s average price curve slope is -0.0166, indicating that the average price of water decreases as consumption volume increases.

* Personal communication between S. Hitchcock, Water Quality Assurance Supervisor, City of Yuma, and Drew Beckwith, April 26, 2010.

Conservation Measures

The city of Yuma produced a water conservation plan in 2001 and submitted it as part of the city’s system water plan in 2007.†

Customer Rebates

The city of Yuma does not currently offer financial incentives for customers to reduce water use, and relies predominantly on volunteer-based water conservation measures at this time. Yuma’s water conservation plan recommends implementing a program to provide complimentary plumbing retrofits or fixtures, and to offer incentive programs for customers to replace their existing toilets with ultra-low flush toilets. The city is exploring this option for WaterSense toilets.

Ordinances/Rules

International Plumbing Code‡ – Yuma adopted the International Plumbing Code in 2006, which sets standards for water-efficient plumbing practices, fixtures, and appliances.

Escape of Water Prohibited§ – It is unlawful for any person to willfully or negligently permit or cause the escape or flow of water in such quantity as to cause flooding, impede traffic, create a hazardous condition, cause damage to the public streets, or cause conditions that amount to a threat to public health and safety.

Escape of Irrigation Water Prohibited¶ – It is unlawful for people to irrigate their property in a manner that results in the overflow of such irrigation waters.

Water Usage Restricted and Prohibited** – The use and withdrawal of water by any person for the following purposes is considered wasting city water in an emergency situation and is hereby restricted or strictly prohibited: 1) watering yards and other vegetation; 2) cleaning outdoor surfaces or buildings; 3) operating ornamental fountains; 4) swimming and wading pools not employing a filter and recirculating system; and 5) escape of water through defective systems.

† Black and Veatch. 2001. City of Yuma water conservation plan, section 4.

‡ YUMA, ARIZ., CODE, § 150-060 (2010).

§ *Id.* at § 193-02.

¶ *Id.* at § 193-03.

** *Id.* at § 193-49.



Education

Water Outreach Team (WOT) – The WOT provides information to the public concerning the city’s water utility through the use of public service announcements and “Water Conservation Facts” brochures that include information about Xeriscape and low-flow plumbing fixtures. The city also distributes the “Landscape Plants for the Arizona Desert” booklet.

Webpage – The city hosts a water conservation webpage that includes water savings tips for customers.

Implementation of Conservation Measures

Since 2007, the city of Yuma has organized a Water Festival for 500 fourth-grade students in cooperation with Arizona Project WET and the University of Arizona’s Water Resources Research Center. Prior to the festival, teachers attend curriculum training, and all students receive a “Discover the Waters of Arizona” booklet.

Funding for Conservation

The city of Yuma does not currently employ a full-time staff person dedicated to water conservation. In 2008, Yuma had a conservation budget of \$2,500, approximately .01% of the total water utility’s budget. The city spends about \$0.02 per customer on water conservation programs.

Goals for Conservation Savings

The city has the following conservation goals:^{*}

- Implement a new water rate structure to encourage water conservation, especially during the summer when large water savings can occur.
- Reduce the potential need to acquire additional Colorado River water allotment.
- Reduce or delay the capital expenditures required for additional water production facilities, pumping stations, storage tanks, and distribution system improvements to meet projected demands.
- Increase return flows to the river to receive more credits.

^{*} Black and Veatch. 2007. City of Yuma water conservation plan, Section 4, City of Yuma system water plan, p.3-3.

Water Loss

The city performed a major water audit several years ago, but does not track water loss on a regular basis at this time. For 2008, city staff estimates water loss to be somewhere close to, but less than, 10%—this equates to about 2,650 AF or 860 million gallons.[†]

Supply-Side Efficiency Measures

Yuma uses sonic detection equipment, water system crews, and water customers to identify and locate water system leaks. The city is also beginning to implement automatic meter reading across its system, which will allow more frequent water loss auditing.

Since a comprehensive water audit identified considerable water loss from under-reporting meters, the city has initiated a seven-year water meter replacement program. Yuma is targeting larger industrial meters (>2”) at this time and plans to expand the program into residential meters soon. In FY 09/10, Yuma replaced 312 meters and repaired an additional 75 through the program.

Effluent Use

Yuma reuses all of the effluent it produces, primarily in the form of return flow credits to the Colorado River (9,238 AF in 2008). The city also recharged approximately 1,300 AF in 2008, and provided an additional 290 AF to support wetlands habitat along the river.

[†] Personal communication between K. Carroll, City of Yuma, and Drew Beckwith, July 15, 2010.