

City of Sierra Vista—Arizona Water Company

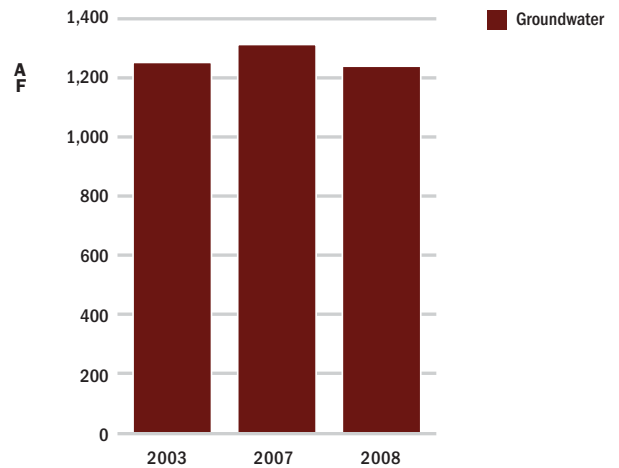


Background

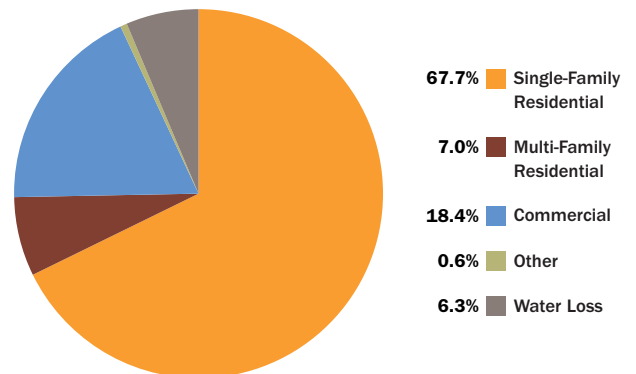
The city of Sierra Vista is located in southeastern corner of Arizona in Cochise County. At an elevation of 4,635 feet, Sierra Vista covers 142.4 square miles and has an estimated population of 46,597.* Water is provided to city residents by several private water utilities, the largest three being Liberty Water (Bella Vista), servicing 23,100 customers; Arizona Water Company (AWC) with 7,909 customers; and Pueblo del Sol with 12,804 customers. The city is bordered on the east by the San Pedro River and the Mule Mountains, on the southeast by the Huachuca Mountain Range, and on the north and northeast by the Whetstone and Dragoon Mountains, respectively.

Sierra Vista is in the Basin and Range physiographical province. It has an average summer high temperature of 93.3 degrees (°F), and an average winter low of 33.7 degrees (°F). The average annual precipitation is 14.0 inches.†

SOURCES OF WATER FOR AWC-SIERRA VISTA



2008 WATER USE IN AWC-SIERRA VISTA



* 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. Sierra Vista, AZ weather. <http://www.idcide.com/weather/az/sierra-vista.htm> (accessed April 14, 2010).



Per Capita

AWC-Sierra Vista customers have reduced their gallons per capita per day (GPCD) water use from 2003-2008 across all metrics: residential (-10.0% change), system-wide potable (-11.5% change), and system-wide total (-9.6% change). In 2008, residential customers used 11 gallons per day less, on average, than they did in 2003.

AWC-Sierra Vista GPCD

Per Capita Water Use	2003	2007	2008
Residential ^a	116	113	105
System-Wide Potable ^b	148	140	131
System-Wide Total ^c	155	148	140

^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

AWC-Sierra Vista uses a three-tier inclining block rate for individual residential water accounts.

Usage Per Dwelling Unit	Cost
0-10,000 gallons	\$1.612 per 1,000 gallons
10,001-25,000 gallons	\$2.015 per 1,000 gallons
Over 25,000 gallons	\$2.418 per 1,000 gallons

Residential accounts have a base service fee of \$15.40, which represents 48% of the average customer’s monthly bill for 10,000 gallons. The slope of AWC-Sierra Vista’s average price curve is -0.0097, indicating that the average price of water decreases slightly as consumption volume increases.

Conservation Measures

AWC-Sierra Vista is a Community Water System in the Upper San Pedro Basin. It has published a water conservation plan as part of its system water plan, which details the conservation measures being implemented by the company.*

* Arizona Water Company. 2007. *Sierra Vista System Water Plan*.

Customer Rebates

AWC-Sierra Vista does not offer financial rebates to customers.

Education

Water Audit Program – An AWC water conservation auditor will conduct a free internal water audit for any single-family residential, multifamily residential, or nonresidential customer to address water conservation opportunities. Written conservation recommendations are provided to the customer along with selected conservation pamphlets, upon completion of the audit.

Water Conservation Webpage – AWC maintains a water conservation webpage that includes a description of its water conservation programs, provides links to more than 20 water conservation brochures and activity books, and lists several free “giveaways” for customers.

Helpful Hints to Reduce Water Use – A water conservation informational leaflet is included in mailed notices and other public notices of curtailment during temporary water shortages.

For Kids – AWC’s website provides educational material targeted specifically to children, including several brochures, activity books, and links to outside websites.

Implementation of Conservation Measures

Annual water audit numbers are not kept by AWC for the Sierra Vista water system. Sierra Vista is not located within an Active Management Area and the Arizona Corporate Commission (ACC) does not require this type of information.

Funding for Conservation

AWC-Sierra Vista does not track conservation funding or spending as a separate line item in its budget—it is lumped in with other costs. This is primarily because the ACC has not allowed cost recovery for conservation spending in the past; thus, AWC did not have a need to track this type of information. The ACC may allow cost recovery in the near future, so AWC may begin collecting and tracking conservation expenditures in the next few years.



Goals for Conservation Savings

AWC-Sierra Vista’s goals are to keep lost and unaccounted-for water below 10%, resolve customer concerns in a timely manner, and provide customers with beneficial conservation information, whenever possible.

Water Loss

In 2008, AWC-Sierra Vista recorded 78 AF (25.4 million gallons) of water loss, representing 6.3% of total water supplies. AWC-Sierra Vista tracks 11 categories of water use other than sales, including such uses as construction water and fire flows. Data indicates that AWC-Sierra Vista consistently maintains system losses close to 5%.

Supply-Side Efficiency Measures

AWC-Sierra Vista utilizes an active leak detection program to minimize physical line losses. A leak detection logger is used to survey large areas of the distribution system to locate potential leaks. Then a leak correlator is used to pinpoint the location of leaks identified by the detection logger. Identified leaks are repaired in a timely manner.

AWC’s meter shop has established specific replacement criteria based on total gallons and length of time in service for meters in the Sierra Vista system. These criteria differ for each of AWC’s water systems, based on water quality, temperature, and other factors that affect meter wear. The meter shop also periodically tests Sierra Vista meters to provide an ongoing assessment of the replacement criteria. The current replacement schedule for residential-sized meters in Sierra Vista is:

- 5/8” – 1 million gallons/12 years
- 1” – 5 million gallons/14 years

Effluent Use

AWC-Sierra Vista does not utilize effluent because wastewater services are handled by the city of Sierra Vista. There are no current plans to partner with the city of Sierra Vista for direct effluent use.

The city of Sierra Vista operates a treatment facility that collects wastewater from Liberty, Pueblo del Sol, and AWC customers. All of the treated effluent is recharged to the groundwater aquifer at several recharge basins. Approximately 2,000 AF is recharged each year.*

* Personal communication between Jerry Whelan, City of Sierra Vista Water/Sewer Services Section Supervisor, and Drew Beckwith, July 20, 2010.

City of Sierra Vista

Conservation Measures

The city of Sierra Vista provides many conservation measures in addition to those offered by the Arizona Water Company.

Customer Rebates

The city’s WATERTight Rebate Program provides up to \$100 per toilet for converting from a high-use toilet to a low-flow model.†

† City of Sierra Vista, Arizona. WATERTight toilet rebate. <http://www.sierravistaaz.gov/egov/apps/services/index.egov?path=details&action=i&iid=139> (accessed June 5, 2010).

Ordinances/Rules

Water Saving Plumbing Fixtures‡ – New homes are required to have evaporative cooling systems and decorative fountains equipped with water recycling or reuse systems; all new hot and cold water pipes insulated during construction; and a hot water recirculating system. All new multifamily developments exceeding four units must be sub-metered, and equipped with an ENERGY STAR clothes washer rated with a water factor of 8 or less (if provided by the builder).

For commercial, industrial and public developments:§

- Lavatory faucets shall be equipped with a mechanism that causes the faucets to close

‡ SIERRA VISTA, ARIZ., CODE § 151.16.002 (2010).
§ *Id* § 151.16.002(A).



automatically after delivering no more than an average of one quart of water.

- Waterless urinals shall be installed in all new public, commercial, multifamily residential common-use areas, and industrial buildings where urinals are utilized.
- All new commercial car wash facilities shall utilize water recycling systems that recycle a minimum of 75% of the water utilized.
- Commercial clothes washers and dishwashers must be products rated by ENERGY STAR.

Native Plant Salvage^{*} – Prior to site clearing or grading, developers of any residential subdivision, multifamily residential, commercial, or industrial developments that are one acre or larger in size shall be required to salvage native plants.

Landscaping Regulations[†]

- Turf in single-family residential developments is limited to rear yard areas only, with the exception that up to 200 square feet of turf may be allowed in front and side yard areas.
- Use of turf in multifamily residential developments is limited to 10% of the landscaped area.
- The use of turf is prohibited in governmental, commercial, and industrial developments, except for specific circumstances, as allowed by the city.
- Plant material composition shall be as per a city-provided plant list.

Existing Buildings[‡] – In existing buildings or premises in which plumbing installations are to be replaced, such replacement shall comply with all code requirements for water-saving devices.

Water Conservation Guidelines[§]

- To the extent feasible, spray irrigation on city-owned property during the months of April through October must occur between the hours of 4 a.m. and 9 a.m., and all city-owned

properties other than parks and golf courses shall water no more than every other day.

- Outdoor swimming pools should be covered when not in use for a period greater than five days.
- The potential for using harvested water should be evaluated and, when practical, incorporated into the landscape design.

Regulations for Water for Parks and Golf Courses[¶]

- All parks shall use medium- and low-water-use plants. High-water-use turf or other restricted plants shall be allowed only in those areas with heavy usage, such as athletic fields and playgrounds.
- All golf courses shall use medium- and low-water-use plants.
- The water source utilized for irrigation shall consist of reclaimed wastewater, harvested rainwater, or an alternative water supply other than groundwater, to the extent feasible.
- All new golf course developments shall irrigate the turf only with reclaimed water and shall limit turf areas to the extent feasible consistent with state-of-the-art “target-type” golf course design standards. Turf area shall be limited to five acres per hole.
- New ponds, lakes, artificial watercourses, and other types of water hazard areas shall be prohibited, except for holding ponds utilized for treated effluent being used for permitted irrigation purposes.

Design Regulations for All New Developments and Expansions or Major Renovations^{**}

- Plants that require spray irrigation or a mowing frequency of more than three times per year shall not be used in street medians.
- Spray irrigation shall not be used to apply water to any area within eight feet of a street curb or storm sewer inlet.

* *Id* § 151.15.003.

† *Id* § 151.15.004.

‡ *Id* § 151.16.002(C).

§ *Id* § 151.16.003.

¶ *Id* § 151.16.004(A).

** *Id* § 151.16.004(B).



- No spray irrigation shall be used in areas less than 10 feet in any dimension, with some exceptions. Within parking lots, no spray irrigation shall be used on any area less than 15 feet in any dimension.

Use of Misters is Prohibited* – Use of misters is prohibited in commercial and industrial developments.

Public Nuisance† – It is a public nuisance and unlawful to let escape or flow water into the public right-of-way in such quantity as to cause flooding, impede vehicular or pedestrian traffic, create a hazardous condition for such traffic, or cause damage to the public.

Wasting Water‡ – Wasting water is prohibited in the city of Sierra Vista.

Education

City Water Conservation Webpage – The city maintains a water conservation webpage that includes information for new and current property owners, home builders, and developers to learn how to incorporate water-saving features into home construction, remodeling, landscaping, and storm water management. The webpage also lists several car washing tips and provides a phone line for additional information.

Sierra Vista Water Resource Center§ – This group maintains a webpage that provides informational resources about water sustainability in the Sierra Vista sub-basin, a schedule of upcoming water conservation classes, several brochures and publications, kid-focused content, and an opportunity for visitors to submit questions to the Sierra Vista Water Resource Center. The center ensures that city efforts are focused on water mitigation in the Sierra Vista sub-watershed and that those efforts are measurable, add value to the local community, and are consistent with Fort Huachuca’s Biological Opinion.

City Water Management Team – Sierra Vista’s water management team was formed in September, 2000 to develop water conservation programs, implement municipal water mitigation actions, and involve the community in water management issues. Among other accomplishments, the inter-departmental staff team has:

- Surveyed residents to establish priorities.
- Developed a toilet rebate program.
- Facilitated free in-home retrofits of high-water-use fixtures.
- Launched a leak detection program.
- Established an internal “Water Watch” program to monitor municipal water use.
- Developed a partnership with the local chamber of commerce to fully engage the business community.
- Implemented an extensive marketing and public relations campaign, including video and printed materials, to educate and inform area citizens.

The city estimates that these programs are expected to mitigate several hundred acre-feet of water use over the next 10 years. During FY 01-02, the toilet rebate program replaced 195 residential toilets and saved six acre-feet of water. The home retrofit program reached 110 residences and saved 10 acre-feet.

City Community Champions Stewardship Program – This program recognizes city businesses and not-for-profit organizations for significant resource conservation programs, or for initiating special projects to preserve, protect, or restore the environment. The program has awarded five organizations to date.

* *Id* § 151.16.004(D).

† *Id* § 91.10.

‡ *Id* § 151.16.004(E).

§ City of Sierra Vista, Arizona. All about water. <http://www.sierravistaaz.gov/water> (accessed June 7, 2010).