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 Board of Water Works of Pueblo, Colorado

The Board of Water Works of Pueblo is a publicly elected, independent board. Five members serving staggered 6-year terms.

The longest-tenured member, Kevin McCarthy, began his first term January 1, 1988.

The newest member, Michael Cafasso, has served for over seven years and is currently President of the Board.

We serve approximately 109,000 individuals via 39,900 accounts, virtually all within the city limits of Pueblo. (Fewer than 500 “extraterritorial” taps are outside city limits.)

MEASURES

A. Wise Use program

The Board’s primary tool for demand management since 2003 has been its Wise Use program. As Pueblo’s mandatory restrictions on outdoor water use in response to the 2002 drought were lifted in the spring of 2003, an educational campaign began that has been in continuous operation up to the present day.

The Wise Use program was designed to serve many different target audiences by providing usable conservation information in a wide variety of delivery formats.

- Newspaper advertisements
- *The Kids Guide to the Arkansas River*
- Billing inserts
- Television advertising
- Event Sponsorships
- Home and Garden Show
- Western Landscape Seminar
- Xeriscape classes
- Xeriscape garden tours
- Southeastern Colorado Children’s Water Festival
- Speakers’ Bureau/Classroom Visits
- Public/private partnerships (home improvement stores)

B. System metering/AMR--- System totally metered since 1960s

	2013	2012	2011	2010	2009	2008	2007
¹ Automated Meter Reading	30,318	26,454	22,925	18,961	14,189	10,768	1,788
Manual Meter Reading	10,525	13,776	17,309	21,230	25,941	29,389	38,168
² Total Meters	40,843	40,230	40,234	40,191	40,130	40,157	39,956
AMR conversion costs	\$ 729,595	\$ 833,332	\$ 784,864	\$ 855,440	\$ 913,577	\$ 1,456,029	\$1,638,627

C. Main Replacement Program – Over \$1 million/year

D. Control of system losses – Varies between 5-7% annually

E. Support of efficient fixtures legislation

F. 1051 Reporting

RESULTS

Based on long-term historical customer behavior, Board staff expected a “drought shadow” of decreased customer demand to follow the extreme drought of 2002, lasting for about two years and followed by a gradual return to the pre-drought levels of demand. However, customer demand has continued to decrease since then through the present day.

We now believe that a true culture change has taken place and that our customers continue to be receptive to the Wise Use approach to conservation.

While it has not been possible to determine what percentage of demand reduction has resulted from each of the Board’s various Wise Use measures, the combined effect of all these measures has been a significant reduction in demand. **According to a Board study entitled *Changes in Residential Consumption for the period 1996-2009*, “. . . the study analyzed the average consumption per bill for the period 1996 through 2003 and compared it with the average consumption per bill for the period 2004 through 2009 and found a 17% decline . . .” Residential per capita dropped from 160 gpcd to 120 gpcd.**

CHALLENGES

ECONOMY

Household Income:

State: 56,765

Pueblo: 41,262

Residents with income below the poverty level in 2009:

Pueblo: 30.0%

State: 16.8%

Unemployment, 2013 preliminary		Unemployment, 2012	
Pueblo	8.6%	Pueblo	10.7%
State	6.9%	State	8.0%

Single-family building permits:		Multi-family building permits:	
2006	423	2006	32
2013	80	2013	0

Higher percentage of industrial use vs. residential use skews total system GPCD higher than expected.

Lower percentage of population living in multi-family housing compared to most of front range.

Significantly older housing stock equates to less-efficient household plumbing fixtures.

Pueblo has not experienced explosive growth as have most front-range cities. For example, from 1960 to 2000 Pueblo’s population grew by 12%, while Colorado Springs’ population grew 414% during same period.

Rate increases in other utilities – electric (highest rates on the front range), waste water, storm water, etc. cause customers to have to make CHOICES in allocating limited resources.

CLIMATE

Average annual rainfall:	Average July high temperature:
Pueblo: 12.57	Pueblo: 93
State: 15.8	Colorado Springs: 85
Colorado Springs: 16.54	Denver: 88
Denver: 17.07	Boulder: 88
Boulder: 24.63	

WATER SUPPLY

Native Arkansas River Rights

The Board owns several direct flow rights on the Arkansas River. These direct flow rights can be used as needed when they are in priority, they can only be used once, and with one small exception, they cannot be stored.

The majority of the Board's direct flow rights are very senior. Of the 93 cubic feet per second (cfs) of direct flow water the Board owns, 73 cfs have a priority date of 1874 or earlier. With the exception of July and August of 2002, the rights with priorities of 1874 or earlier have always been in priority. According to streamflow reconstructions based on tree-ring data, 2002 was the worst drought year in the Arkansas Basin in 300 years. This indicates that at least 73 cfs should be available to the Board in all but the most severe and infrequent of drought conditions.

Currently, these direct flow rights meet the majority of the Board's potable water and Xcel Energy's Comanche generating station raw water demands. In fact, in 2008 over 97% of the Board's potable and Comanche demands were met by direct flow rights. Even in 2002, when the availability of the Board's direct flow rights was limited, they accounted for over 80% of the water delivered to the potable system and to Comanche.

Transmountain Rights

The transmountain rights can be held in storage until needed and can be reused and completely consumed, as long as return flows are accounted for and the water recaptured. These water rights include the Busk-Ivanhoe Water System, the Ewing Ditch, the Fryingpan-Arkansas Project, the Homestake Project, the Independence Pass Transmountain Diversion System (Twin Lakes Reservoir and Canal Co.), the Wurtz Ditch and the Wurtz Extension Ditch.

The transmountain water rights' diversion structures are located at high elevations and therefore have relatively small drainages above them. Their annual yields are dependent on the amount of snow pack in the specific drainage area for each right and those yields can vary greatly because of the year-to-year and spatial variability of snowfall. In recent years the yield from these water rights has ranged from a high of 25,853 af in 2006 to a low of 10,600 af in 2012.

Currently, most of the water from the transmountain rights is held in reserve in the Board's storage reservoirs. Water from the transmountain rights is often temporarily leased to other water users, but will be heavily relied upon in the future to meet the Board's increasing potable water needs and Comanche demands.

Exchanges

The Board has several decreed exchanges that allow reuse of its transmountain water and enable the Board to more efficiently utilize all of its storage space. The Board can exchange the transmountain component of its water returning to the Arkansas River back upstream to its intakes and reservoirs. This includes water discharged from the City of Pueblo Wastewater Treatment Plant, from the discharge of the Comanche Plant to the St. Charles River, and from the percolation of landscape irrigation to the Arkansas River alluvium. The Board can also exchange water among reservoirs and exchange water from its transmountain sources into reservoirs that are not on the main-stem of the Arkansas River, such as Clear Creek, Twin Lakes and Turquoise Reservoirs. The successive reuse of the Board's transmountain water by exchange can approximately double the yield of that water.

Three-Pronged Approach to Future Supply

With no immediate threat of failing to meet customer demands, the Board is implementing a three-pronged approach to expand, enhance, and improve its water supply over the next 25 years. This approach includes the following three elements:

1. Continuing the Wise Use water efficiency program that will continue, along with increased passive conservation, to reduce per capita demand.
2. Increasing reuse efficiency by improving return-flow management of fully consumable transmountain water.
3. Converting previously purchased Bessemer Ditch shares to municipal use.

MORE AGGRESSIVE CONSERVATION MEASURES ARE NOT ECONOMICALLY SENSIBLE FOR THE BOARD OF WATER WORKS OF PUEBLO TO IMPLEMENT AT PRESENT.

Example: 2013 to 2012 Pumpage and energy costs % Change

Treated water pumped (million gallons) - 2012: 9,775mg 2013: 8,781mg **-10.17%**

Pumping energy costs - 2012: \$ 3,081,285 2013: \$ 2,888,977 **-6.24%**

MISCELLANEOUS FACTS AND FIGURES

Customers on December 31, 2013:	39,879
Population served:	109,000
Average pumpage per day in 2013:	22.00 million gallons
Peak day pumpage in 2013	50.00 million gallons
Record peak day pumpage (July 16, 1997)	62.93 million gallons
Per capita per day usage in 2013:	208 gallons per day (Entire System)
Per capita per day usage in 2013:	120.14 gallons per day (City Residential)
Treatment plant capacity:	84 million gallons per day
Treatment capacity will serve a population of about 150,000 with associated business and industry.	
Miles of pipeline:	579.23 (3" thru 84" in size)
Number of valves:	14,426
Number of system fire hydrants:	3,996
Full-time employees:	137