

Conservation Corner

Save Water – Save Dollars

Most Tucson Water customers are good conservationists – using water wisely and avoiding water waste. After all, we live in the desert and water is a precious natural resource. Just like our customers, Tucson Water is committed to promoting wise water use and over the years we've developed a number of different ways to encourage water conservation. During the next few months, we'll highlight each of those methods in this column.

Voluntary Conservation Programs

It has been more than 25 years since Tucson Water first began asking its customers to "Beat the Peak." Every summer, Pete the Beak, reprises his role of the duck that reminds everyone, young and old, to be careful with water. "Beat the Peak" is just the most well known of many Tucson Water programs that offer tips for wise water use and teach the environmental ethic of water conservation. The importance of being water wise is also taught in hundreds of classrooms every year through Tucson Water programs specially designed for elementary, middle, and high schools.

Teaching the teachers is also a part of what we offer. Our Teacher Internship Program during the summer includes a water conservation element and we partner with Project WET to provide classroom materials about water to teachers across southern Arizona.

All in all, our public education programs reach hundreds of thousands of people each year, including many who are not Tucson Water customers. These on-going education programs have helped us all develop a water conservation ethic that is one of the strongest in the western United States.

Visit the Tucson Water Web Site at <http://www.cityoftucson.org/water>

Your *Water Connection* is produced by Tucson Water. To receive a copy, or to receive this information in Spanish, call 791-4331 or mail your request to: Tucson Water, Customer Information, P.O. Box 27210, Tucson, AZ 85726-7210.

City of Tucson TTY number: 791-2639

Si usted desea este documento escrito en español, por favor, llame al 791-4331.



April 2004

<http://www.cityoftucson.org/water/>

Your

Water Connection

NEWS & TIPS FOR TUCSON WATER CUSTOMERS

Water 101

Will We Have Enough Water for the Future?

Water 101 is looking at the tools and methods that Tucson Water is using to complete its Long Range Water Resource Plan. This plan looks ahead 50 years to what Tucson will be like, how much water we'll need, where that water will come from, and what the quality of that water will be.

Tucson's Population and Water Demand Projections

How Much Water Will We Need for the Future?

As all of us know, the population of Tucson has increased over time, creating a growing thirst for water. In order for Tucson Water to ensure that there are sufficient water supplies to meet that growing demand, our planners must first look at population estimates for the decades to come, and then determine what those population figures mean in terms of demand for water.

Water 101 continued inside

Have a question for Water 101 or a suggestion for a topic? Call us at 791-4331 or email to TW_Web1@ci.tucson.az.us.

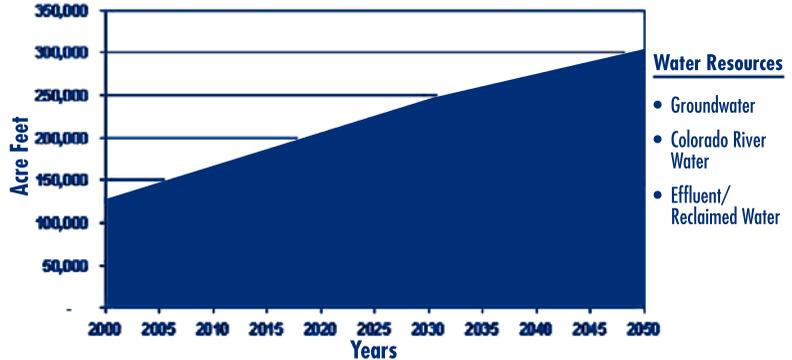
Will We Have Enough Water for the Future?

Water 101 continued from front

Population Estimates

Tucson Water relies on other agencies for estimates of Tucson's population growth over the next 50 years. Experts at the U.S. Census Bureau, the Arizona Department of Economic Security, and the Pima Association of Governments track our current and estimate our future population. Using these figures, Tucson Water can project the number of customers we will serve in the future, a number estimated to grow from about 675,000 people today to approximately 1.3 million people in 2050.

Projected Water Demand and Resource Requirements 2000 to 2050



YEAR	City of Tucson Total COT Population	Annual Change	% Annual Change	Pima County Total Pima Co Population	Annual Change
2000	486,699	11,249	2.37%	843,746	18,000
2001	498,305	11,606	2.38%	870,588	26,842
2002	507,085	8,780	1.76%	890,545	19,957
2003	514,725	7,640	1.51%	910,950	20,405
2004	522,850	8,125	1.58%	932,500	21,550
2005	532,350	9,500	1.82%	955,800	23,300
2006	543,902	11,552	2.17%	976,000	20,200

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2006	543,902	11,552	2.17%	976,000	20,200
2007	555,705	11,803	2.17%	995,500	19,500
2008	562,763	12,059	2.17%	1,014,400	20,900
2009	580,084	12,326	2.17%	1,037,750	21,345
2010	592,672	12,588	2.17%	1,060,581	22,831
2011	605,531	12,861	2.17%	1,082,853	22,272
2012	618,673	13,140	2.17%	1,104,593	22,740
2013	632,098	13,425	2.17%	1,125,800	22,207
2014	645,815	13,717	2.17%	1,146,500	22,699
2015	659,829	14,014	2.17%	1,166,800	23,299
2016	674,147	14,316	2.17%	1,187,300	23,500
2017	688,770	14,623	2.17%	1,208,000	24,700
2018	703,722	14,946	2.17%	1,228,900	24,900
2019	719,009	15,271	2.17%	1,250,000	25,100
2020	734,629	15,602	2.17%	1,271,300	25,300
2021	750,586	15,941	2.17%	1,292,800	25,500
2022	766,883	16,287	2.17%	1,314,500	25,700
2023	783,521	16,640	2.17%	1,336,400	25,900
2024	800,504	17,001	2.17%	1,358,500	26,100
2025	817,834	17,370	2.17%	1,380,800	26,300
2026	835,511	17,747	2.17%	1,403,300	26,500
2027	853,533	18,132	2.17%	1,426,000	26,700
2028	872,299	18,526	2.17%	1,448,900	26,900
2029	891,166	18,928	2.17%	1,472,000	27,100
2030	910,104	19,338	2.17%	1,495,300	27,300
2031	930,080	19,756	2.17%	1,518,800	27,500
2032	949,991	19,811	2.17%	1,542,500	27,700
2033	969,934	20,043	2.17%	1,566,400	27,900
2034	990,320	20,369	2.17%	1,590,500	28,100
2035	1,010,152	20,699	2.07%	1,614,800	28,300
2036	1,030,439	20,721	2.05%	1,639,300	28,500
2037	1,051,182	20,940	2.03%	1,664,000	28,700
2038	1,072,381	21,155	2.01%	1,688,900	28,900
2039	1,093,936	21,472	2.00%	1,714,000	29,100
2040	1,116,663	21,573	1.97%	1,739,300	29,300
2041	1,139,459	21,775	1.96%	1,764,800	29,500
2042	1,162,324	22,000	1.95%	1,790,500	29,700
2043	1,185,258	22,400	1.93%	1,816,400	29,900
2044	1,208,261	22,878	1.90%	1,842,500	30,100
2045	1,231,333	23,543	1.87%	1,868,800	30,300
2046	1,254,474	23,719	1.85%	1,895,300	30,500
2047	1,277,667	23,889	1.83%	1,922,000	30,700
2048	1,299,903	23,926	1.80%	1,948,900	30,900
2049	1,319,635	23,942	1.79%	1,976,000	31,100
2050	1,339,733	23,998	1.60%	2,003,300	31,300

Calculating Demand for Water

In order to determine estimated future water demand from projections of population, we take the average amount of water used per customer per day – 177 gallons* - then use this figure to calculate future water demand. When we do that calculation we find that, from 2000 to 2050, Tucson Water's annual total demand for water is projected to grow from 127,700 acre-feet to approximately 300,000 acre-feet. One acre-foot of water is equal to 325,851 gallons of water. That is enough water to serve three average Tucson households for one year.

Developing these population and water demand estimates is an important step in planning for our water future. In the months ahead, we'll introduce you to more of the tools in our "Planning Tool Box," and how we're using those sophisticated computer programs to help us determine how best to prepare for the years ahead.

* This figure includes reclaimed water.

On the Water Front



As we begin talking as a community about the future of our water supplies, it's important to remember that we have legal requirements that we must consider in planning how and from where we'll get our water in the decades ahead.

The State of Arizona recognized long ago that groundwater is a finite resource and must be protected. In 1980, the State Legislature passed the Groundwater Management Act, legislation designed to limit the amount of groundwater that can be pumped to supply major metropolitan areas.

What the Act essentially says in that beginning in the year 2025, cities like Tucson cannot pump more groundwater than is replaced each year by nature. This is called "safe yield." It means that the total amount of rainfall and snowmelt that is naturally recharged into our water table is the maximum amount of groundwater we can pump each year. It doesn't sound unreasonable, but it's something that hasn't happened here in more than 50 years – and until recently, there was no chance we could comply.

It has only been in the past few years that Tucson has had a drinking water source other than the one that comes up from underground through hundreds of wells located across the valley. The completion of the Clearwater Renewable Resource Facility in 2001 brought us a renewable water source – Colorado River water.

Today more than half of all the water delivered by Tucson Water comes from the Clearwater Facility. We've been able to reduce our groundwater pumping, putting many of the wells in the central city on standby, protecting our environment and significantly reducing the risk of subsidence in our neighborhoods and allowing our groundwater levels to begin to rise. Nevertheless, we're still not at "safe yield" and as

demand for water grows over time, it will become an increasing challenge to leave these wells shut down and let the recovery of our aquifer continue.

Complying with the Groundwater Management Act is just one of a host of issues our Long Range Water Resource planning team must consider as they work to make sure we all have enough, quality water for the future.

Dave Modeer
Director, Tucson Water



The Clearwater project allows us to make use of renewable Colorado River water.

Clearwater Quality Report March 2004

51*	Sodium (ppm)
322.4	Mineral Content (ppm)
110*	Hardness (ppm)
8.1	pH (units)
Neg*	Coliform Bacteria
0.75	Chlorine level average (ppm)
81.2	Temp (deg F)

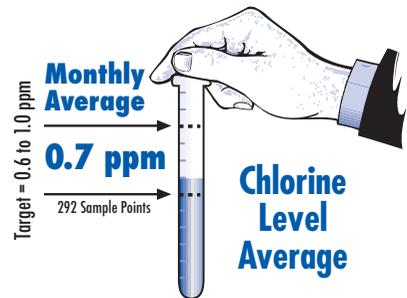
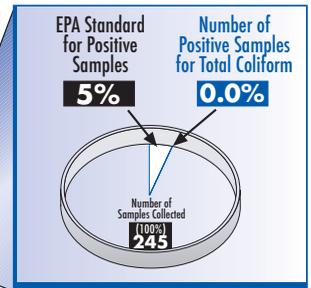
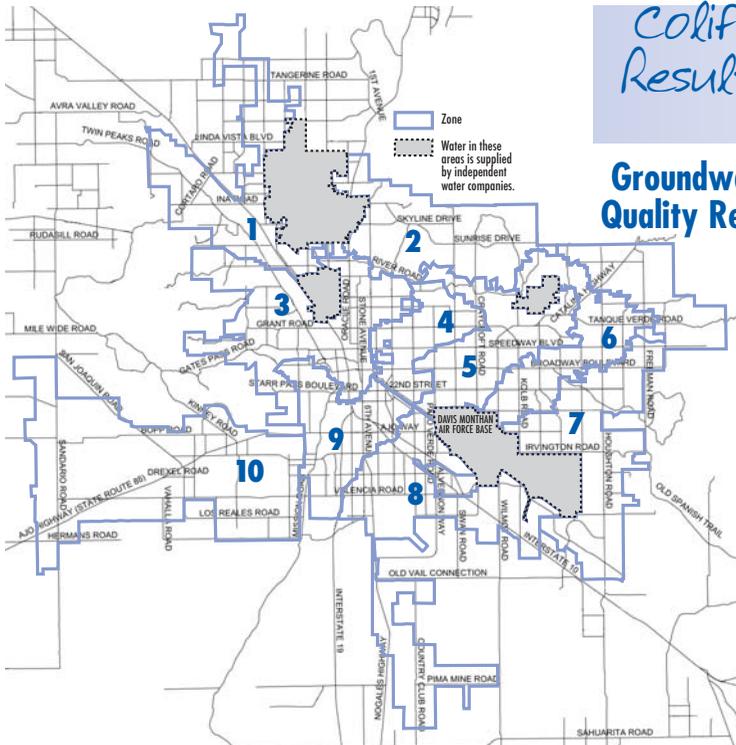
* Values for February 2004

Groundwater Quality Report - January 2004

Water Quality Zone		1	2	3	4	5	6	7	8	9	10	System Wide
Sodium (ppm)	Average Range	45 42-47	49 47-52	51 42-56	45 33-50	46 41-51	45 36-50	31 22-47	47 42-50	47 40-55	43 41-48	45 22-56
Mineral Content (ppm)	Average Range	398 204-566	314 278-371	339 163-432	268 182-368	274 165-333	267 209-292	231 179-294	308 229-423	317 210-436	247 211-303	291 163-566
Hardness (ppm)	Average Range	186 137-226	150 115-187	174 110-203	110 73-183	115 103-156	111 1014-120	110 84-150	121 111-132	176 94-249	88 80-111	133 73-249
pH (units)	Average Range	7.7 7.3-8.1	8.0 7.7-8.3	7.8 7.0-8.2	8.0 7.5-8.2	8.0 7.7-8.3	8.1 7.7-8.3	8.0 7.7-8.2	7.9 7.5-8.2	7.7 7.1-8.1	8.0 7.6-8.2	7.9 7.0-8.3
Temperature (deg F)	Average Range	70 67-75	72 62-79	70 62-77	75 68-80	72 63-81	72 64-80	70 64-79	72 62-80	73 65-79	72 65-80	72 62-81

Coliform Bacteria Testing Results - January 2004

Groundwater Quality Report



"PPM" means one part per million;
1 ppm = 1 teaspoon in 1,302 gallons

To give you a more accurate measurement of the water quality in your neighborhood, the Tucson Water service area has been divided into 10 zones based on differences in water pressure and water quality. For a detailed description of the zone boundaries, call 791-4331.

With the exception of chlorine and coliform bacteria, none of the water quality parameters reported here have U.S. Environmental Protection Agency primary standards set for them. For more information about primary and secondary water quality standards, visit Tucson Water's web site at www.cityoftucson.org/water.