Across the country there is wide variation in use and price for water consumption in major urban areas, with residential rates being lowest in the Great Lakes region, according to a Circle of Blue survey.

In Milwaukee (pictured above) the trend of residents’ using less water has lead to higher pricing rates.

By Brett Walton
Circle of Blue
A first of its kind survey of residential water use and prices in 30 metropolitan regions in the United States has found that some cities in rain-scarce regions have the lowest residential water rates and the highest level of water use. A family of four using 100 gallons per person each day will pay on average $34.29 a month in Phoenix compared to $65.47 for the same amount in Boston.

The survey, conducted by Circle of Blue over the last several months, also found that average daily residential water use ranged from a low of 41 gallons per person in Boston to a high of 211 gallons per person in Fresno, Calif.

The Circle of Blue survey includes data on water rates and water usage from the 20 largest U.S. cities, according to the 2000 Census, and ten regionally representative cities to gain a broad view of urban water pricing. The survey comes as municipal water departments and their customers across the country contend with the ironic and unintended consequence of the economic recession and water conservation. In most major cities water use is declining while rates charged to residential customers are rising [http://www.circleofblue.org/2010/world/u-s-urban-residents-cut-water-usage-utilities-are-forced-to-raise-prices/].
The effect of the crossing trends is less severe in Chicago, Detroit and Milwaukee, where municipal water is supplied by the lakes and prices range from $24.12 to $28.36.

“The reason why rates are so low in the Great Lakes region is proximity to abundant water,” said Nick Schroeck, executive director of the Great Lakes Environmental Law Center in Detroit. “Moving water takes an extraordinary amount of energy. Energy costs are higher in arid regions where water has to be brought from far away. For us, you look at the larger cities, and they are right on one of the lakes. It’s easy to get water to the population centers.”

Even though prices are comparatively low, rates in the Great Lakes region have increased in recent years because of declining consumption. Most of that decrease is attributed to the loss of industrial activity, though shrinking urban populations and personal frugality are also factors.

“For more than 20 years industry has been moving south looking for cheaper labor. I’m hoping that now they’ll start coming back looking for cheaper water.”

-Richard Meeusen, WAVE Founder
Falling demand is a concern for Carrie Lewis, the superintendent of Milwaukee Water Works, because the utility’s revenue comes from water sales, so less use means higher rates. In an interview, Lewis described a downward-sloping graph showing the decrease in water sales over the last three decades. Sales in Milwaukee dropped 41 percent from 1976 to 2008, primarily because water-intensive breweries and tanneries went out of business or left town.

“That’s a frightening graph if you make money selling water,” Lewis said.

As a result, water conservation is not a big part of Milwaukee’s agenda. Milwaukee Water Works (MWW) rejected a suggestion from the state public service commission to institute a block tariff rate structure, which would have raised prices for high-volume users to encourage using less water. The city is actually looking to increase water use because of its spare infrastructure capacity and ample supply.

“MWW could double its customer base without having to build new facilities,” Lewis said. “There’s no capital cost to avoid by increasing water use.”

To that end, some Milwaukee businesses want the city to fish for industry with the lure of cheap water, according to an article from the American Water Works Association. Business owner Richard Meeusen started the group Water Attracting Valued Employers (WAVE) to lobby for a discounted industrial water rate.

“For more than 20 years industry has been moving south looking for cheaper labor, I’m hoping that now they’ll start coming back looking for cheaper water,” Meeusen told the AWWA.
Water demand in Milwaukee is similar to urban areas across the United States. Per capita water use is dropping in nearly every city surveyed, and total water use has fallen or remains steady in some cities despite population bulges.

Infographic: Water Use Comparison of 5 U.S. Cities

This comparison shows that, due to utility pricing structure, certain urban areas — such as Boston, which has high rainfall and low consumption — can have pay higher water rates than in cities like Phoenix, where rainfall is low and consumption is high. Click the image to enlarge.

Water in the Southwest

Declines in demand are especially notable in arid cities of the Southwest and southern California. These regions binged in the 20th century on relatively abundant supplies brought from afar, using water to leverage growth. But as populations have disproportionately grown in comparison to the available supply, cities are cutting back to avoid building costly desalination plants, investing in diversion schemes or buying expensive water through market exchanges.

Per capita use in Santa Fe has dropped 42 percent since 1995 and total use is down nearly 30
percent, while Phoenix consumes the same amount of water now as it did 10 years ago despite adding roughly 400,000 residents. Figures released two weeks ago from the Los Angeles Department of Water and Power show that it supplied less water in February than any time in the last three decades, according to the Los Angeles Times.

Las Vegas has significantly cut outdoor water use by prohibiting front lawns for new houses since 2003. As a result, water deliveries from the Southern Nevada Water Authority, which supplies Las Vegas, dropped by 20 billion gallons from 2002 to 2003—enough water to cover the annual residential needs of a city of 150,000.

People living in the Southwest are often excoriated for their water use, but critics neglect the necessity for water, argues Stephanie Duer, water conservation program coordinator for Salt Lake City Public Utilities.

“I never hear people complain about Alaska or Connecticut using too much heating oil,” Duer said in an interview. “It seems to me that since we’re in a dry region we will be using more water.”

Water use needs to be weighed against the other benefits it provides, Duer added. “I hear people say ‘Why don’t you plant native species’ Well, We don’t have a single shade tree that would grow at this elevation. Do you want to live in a city without trees? We want to keep the urban forest for quality of life and keeping shade helps to reduce energy use in the summer. We’re working hard to find that balance in water use.”

“Water use is generally not publicized much outside of droughts. Water sort of has a technical
side that often doesn’t get communicated well to the public.”

Though water supplies are precious in these places, the price of water for residential customers is relatively cheap. A family of four using 100 gallons per person each day will pay on average $32.93 a month in Las Vegas compared to $72.95 for the same amount in Atlanta, which has more than ten times the amount of average annual rainfall as Las Vegas, according to National Weather Service statistics. While many factors contribute to water pricing, such as the energy used to pump water, the price of chemicals for treatment costs, recent infrastructure projects and operations efficiency—the difference in several Western cities can partly be explained by government subsidy.

“In the West there was massive federal investment in major water infrastructure,” said Heather Cooley, a researcher for the Pacific Institute’s water program. “Those states and cities didn’t have to pay the capital cost. California’s Central Valley Project is an example of that. The capital cost not including interest still hasn’t been paid, and that was built over 50 years ago. The subsidies create an artificial price.”

Water delivered via the Central Valley Project, a federal initiative led by the Bureau of Reclamation, is primarily directed toward agriculture. The same federal support helped build the Central Arizona Project, a canal that connects water from the Colorado River to Phoenix, Tucson and other cities in three Arizona counties.

Residents of those cities who benefit from this lifeline channeled through the Sonoran Desert are
paying only 45 percent of the project’s $3.6 billion cost. The difference is a national burden.

The Central Arizona Project, Hoover Dam, California’s State Water Project, Colorado’s Big Thompson Project are all water supply diversions paid for in part by federal or state tax funds. But when new supply projects are financed by customers directly, higher water rates are the consequence.

Take Santa Fe, for example.

The city has the highest overall rates in the survey and the highest rates for high-volume users. Because water is scarce and current groundwater use is unsustainable, the city is building the $217 million Buckman Direct Diversion to tap water from the San Juan-Chama diversion. It is a non-federal project, and the $187 million after-grant cost is being jointly paid by the city and the county.

[View the full survey data: SurveyData (JPG image), SurveyData (Adobe PDF) ]
supply project meets current needs, high-growth areas typically levy a one-time connection fee on new development to place the burden on newcomers for acquiring anticipated supplies or building treatment. In Las Vegas, for example, residents buying new houses would pay $1,440 to the Las Vegas Valley Water District and $4,870 to the regional supplier, the Southern Nevada Water Authority.

“Most of the infrastructure is paid for by new customers,” said Doug Bennett, SNWA’s conservation manager. “There’s not a lot of infrastructure dollars in the water rate.”

Growth in Las Vegas has slowed in the last few years because of the economic crisis and the housing bubble implosion. Water utilities are not getting many connection fees—down to 1,139 in 2008 from a high of just over 24,000 in 2005. Slower expansion means the city does not have to worry about meeting constantly rising demand.

“Instead of worrying about meeting next year’s capacity, now there’s plenty,” said Matt Thorley, principal financial manager for LVVWD.

**The Future of Water Prices**

In many cities, residents lean on infrastructure investments made in the years following World War II. The strain shows. According to the Environmental Protection Agency, 240,000 water main breaks occur each year. Leaky pipes lose billions of dollars of treated water annually, and sewer overflows cause outbreaks of disease.

Last year the EPA estimated that $335 billion would be needed to fix the country’s aging water supply system in the next few decades, according
to the New York Times. But where that money will come from is unknown.

According to Jack Moss, an advisor to Aquafed, the international water industry association, cities have to decide whether to make improvements through taxes or tariffs. The problem is that neither government spending nor higher water bills gather much voting support.

Despite the hand wringing over prices, water in the U.S. remains cheap. In most cities surveyed by Circle of Blue a family of four can buy enough water for its indoor needs—50 gallons per person per day for washing, drinking, cooking and flushing—for less than $25 per month, which is a relatively small portion of a family budget.

“Water is very reasonably priced,” said Doug Bennett, conservation manager for the Southern Nevada Water Authority. “[As a result], it’s not a major expense on people’s radar screen.”

Meanwhile when prices come up for discussion there are always social justice concerns about access for the poor. However, with a few exceptions such as Detroit [http://www.circleofblue.org/2010/world/in-detroit-no-money-no-water/] , most cities have adequate financial assistance programs to ensure in-home access for all.

One barrier to better water management is communication between utilities and customers—a common chorus amongst water rate researchers interviewed for this article.

“Water use is generally not publicized much outside of droughts,” said Drew Beckwith, a water specialist with Western Resource Advocates.
“Water sort of has a technical side that often doesn’t get communicated well to the public.”

Another problem may be habit. Water has generally been so cheap for so long, that people have become anchored to the past price, not realizing that sustainability costs money to achieve.

Prices will undoubtedly rise in the near future. But the question of whether the increase comes via higher taxes or tariffs remains because bearing the price of doing nothing would be much worse.

**Note:** Water rate information was gathered from the website of each city’s water utility and based on single-family residential rates. It is current as of April 1. Average prices for cities with seasonal rates were calculated using seasonal weighting. For water use information, Circle of Blue asked water departments directly the daily per capita usage for single- and multi-family residential customers.

Brett Walton is a reporter for Circle of Blue. This is the second part of his investigation on U.S. urban water rates—read the first installment [here](http://www.circleofblue.org/2010/world/u-s-urban-residents-cut-water-usage-utilities-are-forced-to-raise-prices/) as well as a profile on water pricing issues in Detroit [here](http://www.circleofblue.org/2010/world/in-detroit-no-money-no-water/). All graphics were created by Trevor Seela. **Contact Brett Walton** [here](http://www.circleofblue.org/contactbrettwalton/)
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