



Water Conservation Tips

North & East Metro Groundwater Management Area (GWMA) project update

MnTAP water conservation intern projects this year span a variety of facilities. We are looking forward to a busy summer working with each company to guide the projects towards substantial water saving results. Within the boundaries of the GWMA, there are two projects: City of Woodbury and Xcel Energy Riverside. Outside the boundary, but still in the metro, are projects at Sanimax in South St. Paul and Lloyds BBQ in Mendota Heights. Some of the other nine intern projects for 2015 also have some focus on water conservation.

There is no need to wait for the summer 2016 MnTAP internship program to launch your water conservation projects. MnTAP program staff can assist you in launching your conservation projects right now with detailed water process evaluations and written recommendations, and then follow up to answer questions or offer additional assistance in moving toward implementation.

Contact Mick Jost at jostx003@umn.edu / 612-624-4694 to make arrangements for a water conservation assessment.

Contact MnTAP for More Information



Let us know if you are interested in getting involved in this water conservation project, at no cost to your business. We welcome your questions and ideas for future newsletter topics, so please send them our way! For questions or further information, contact Mick Jost, MnTAP Program Coordinator and project lead, at jostx003@umn.edu or 612.624.4694.

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MnTAP is a non-regulatory program in the School of Public Health at the University of Minnesota and is funded by the Minnesota Pollution Control Agency.



Did You Know...

Depending on facility operations and the size of the workforce, domestic water use can account for a significant portion of total industrial water use. Operating three shifts with lots of workers, locker rooms, and a work environment that calls for shift change showering add up to a surprising amount of water use. Fixture improvements can help quantify potential water savings typically flying under the radar.

Efficiency improvements to fixtures have been and continue to be made. The table below shows some of the performance improvements available now and the most conservative estimate of savings.

Fixture	Standard gallons per minute/flush	New gallons per minute/flush	Savings gallons per minute/flush
Faucets	2.2	1.5	0.7 (32%)
Toilets	1.6 [3.5 - 7 for pre 1992]	1.28	0.3 (20%)
Urinals	1 - 5	0.5	0.5 - 4.5 (50 - 90%)
Showers	2.5	2.0	0.5 (20%)

Let's make some real-world sense of the small numbers in the table with the following potential scenario:

Acme Industries has 60 employees: 30 males and 30 females (total for all three shifts), 5 days a week, for 250 work days in 2015. Let's assume these 60 people use the bathrooms 4 times during the work shift: urinals for the males and toilets for the females, and everyone washes their hands each bathroom visit for 20 seconds. Let's also say that Acme has a policy that everyone showers and changes from work clothes before leaving to go home, and we'll use a 10 minute shower as a reasonable amount of time. Domestic water consumption over a year looks like this:

60 employees	Total annual use	Standard rate of water use	New rate of water use	Using improved fixtures annual savings
Toilet	30,000 flushes	1.6 gpf (48,000 gallons)	1.28 gpf (38,400 gallons)	9,600 gallons
Urinal	30,000 flushes	1 gpf (30,000 gallons)	0.5 gpf (15,000 gallons)	14,000 gallons
Hand wash	60,000 washes	2.2 gpm (44,000 gallons)	1.5 gpm (30,000 gallons)	15,000 gallons
Shower	15,000 showers	2.5 gpm (375,000 gallons)	2.0 gpm (300,000 gallons)	75,000 gallons
Total water		497,000 gallons	383,400 gallons	113,900 gallons

(1) Regional Water Providers Consortium in the greater Portland, Oregon metropolitan region, <http://www.conserveh2o.org/toilet-water-use>

(2) Dept. of Environmental Engineering Sciences, University of Florida http://www.sswm.info/sites/default/files/reference_attachments/MARTIN%20and%20HEANEY%202008%20Water%20Use%20by%20Urinals.pdf

In the simplest metro system wastewater cost terms, 113,600 gallons of water saved is 311 gallons per day, the equivalent of slightly over one sewer availability charge (SAC) unit (a SAC unit equals 274 gallons per day). In real cost, one SAC base unit added to your metro utility bill would be \$2,485. Water supply cost savings would be realized as well. You could make long-term improvements to a lot of fixtures with that money. Don't overlook how much energy it takes to heat water for the standard sink and shower fixtures from 55°F to 120°F. Heating 89,000 gallons of excess water with electric energy at \$0.08 per blended kWh is estimated at around \$1,100. The natural gas energy cost at \$0.60 a therm is around \$288.

Do you want to learn more on your own about how water conservation can be practically applied in your business or industry, or even in your home? Consider browsing through the Environmental Protection Agency (EPA) WaterSense website www.epa.gov/watersense, as well as WaterSense at Work (http://www.epa.gov/watersense/commercial/docs/watersense_at_work/)



About MnTAP

A program of the University of Minnesota, MnTAP offers a variety of technical assistance services to help Minnesota businesses implement industry-tailored solutions that maximize resource efficiency, prevent pollution, increase energy efficiency, and reduce costs. Our information resources are available online at mntap.umn.edu. Please call MnTAP at 612.624.1300 or 800.247.0015 for personal assistance.

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