

How Water Efficient is Your Ontario System?

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Water efficiency is a measure of your need for new capital and the competitiveness of your municipality. A system that uses twice the water per capita as another system needs to invest more in plant. In operational terms, systems with higher use require more energy for pumping and more chemicals for treatment and disinfection. Higher water pumpage means higher capital and operating costs on the wastewater side. These higher capital and operating costs in less efficient systems mean higher bills for residential, business and industrial users. More water efficient communities have lower water bills and are more competitive in the quest for new residents and new businesses than less efficient municipalities. This article is intended to provide a simple and easy way to measure the relative water efficiency of your system compared that in other Ontario communities and to provide a basis for undertaking measures to improve your water efficiency.

Methodology

This article uses the 1996 MUD database, compiled by Environment Canada. Data analyzed covered 261 municipalities in southern Ontario and 48 in northern Ontario representing 9.7 million people served by communal water systems or 90% of the 1996 Ontario population. Municipalities and population not included in the MUD database were in communities under 1000 people that were not surveyed as well as people living in rural areas that provide their own water. There were also 14 municipalities representing 60,176 people that were included in the database but did not provide data on their water use and/or the population served by the water system and were therefore excluded from this analysis. The data included in the MUD database is very comprehensive and sets the stage for fair and realistic comparisons between municipalities in terms of the efficiency of their water systems.

Residential water use per capita based on the population served by a communal system was used solely as the indicator of efficiency. This water use is the most directly comparable from one municipality to another and usually accounts for one half of the water use in the municipality. Thus, all systems can be compared fairly on this indicator. Total water use per capita was not chosen as a basis for comparison as it varies from municipality to municipality depending on the presence of large industries, institutions or other major water users.

Residential water use data was split into northern and southern Ontario because the water use patterns are quite different. Residential water use per capita was ranked low to high. For southern Ontario, the municipalities placed in groups of 13 each representing 5% of the total sample. For northern Ontario, the municipalities were ranked from low to high and clustered in ten groups of 5 communities each

Results

Fig. 1 Municipal System Water Efficiency Scale			
Southern Ontario		Northern Ontario	
Per Cent of Municipalities Using Less	Res. Water Use Per Capita Range (lpcd)	Per Cent of Municipalities Using Less	Res. Water Use Per Capita Range (lpcd)
0%	116-174	0%	91-271
5%	175-190	10%	272-349
10%	191-206	20%	350-378
15%	207-217	30%	379-396
20%	218-240	40%	397-425
25%	241-252	50%	426-488
30%	253-261	60%	489-517
35%	262-277	70%	518-640
40%	278-289	80%	641-706
45%	290-305	90%	707-1328
50%	306-318	Median	424
55%	319-328	Average	356
60%	329-353	Source: 1996 MUD Database, Environment Canada	
65%	354-382	Data from 48 municipalities representing 615,767 people	
70%	383-399		
75%	400-427		
80%	428-459		
85%	460-492		
90%	493-613		
95%	614-987		
Median	305		
Average	336		
Source: 1996 MUD Database, Environment Canada			
Data from 261 municipalities representing 9,037,122 people			

Using the Scale to Rate Your System

The way to determine where your system stands in relation to other municipalities is as follows:

- determine your residential water use in lpcd;
- place it in the appropriate range;
- determine what percentage of municipalities use less water than your system, if any; and
- decide if you need to improve your efficiency by reducing your water use per capita.

For example a municipality in southern Ontario with a residential water use per capita of 405 litres would learn that 75% of southern Ontario municipalities use less water. In a similar vein, a municipality located in northern Ontario with using 405 litres of residential water use per capita would see that 40% of the municipalities use less water.

Improving Your Efficiency

Ontario's water use efficiency is improving and the scale is a moving target. Many municipalities have reduced or eliminated the need for additional capacity by undertaking water efficiency programs in the past few years. Is your system up to the challenge?