Making Every Drop Count: Conserving Water in the Great Lakes-St. Lawrence Region

Conserving Our Freshwater Resources

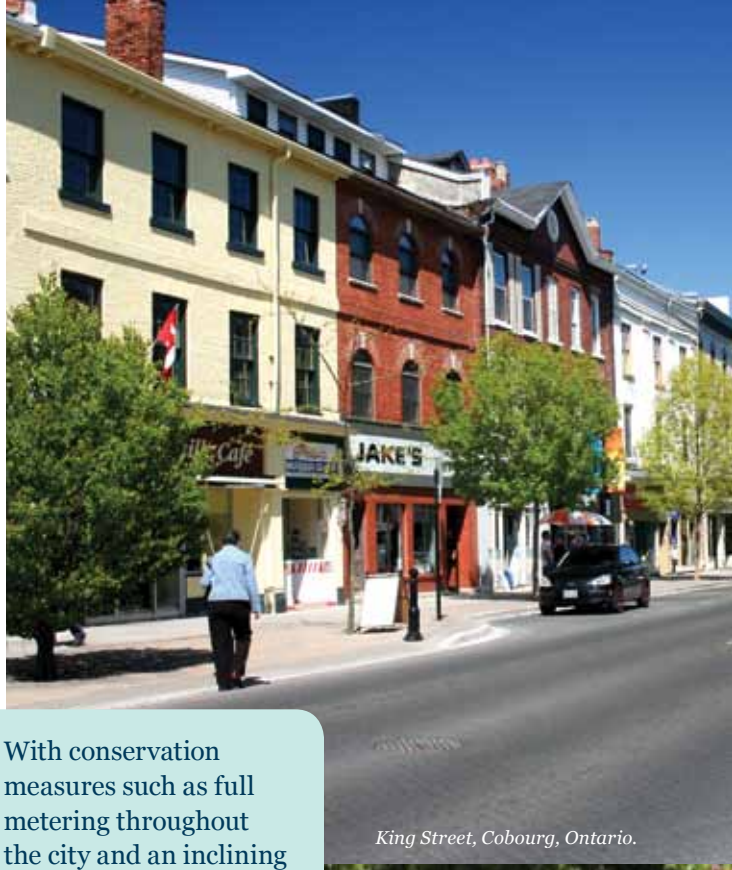
The size of the Great Lakes-St. Lawrence River system can lead to the false impression of a seemingly inexhaustible supply of freshwater. In reality, the water resources are finite, intensively used and ecologically fragile. Of the 6.5 quadrillion gallons (24.6 quadrillion liters) of water contained in the Great Lakes-St. Lawrence River system, only about one percent is returned each year through rain and snow. While demand for Great Lakes-St. Lawrence River water has remained fairly constant over the past decade within the basin, uncertainty associated with long-term trends in lake and river levels, potential increases in water demand due to population growth and economic shifts, and regional consequences of global climate change have challenged the region to collectively better manage its water resources.

Local governments invest $1.3 billion annually in activities to conserve water in the Great Lakes-St. Lawrence region.

Water conservation is a necessary resource management tool for the region. There is growing evidence that local watersheds in certain areas of the Great Lakes-St. Lawrence River basin are currently under stress from overuse and improper management. This can occur due to improper water and land use planning and not maintaining minimum stream and river flows that support ecosystem functions. Some communities within the basin and many that straddle the basin boundary are dependent on water from aquifers that are dwindling or even contaminated.

There are a number of ways we can conserve water in the region. We can save significant amounts of water by fixing our aging and leaky water distribution systems. Billions of gallons of treated drinking water are lost due to leaking water mains, which also represents a significant loss of revenue for water utilities. Estimates of water loss from leaky pipes range from 10 to 30 percent. Reducing leaks not only saves water but also the energy used to treat and distribute water, which, in turn, helps to reduce greenhouse gases. Repairing and improving decades-old—and sometimes century-old—infrastructure that lies largely underground is a significant and expensive undertaking.

The Great Lakes and St. Lawrence River are the source of drinking water for millions of U.S. and Canadian citizens and the foundation for industry, recreation, energy generation, communities and a strong regional economy. To ensure a drinking water supply now and into the future, **increased and dedicated federal funding is needed to address the region's aging drinking water infrastructure and a stronger commitment must be made to water conservation in the form of effective state and provincial water conservation and efficiency programs.**



King Street, Cobourg, Ontario.

With conservation measures such as full metering throughout the city and an inclining rate structure for water, the city of Cobourg has achieved a 20 percent reduction in water use.

Local Investment

Many local governments in the region understand the importance of conserving water. Reducing water use reduces demand on both drinking water and wastewater treatment systems, thereby reducing the need for costly expansion of the system infrastructure. Additionally, water conservation can take the load off the water system at peak times and so can help reduce the potential of untreated water releases that could harm the environment and public health. Other benefits include reduced energy consumption and stress on water sources.

Below are examples of activities implemented by local governments that conserve water.

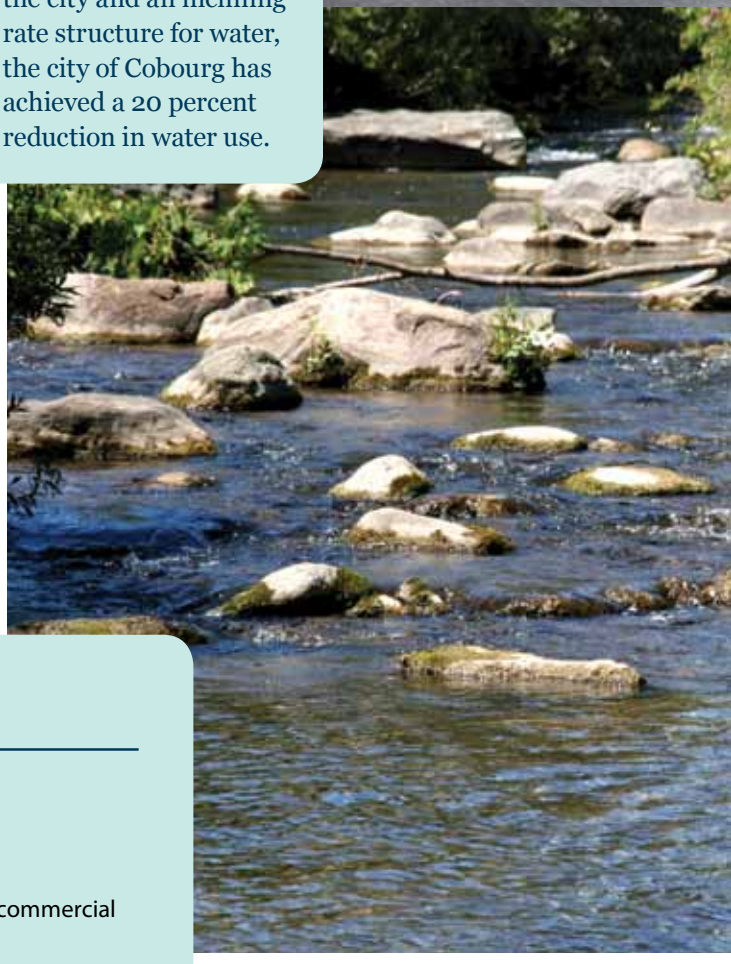

A view of the creek near Shelter Valley Road in Cobourg, Ontario.

Figure 1. Examples of Activities Implemented by Local Governments that Conserve Water

- Public water system water audits
- Leak detection and repairs to infrastructure to reduce water loss
- Residential low-flow fixture replacement incentives
- "Capacity buy-back" incentives, e.g., incentives to industrial and commercial customers for water consumption reduction
- Water meter calibration and replacement, and increasing metered connections
- Backwash treatments for drinking water plants
- Watermain replacement programs
- Watermain cathodic protection programs

Additionally, many local governments are developing and implementing water conservation plans and programs with target water use reductions. In fact, through the Great Lakes and St. Lawrence Cities Initiative Water Conservation Framework, 33 municipalities have committed to working toward a 15 percent reduction in water use (below year 2000 levels) by the year 2015. To date, more than a dozen of those municipalities have collectively achieved a 13 percent reduction in water use.

Data from a 2008 study by the Great Lakes Commission in collaboration with the Great Lakes and St. Lawrence Cities Initiative show that local governments across the Great Lakes-St. Lawrence region invest an estimated $1.3 billion each year to implement programs and activities to conserve the region's water resources.[1]

Annual Local Government Investments in Water Conservation

(Estimates in millions of U.S. dollars)

United States
$681 M

Canada
$629 M

Grand Total
$1.31 B

Water Needs

To ensure a reliable supply of drinking water now and into the future in the Great Lakes-St. Lawrence River region, all orders of government and stakeholders must make a greater commitment to conserving our freshwater resources. Specifically, this commitment needs to be expressed through increased and dedicated federal funding for drinking water infrastructure and effective and measurable state and provincial water conservation programs as called for under the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) and the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement).

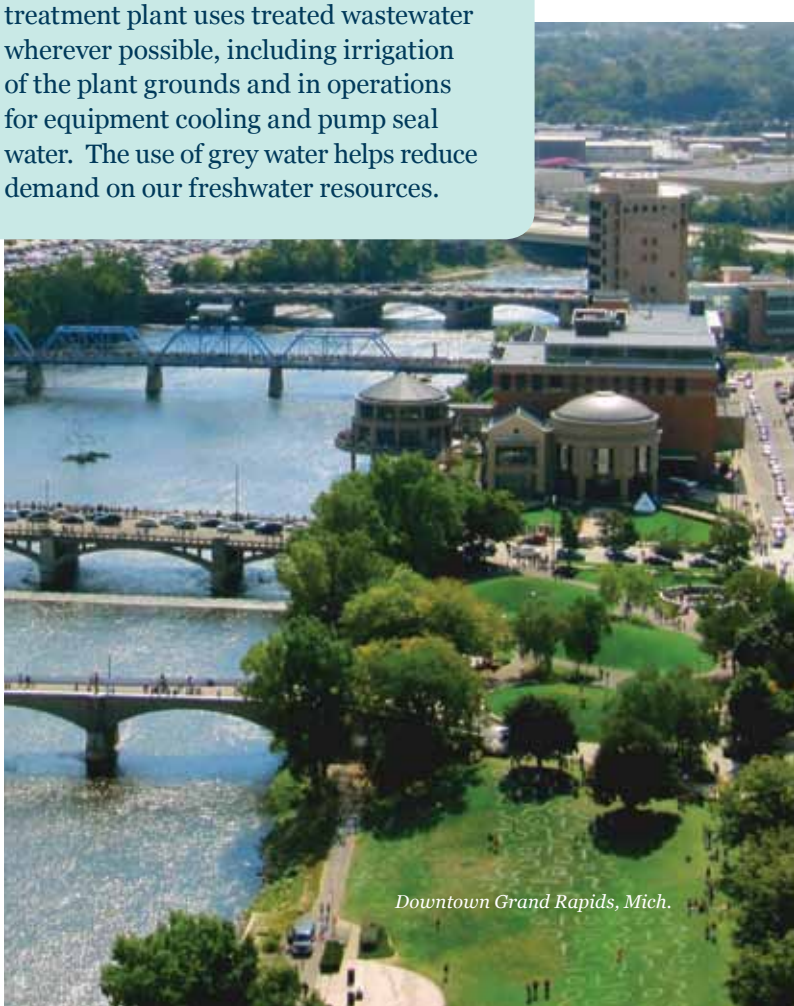
The U.S. Congress, the Canadian Parliament, the U.S. and Canadian administrations and the states and provinces are urged to help promote the conservation of our water resources by addressing the infrastructure deficit and strengthening their commitment to water conservation for the benefit of the economic, public and environmental health of the Great Lakes-St. Lawrence River region.

U.S. Congress

U.S. annual appropriations for drinking water infrastructure in the Great Lakes states have decreased nearly 40 percent from 2005 to 2009.

U.S. federal funding for drinking water systems comes from the Drinking Water State Revolving Fund, established by the 1996 amendments to the Safe Drinking Water Act. State governments are required to match 20 percent or more of the federal funding. U.S. annual appropriations for drinking water infrastructure in the Great Lakes states have decreased nearly 40 percent from 2005 to 2009. The U.S. Congress should be applauded for reversing this trend for the 2010 appropriations that allocated $337.5 million to the Great Lakes states for drinking water infrastructure. Additionally, the American Recovery and Reinvestment Act (ARRA) allocated $458 million for drinking water projects to Great Lakes states. While this federal investment is a good down payment toward protecting the region's precious freshwater supply, it only makes up a small portion of the infrastructure deficit for the region.

The city of Grand Rapids' wastewater treatment plant uses treated wastewater wherever possible, including irrigation of the plant grounds and in operations for equipment cooling and pump seal water. The use of grey water helps reduce demand on our freshwater resources.



Downtown Grand Rapids, Mich.

Canadian Government

Although the Canadian federal government provides funding for a range of infrastructure projects, including drinking water infrastructure, the funding is awarded on a competitive basis. The federal government does not have any dedicated funding for drinking water infrastructure. In 2003, federal investments accounted for only 5 percent of total capital investments in Canada's water systems, whereas the municipal investment accounted for more than 80 percent, and 6 percent was provided by the provinces.[2] The Canadian federal government has made agreements with individual provinces, including Ontario and Québec, to transfer a part of the revenue collected through the gas tax to the provinces. The provinces, in turn, make this funding available to municipalities for a range of infrastructure projects, including drinking water infrastructure.

States and Provinces

The Great Lakes-St. Lawrence River Basin Sustainable Water Resources Compact and Agreement have brought the eight Great Lakes states and the provinces of Ontario and Québec together to manage the waters of the Great Lakes and St. Lawrence River. The Compact and Agreement, establish a framework for addressing water diversions, set regional goals and objectives for water conservation and efficiency, and require each state and province to develop and implement a water conservation and efficiency program. To help the region successfully conserve its water, it is imperative that the state and provincial conservation and efficiency programs be aggressive, transparent and measurable.

Conclusion

To protect and conserve the precious freshwater of the Great Lakes-St. Lawrence River system, act now to:

- Provide additional and dedicated federal investments in the United States and Canada to reduce the drinking water infrastructure deficit in the Great Lakes-St. Lawrence River region;
- Develop aggressive and meaningful state and provincial water conservation and efficiency programs.

Québec City is taking water conservation to the next level by installing 6,000 automated water meters throughout the city. Automated water metering leads to a change in behavior and a reduction in water use by allowing customers to easily track their consumption.

Waterfront view of Québec City.

1 Great Lakes Commission. 2008. *Local Investment in the Great Lakes and St. Lawrence.* Retrieved from http://glc.org/glinvestment/pdf/local-investment-report-final-sm.pdf. Survey results in this study reflect responses from 143 local governments across the binational region.

2 *From Roads to Risks: Government Spending on Infrastructure in Canada: Where do we stand?* Statistics Canada. (2003). *Canadian Economic Observer.*

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Great Lakes Commission
des Grands Lacs

Great Lakes and St. Lawrence Cities Initiative
Alliance des villes des Grands Lacs et du Saint-Laurent