



Federal Support Needed to Address Wastewater Infrastructure Deficit in the Great Lakes - St. Lawrence Region

The Great Lakes-St. Lawrence River system contains 20 percent of the world's freshwater and 84 percent of the surface water supply in North America. Because the system is so vast, there is a perception that these waters are inexhaustible. In reality, this water resource is finite, intensively used and ecologically fragile. Of the 6.5 quadrillion gallons or 24 quadrillion liters contained in the Great Lakes-St. Lawrence River system, about 1 percent is renewable. That 1 percent includes water that people and businesses rely on every day, but generally forget about once they have used what they need.

Wastewater infrastructure is the extensive network of pipes and treatment plants that carry, filter and treat used water so that it can be returned to rivers, lakes and streams without reducing water quality. This network of conveyance systems has three major features: 1) *sanitary sewers*, which transport domestic, commercial and industrial wastewater directly to a treatment facility; 2) *storm sewers*, which collect and transport rainwater from the streets to a water body such as a river or lake; and 3) *combined sewers* where rainwater is mixed with sanitary sewer flow to be delivered to a treatment facility. The region's economy and quality of life depend on these systems.

Constructing, operating and maintaining wastewater infrastructure is critically important to the protection and restoration of the Great Lakes and St. Lawrence River ecosystem and the well-being of the region's economy. **The U.S. and Canadian federal governments must act now to increase investments significantly to reduce the wastewater infrastructure deficit for the Great Lakes and St. Lawrence region and to support 'green' infrastructure projects that take advantage of nature's inherent capabilities to supplement traditional 'grey' infrastructure.**

Local governments invest an estimated \$10.2 billion annually on wastewater infrastructure in the Great Lakes-St. Lawrence region.

The Challenge

Despite an estimated \$10 billion in local government annual investment in wastewater systems, there remains a staggering infrastructure investment deficit in both Canada and the United States.

A 2007 report by the Federation of Canadian Municipalities estimates the Canadian wastewater infrastructure deficit at C\$10 billion to meet the wastewater infrastructure needs in Ontario and Québec. The American Society of Civil Engineers 2009 Infrastructure Report Card estimates that the 20-year wastewater infrastructure investment need for the eight Great Lakes states is \$71.84 billion¹. More than half of this is for correcting combined sewer systems.

While the operation, maintenance, renewal and expansion of wastewater systems are largely financed through user fees at the local level, there remains a legacy of very old infrastructure in the ground that needs to be replaced, particularly combined sewer systems. More than 70 percent of all combined sewers in the United States are located in the Great Lake states, resulting in billions of gallons of untreated or undertreated wastewater entering the lakes. At the same time, climate change patterns are requiring larger pipes to handle increased flows during intensive storms, and treatment systems require upgrades to provide more sophisticated treatment as new chemicals are found in sewage effluent.

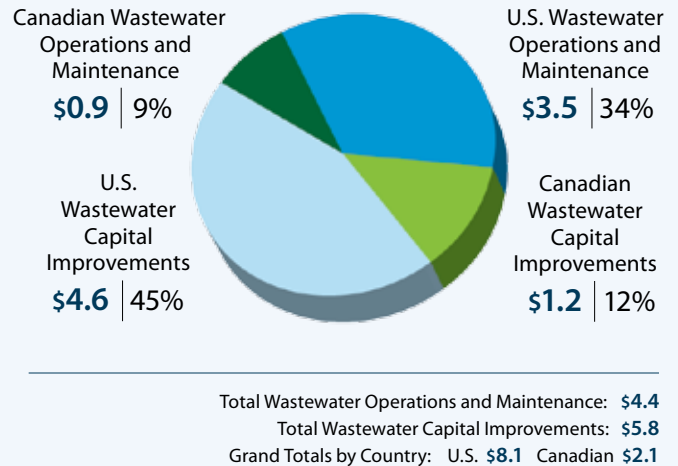
The legacy of old pipes and the challenges of climate change and new chemicals in sewage represent enormous costs above and beyond the costs of routine operation, maintenance and renewal of systems that are covered by user fees. Municipalities need federal, state and provincial help in the form of grants and low-interest loans to meet these extraordinary costs.

*On the waterfront in Grand Rapids, Michigan.
Photo courtesy of the City of Grand Rapids.*



Annual Local Investments in Great Lakes- St. Lawrence Wastewater Infrastructure

(Estimates in billions of U.S. dollars)



Grand Total (U.S. and Canada): \$10.2

Local Investment

In the Great Lakes and St. Lawrence region, the responsibility and cost for operating, maintaining and expanding wastewater infrastructure is borne by local governments on both sides of the border. A 2008 report by the Great Lakes Commission, in collaboration with the Great Lakes and St. Lawrence Cities Initiative, indicates that local governments across the region invest \$10.2 billion every year to build, maintain and improve wastewater infrastructure². Of the \$10.2 billion, more than half (\$5.8 billion) is for capital improvements to build and upgrade sewage treatment systems, storm water and wastewater conveyance and collection systems, and stormwater and combined sewer overflow systems. The balance, about \$4.4 billion, goes to operation and maintenance of these systems.

Funding Needs

As annual federal funding for wastewater infrastructure falls far short of the billions of dollars needed, local governments either must provide the money themselves or allow their system to fall into continued disrepair. Communities are further pressed to address emerging challenges such as more frequent and intense storm events and an increasingly complex influent that requires more sophisticated treatment technologies. If the federal governments on both sides of the border do not act soon to tackle the wastewater infrastructure deficit, these issues will harm the economy and further degrade the environment. The U.S. Congress, the Canadian

Parliament, and the U.S. and Canadian Administrations are urged to help address this financial shortfall for the benefit of the economic, public and environmental health of the Great Lakes and St. Lawrence region.

U.S. Congress

In the United States, federal funding for water systems comes from the Clean Water State Revolving Fund, established by the 1987 amendments to the Clean Water Act. State governments are required to match 20 percent or more of the federal funding. States then administer these monies through revolving loans whereby communities borrow

Additional and significant federal investments are needed on both sides of the border to reduce the wastewater infrastructure deficit for the Great Lakes - St. Lawrence region.

funds for infrastructure projects, and loan repayments are then recycled back into the state program to fund future projects. **U.S. annual appropriations for wastewater infrastructure in the Great Lakes states decreased nearly 40 percent between 2005 and 2009.**

The U.S. Congress reversed this trend in FY 2010 by appropriating \$762.5 million to the Great Lakes states for wastewater infrastructure. Additionally, the American Recovery and Reinvestment Act (ARRA) allocated \$1.4 billion for wastewater infrastructure 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 the 20-year wastewater infrastructure investment needs for the region.

Canadian Government

Although the Canadian federal government provides funding for a range of infrastructure projects, including wastewater infrastructure, the funding is awarded on a competitive basis. The federal government does not have any dedicated funding for wastewater infrastructure. Federal investments account for only 5 percent of total capital investments in Canada's water systems, whereas the municipal investment accounts for more than 80 percent, and 6 percent is provided by the provinces³. 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 wastewater infrastructure.

While many communities have made improvements to their wastewater management system over the last 10 years, existing infrastructure is faltering in many parts of the country. The Treasury Board of Canada expresses well the potential consequences of not taking this situation seriously, saying: "Municipal wastewater effluents, including sanitary sewage and storm water, represent one of the largest threats to the quality of Canadian waters⁴."

States and Provinces

States are required to provide a 20 percent match of the federal State Revolving Fund money and manage the low-interest loans to local governments. The states have met those challenges over the years, helping to fund many projects across the basin. Likewise, the provinces of Ontario and Québec have provided funding to support projects. This will need to continue in the future if the effort to manage storm water and wastewater is to be successful.

The Chicago Northside Water Treatment Plant along Lake Michigan. Photo courtesy of the Metropolitan Water Reclamation District of Greater Chicago.





Green infrastructure in the form of a constructed wetland in Mequon, Wis. Photo courtesy of the Milwaukee Metropolitan Sewerage District Greenseams program.

Green Infrastructure: Using Our Investments Wisely

Traditional wastewater treatment systems handle waste for millions of people; they are complex, expensive and energy intensive. Green infrastructure takes advantage of nature's filtering capacity and reduces rainwater flows to sewer systems and demands on traditional systems. Green roofs, tree boxes, rain gardens, vegetated swales, constructed wetlands, infiltration planters and vegetated

Green infrastructure is a cost-effective way to take advantage of nature's inherent capabilities and can reduce wastewater infrastructure costs.

median strips are just a few examples of green infrastructure. These kinds of projects can also help to reduce the costs to build and operate traditional treatment systems. Not only does green infrastructure help improve water quality, it can also

create useful habitat. Requiring a certain percentage of funds to be used for green infrastructure or water or energy efficiency projects, as was done under the American Recovery and Reinvestment Act, is a useful model to promote green infrastructure in future federal legislation and

appropriations. The 2008 report on *Local Investment in Great Lakes and St. Lawrence Restoration* also shows that local governments in the Great Lakes-St. Lawrence region invest significant funds each year in various watershed initiatives, which include millions for green infrastructure projects.

Conclusion

Federal, state and provincial support for wastewater infrastructure is of critical importance to the protection and restoration of the Great Lakes and St. Lawrence River ecosystem. Act now to provide:

- Additional and significant federal investments in the United States and Canada to reduce the wastewater infrastructure deficit for the Great Lakes-St. Lawrence region, and
- Support for green infrastructure projects in the Great Lakes-St. Lawrence region as a smart way to take advantage of nature's inherent capabilities and reduce wastewater infrastructure costs.

- 1 Report Card for America's Infrastructure. American Society of Civil Engineers. (2009). Retrieved from <http://www.infrastructurereportcard.org>
- 2 *Local Investment in the Great Lakes and St. Lawrence*. Great Lakes Commission and Great Lakes and St. Lawrence Cities Initiative. (2008). Retrieved from <http://glc.org/glinvestment/pdf/local-investment-report-final-sm.pdf>. This report featured the results and analysis of a 2007 survey of 688 of local governments in the Great Lakes and St. Lawrence River basin. Survey response rate was 21 percent. See Chapter 6 for survey methods. Survey results were extrapolated to all local governments in the Great Lakes basin with a population size greater of 20,000 and greater.
- 3 *From Roads to Risks: Government Spending on Infrastructure in Canada: Where do we stand?* Statistics Canada. (2003). *Canadian Economic Observer*.
- 4 *Canada's Performance 2004*. Treasury Board of Canada. (2004). Retrieved from <http://www.tbs-sct.gc.ca/report/govrev/04/cp-rc7-eng.asp>