



# The Federal Wastewater Infrastructure Deficit in the Great Lakes Region

The Great Lakes River system contains 20 percent of the world's freshwater and 95 percent of the surface water supply in the United States. 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 contained in the Great Lakes system, about one percent is renewable.

That one 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 degrading 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 of critical importance to the protection and restoration of the Great Lakes ecosystem and the well being of the region's economy.

**The U.S. federal government must act now to provide additional significant investments to reduce the wastewater infrastructure deficit for the Great Lakes region and to support green infrastructure projects that take advantage of nature's inherent capabilities to supplement traditional grey infrastructure.**

Local governments in the United States invest an estimated \$8.1 billion annually on wastewater.

# The Challenge

With heavy rainfall, both storm and combined sewers can quickly become overwhelmed. In order to prevent water from backing up into homes and businesses, the excess flow is released untreated into the local watershed as a Combined Sewer Overflow (CSO) or a Sanitary Sewer Overflow (SSO). CSOs and SSOs are especially harmful in coastal areas, where wet weather events can make beaches unsafe for swimming. Because more than 70 percent of all combined sewers in the United States are located in the eight Great Lakes states, the region is particularly vulnerable.<sup>1</sup> Despite significant local investment, billions of gallons of untreated or partially treated wastewater are released into the Great Lakes every year through CSOs and SSOs. While local governments continue investing to upgrade their wastewater systems, the increased frequency and intensity of large storm events is a growing challenge.

# Local Investment

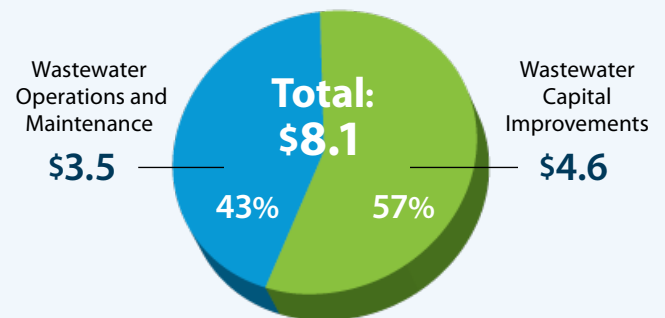
In the Great Lakes region, the burden of maintaining, expanding and operating wastewater infrastructure is largely borne by local governments. A 2008 report by the Great Lakes Commission, in collaboration with the Great Lakes and St. Lawrence Cities Initiative, indicates that Great Lakes local governments in the U.S. invest \$8.1 billion every year to build, maintain and improve wastewater infrastructure.<sup>2</sup> Of the \$8.1

billion, more than half (\$4.6 billion) is for capital improvements to build and upgrade sewage treatment systems, stormwater and wastewater conveyance and collection systems, and stormwater and combined sewer overflow systems. The balance, about \$3.5 billion, goes to operation and maintenance of these systems.

The local investment in wastewater infrastructure far exceeds federal investment. The lack of parity between local and federal investment creates a federal deficit for U.S. wastewater infrastructure, which must be addressed.

## Annual Local Investments in Great Lakes Wastewater Infrastructure

*(Estimates in billions of dollars)*



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





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

## 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 government does not act soon to tackle the federal wastewater infrastructure deficit, these issues will harm the economy and further degrade the environment. The U.S. Congress and Administration are urged to address this financial shortfall for the benefit of the economic, public and environmental health of the Great Lakes region.

A more equitable partnership approach is needed to ensure adequate wastewater infrastructure that protects the world's greatest freshwater ecosystem and drives the Great Lakes-St. Lawrence regional economy.

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## 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. States administer these monies through revolving

loans whereby communities borrow 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 have steadily decreased nearly 40 percent between 2005 and 2009.** 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 billion.<sup>3</sup> More than half of this is for correcting combined sewer systems.

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 precious freshwater supply, it only makes up a small portion of the region's 20-year wastewater infrastructure investment needs.

## The States

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. Great Lakes states have met those challenges over the years, helping to fund many projects across the basin. This will need to continue in the future if the effort to manage storm water and wastewater is to be successful.



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 median strips are just a few examples of

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

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- region invest significant funds each year in various watershed initiatives, which include millions for green infrastructure projects.<sup>4</sup>

## Conclusion

Supporting wastewater infrastructure is of critical importance to the protection and restoration of the Great Lakes ecosystem. Act now to provide:

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

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1 International Joint Commission. 2009. *14th Biennial Report on Great Lakes Water Quality*. Retrieved from <http://www.ijc.org/php/publications/pdf/ID1631.pdf>

2 Great Lakes Commission and Great Lakes and St. Lawrence Cities Initiative. 2008. *Local Investment in the Great Lakes and St. Lawrence*. 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 results were extrapolated here to all local governments in the Great Lakes basin with a population size of 20,000 and greater.

3 American Society of Civil Engineers. 2009. Report Card for America's Infrastructure. Retrieved from <http://www.infrastructurereportcard.org>

4 *supra* note 2

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