



*Bicyclists enjoy the Lake Ontario waterfront in Tommy Thompson Park on the Leslie Street Spit, located in Toronto, Ontario.*

# Watershed and Greenspace Protection in the Great Lakes-St. Lawrence River Region

Watersheds and greenspace play a vital role in the health and vitality of the Great Lakes and -St. Lawrence River, the sources of drinking water for tens of millions of U.S. and Canadian citizens. Watersheds are critical gateways into the lakes and river, where land use can significantly impact the quality and quantity of the water that flows through them. Increased greenspace throughout the region, particularly in urban areas, is one way to help ensure healthy watersheds and, as a result, a healthier Great Lakes and St. Lawrence River. Local governments invest an estimated \$1.5 billion annually to protect watersheds and greenspace, ultimately improving the quality and quantity of the water of the Great Lakes and St. Lawrence River.<sup>1</sup>

Given the significance of watersheds and greenspace to the resource and to the livelihood of the millions of people that call the Great Lakes and St. Lawrence River basin home, it is essential that programs that provide financial

Local governments contribute \$1.5 billion annually to protect watersheds and greenspaces in the Great Lakes-St. Lawrence River region.

incentives, along with appropriate outreach to landowners, continue to be supported at the federal, state, provincial and local level. Additionally, U.S. and Canadian restoration efforts that have a watershed focus must continue to be supported and funded. Finally, we must embrace nature's ability to improve the health of watersheds by supporting green infrastructure efforts and the use of greenspace throughout the region.



*A boardwalk along the wetlands of the Grass River Natural Area in Bellaire, Michigan.*

## Protecting Our Watershed

You are in a watershed now. A watershed is the land that catches the rain or snow and then facilitates the flow into a marsh, stream, river or lake. Protecting our watersheds within the Great Lakes-St. Lawrence River region is crucial to sustaining the communities that depend on them for drinking water, flood control, recreation and other environmental benefits.

How we use the land plays a key role in how water moves through the watershed and into our lakes and rivers. Healthy watersheds result in a healthy Great Lakes and St. Lawrence River. Natural areas such as forests and wetlands help filter runoff and provide a natural means to control flooding. Agricultural fields with borders of natural green areas provide habitat and migratory corridors for wildlife. However, pesticides and fertilizers from intensive farming can pollute adjacent water bodies. Roads, rooftops and parking lots create hard paved surfaces that fundamentally change the movement of water through the watershed. With increased paved surfaces, streams become flashy during storm events; urban streams and lakes become clouded from polluted runoff; and less rain is able to filter into the ground and replenish our aquifers.

The *2009 State of the Great Lakes Report* highlights that the single largest threat to the Great Lakes-St. Lawrence basin ecosystem is the continued rapid expansion and growth of urban and suburban areas and associated infrastructure over

the last decade. From 1992 to 2001, approximately 2 million acres (809,400 hectares) or 2.5 percent of the Great Lakes basin experienced a change in land use from rural and natural areas to urbanized areas. More than half of these changes are considered to be irreversible and permanent.<sup>2</sup>

To mitigate the impacts of increasing urbanization, local governments are working to restore their urban watersheds to a more natural state. Urban watershed restoration efforts spearheaded by Great Lakes and St. Lawrence local governments include a variety of both large-scale watershed protection initiatives and more localized or site-specific practices that can take advantage of the benefits of green infrastructure.

These protection efforts include stormwater management practices, like aquatic buffers, urban forests and stormwater wetlands, which are designed to promote recharge, remove pollutants, prevent stream bank erosion and control downstream flooding.<sup>3</sup> Green buffer strips along rivers provide an undeveloped, vegetated, natural area in a floodplain where floodwaters can be slowed, stored and gradually released.<sup>4</sup> Urban forests can capture large amounts of rain through their root systems and canopies, reduce heat through shade, provide habitat for wildlife and also help to filter some of the pollutants. According to the USDA Forest Service, trees and vegetation reduce stormwater discharge by up to 40 percent.<sup>5</sup> Finally, through stormwater wetlands or ponds, a filtering process occurs where particles settle out and nutrients are taken up by vegetation. Over the long-term, microorganisms break down contaminants carried in stormwater runoff from roads, driveways and parking lots. These wetlands or ponds typically have the capacity to store large volumes of water, helping to ease the burden on municipal water and wastewater infrastructure.

Figure 1 lists examples of practices by local governments to protect our vital watersheds.

### Figure 1. Examples of Watershed Protection Initiatives and Practices

#### Landscape Scale

- Wetlands protection, purchase and/or enhancement
- Watershed plans
- Source water protection
- Stream restoration
- Upland acquisition and easement
- Erosion/sediment control and management
- Watershed stewardship programs

#### Site-Specific Practices

- Rain gardens and rain barrels
- Porous pavement
- Downspout disconnection
- Tree planting
- Green roofs
- Rainwater harvesting systems
- Wellhead protection

## Greenspace – A Key Element

Preserving greenspace goes hand-in-hand with watershed protection. Greenspace usually refers to any vegetated land such as parks, gardens, playing fields, playgrounds, countryside and green corridors including paths, disused railway lines, rivers and canals, woods, and grassy areas. Greenspaces help to make neighborhoods attractive places where people want to live, play and work. They also help reduce the impacts of runoff from roads and parking lots, reduce heat, help clean the air and provide habitat to native and migratory species.

Local governments often work together with community groups to acquire, maintain and enhance greenspaces for public use and habitat protection. The 15,000 acres (6,070 hectares) of greenspace acquired and protected in northeastern Illinois is an example of the incredible work being accomplished in the region. In Ontario, Canada, the 1.8 million acre Greenbelt (728,400 hectares) helps protect wetlands, farms and forests around the Niagara, Hamilton and Toronto area. The Greenbelt is estimated to provide \$2.6 billion dollars a year in ecological services such as flood protection, water filtration, recreation and carbon storage.

## Local Investment in Watershed and Greenspace Protection

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 River region invest an estimated \$1.5 billion each year to protect the region's watersheds and greenspaces.

Local governments around the basin are working on watershed and greenspace protection. The city of Toronto, through its 25-year, \$1 billion Wet Weather Master Flow Plan, seeks to reduce the impact of runoff and maintain healthy rivers, waterfront and beaches. Toronto also has a goal to double its tree canopy from 17 percent to 34 percent as part of its climate change action plan. Through the "Greenseams"

program, the Milwaukee Metropolitan Sewerage District has protected more than 2,000 acres of land that will remain undeveloped and serve as a flood management mechanism. In addition, the Greenseams program preserves the surrounding habitat and creates a recreational opportunity for residents. Working

Rain barrel.

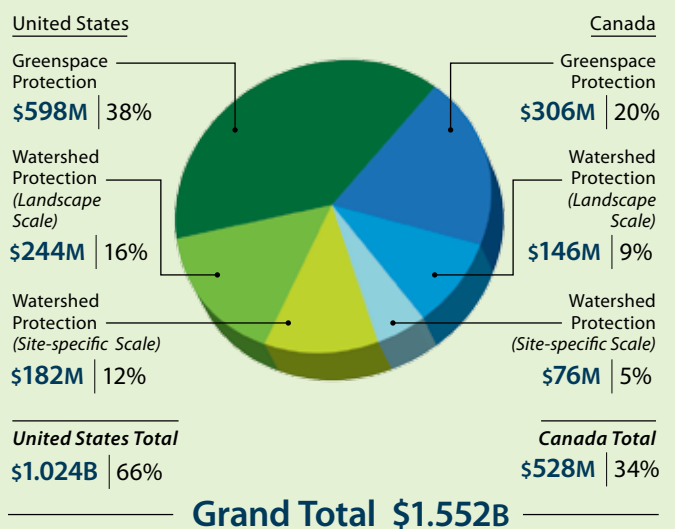


Lurie Gardens, part of downtown Chicago's Millennium Park.

to achieve the goals of its strategic plan for sustainable development, in addition to other actions, the city of Montréal planted nearly 10,000 trees in one year, many of which were planted along the St. Lawrence River.

The 2008 study documented additional examples of watershed and greenspace protection such as source water protection, stream restoration, rain barrels and green roof programs.

Figure 2. Annual Local Investments in Watershed and Greenspace Protection (estimates in millions of U.S. dollars)





Grant Park, located on the coast of the city of South Milwaukee, Wisconsin, along Lake Michigan.

## Funding Needs for Watershed and Greenspace Protection

### United States

Watershed and greenspace protection is supported under President Obama's 2009 Great Lakes Restoration Initiative (GLRI). The U.S. Congress approved \$475 million for the program's first year, making the restoration of the Great Lakes a national priority. In particular, during the first year, nearly \$25 million will be dedicated to the following programs:

- Watershed best management practices
- Farm and ranchland protection
- Emergency watershed protection
- Urban and community forest restoration
- Ecosystem approach to transportation and infrastructure work

In 2010, the U.S. Environmental Protection Agency announced an action plan for the GLRI that commits \$2.2 billion to the initiative over its five-year lifespan (2010-2014), inclusive of the first year's funding. While the 2010 dedicated funding is a great start, an ongoing federal investment to fulfill the GLRI commitment through 2014 is needed.

### Canada

Unlike in the United States, Canada does not have a federal plan for the Great Lakes and St. Lawrence. Currently, watershed and greenspace protection work in Canada is often funded primarily by local governments.<sup>6</sup> However with the passage of the Clean Water Act, the Ontario government has funded the development of locally based collaborative watershed plans to protect drinking water sources. Ontario is divided based on watersheds into 36 conservation areas, where conservation authorities work on watershed and greenspace protection. Through the Canada Ontario Agreement and the Remedial Action plans, watershed protection is a key element and many collaborative projects are undertaken.

In Québec, while oversight is provided by the Québec Ministry of Environment and its National Policy on Water, watershed and greenspace protection is mostly funded by local and regional governments. In 2009, the Québec Government announced new watershed boundaries for the 40 agencies responsible for

watershed management. The Québec government does provide financial and technical support to these watershed agencies and offers some funding for protection efforts, though local governments often bear the majority of protection effort costs.

## Actions to Take Now

Protecting our watersheds and greenspace is essential to maintaining the health and vitality of the Great Lakes and St. Lawrence River system. Act now to:

- Support federal, state and provincial programs that provide financial incentives, such as matching funds, tax-breaks, and conservation easements with appropriate outreach to landowners in the Great Lakes and St. Lawrence River basin.
- Continue to support U.S. and Canadian federal restoration efforts that have a watershed focus, including the U.S. Great Lakes Restoration Initiative, the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem, and the St. Lawrence Action Plan.
- Support green infrastructure projects and greenspace in the Great Lakes-St. Lawrence River region as a way to harness nature's inherent capabilities to help improve watershed health.

- 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 U.S. Environmental Protection Agency and Environment Canada. 2009. *State of the Great Lakes 2009 Highlights*. Retrieved from [http://binational.net/solec/sogl2009/sogl\\_2009\\_h\\_en.pdf](http://binational.net/solec/sogl2009/sogl_2009_h_en.pdf)
- 3 Center for Watershed Protection. 2005. *Urban Subwatershed Restoration Manual Series: An Integrated Framework to Restore Small Urban Watershed Version 2.0*. Retrieved from [http://www.cwp.org/Resource\\_Library/Center\\_Docs/USRM/ELC\\_USRM1v2trs.pdf](http://www.cwp.org/Resource_Library/Center_Docs/USRM/ELC_USRM1v2trs.pdf)
- 4 Westchester County Soil and Water Conservation District. 2007. *Westchester County: A Guide to Aquatic Buffers*. Retrieved from <http://www.westchestergov.com/planning/environmental/BronxRiver/Westchester%20County%20Water%20Resource%20Buffer%20Brochure%20FINAL%20for%20e-mail1.pdf>
- 5 Lipton D. and Neville R. 1999. *Urban and Community Forestry Achievements in 1998*. Retrieved from [http://www.na.fs.fed.us/spfo/pubs/uf/uef\\_ach98/pdf.htm](http://www.na.fs.fed.us/spfo/pubs/uf/uef_ach98/pdf.htm)
- 6 Approximately 25 percent of their funds come from non-local sources such as provincial grants and federal grants or contracts.

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