

# NEW SOLUTIONS FOR SUSTAINABLE STORMWATER MANAGEMENT IN CANADA

## Executive Summary

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### Stormwater management presents a unique challenge for many Canadian local governments.

Traditional grey infrastructure (pipes & culverts) is costly to maintain yet lacks dedicated and sustainable funding. Urbanization is creating more hard surfaces contributing higher volumes of stormwater runoff that is polluting our rivers, creeks and lakes and increasing urban flooding. Finally, changing weather patterns are overwhelming the capacity of existing infrastructure and putting people and property at risk.

Local governments, on the frontlines of the urban stormwater management challenge, face two key struggles: funding and flooding & pollution. The current funding mechanisms in place are flawed, and the traditional infrastructure system is not cost-effective and contributes to a number of urban stormwater pollution and flooding problems. Local governments are struggling to address these challenges and are in need of new solutions that are more financially sustainable, less polluting, and more resilient.

The two tools that are rising to the forefront of the local government toolkit are **stormwater user fees** and **green infrastructure**. Stormwater user fees have the potential to create a dedicated stormwater services funding stream on a basis that is transparent and fair to residents. Green infrastructure can be combined with traditional stormwater infrastructure to create a more resilient, less polluting and more cost effective stormwater management system. Together, the two solutions can help municipalities achieve better urban stormwater management overall.

### Green Infrastructure

Most often refers to natural or human-made elements that provide hydrological functions and processes for managing rainwater. Includes natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.

While thousands of local governments in the United States have implemented one or both of these new solutions, Canadian local governments have been slow adopters. The goal of this report is to provide all Canadian local governments with an introduction to stormwater user fees and to the various other tools that they can implement to take an integrated approach to better urban stormwater management through the use of green infrastructure. Case studies of Canadian jurisdictions such as Victoria, Mississauga and Kitchener, and of US jurisdictions such as Washington, DC, Philadelphia, and Prince George’s County provide key lessons for implementing stormwater user fees and green infrastructure.

## Stormwater User Fees – Key Messages

Many Canadian local governments finance stormwater services through property taxes or through water/wastewater billing. These models do not fairly assess individual contributions of stormwater and are not transparent or sustainable. While there are under two dozen Canadian municipalities that have implemented a stormwater user fee, over 1,500 local governments have done so in the United States, providing Canadian local governments key lessons to learn from.

### The benefits of implementing a stormwater user fee include:

<b>Dedicated Revenue Stream:</b>	Revenues collected through user fees are allocated back to providing the service for which they are charged, creating a dedicated revenue stream for funding the stormwater program. It no longer has to compete with other local government services for budget space and can better account for adaptation and renewal requirements as they arise.
<b>Greater Awareness &amp; Transparency:</b>	A stormwater user fee shows property owners exactly how much they are paying for this service, creating greater awareness and understanding of not just each individual’s contribution of stormwater to the system, but the overall system requirements in terms of capital and operations and maintenance costs.
<b>Fair Assignment of Costs:</b>	Charging each property owner based on the estimated amount of stormwater services used is a fairer assignment of cost than charges based on assessed property values or water consumption, which are unrelated to the amount of stormwater the site generates.
<b>Economic Incentive:</b>	Implementing stormwater user fees can also create a potential economic incentive for consumers to reduce their monthly costs by reducing the amount of stormwater runoff they generate.

### The challenges some local governments have experienced in implementing stormwater user fees include:

<b>Public Perception:</b>	User fees can mistakenly be perceived as a new charge or tax when in fact they shift an existing cost to a new financing model. Based on early adopter experiences (see Section 3), early and comprehensive public consultation and education will be key to addressing this challenge.
<b>User fee design:</b>	How a stormwater user fee is calculated determines the level of fairness, accuracy, and cost-effectiveness of the fee. But local governments must balance these factors with their resources and capacity to implement the fee. As outlined in Section 2, there are a number of ways in which a stormwater user fee can be designed and implemented. It will be up to each local government to determine the most appropriate method based on its unique context.
<b>Cost shifts between stakeholders:</b>	In Kitchener, 17.9% of costs for stormwater services were shifted from residential users to the non-residential sector. <sup>1</sup> In some cases, this can result in much higher bills to non-residential property owners, which can cause concerns and resistance to the user fee. Many municipalities have addressed this by phasing in the user fee over a period of time to allow property owners to budget for the costs. As well, many municipalities also provide a strong credit program for non-residential properties to encourage them to reduce the stormwater they generate and consequently their costs.

<sup>1</sup> Kitchener-Waterloo, 2007, Kitchener-Waterloo Stormwater Management Program and Funding Review: Stormwater Funding Analysis; retrieved from: [http://www.waterloo.ca/en/contentresources/resources/living/stormwater\\_report\\_feasibility\\_study.pdf](http://www.waterloo.ca/en/contentresources/resources/living/stormwater_report_feasibility_study.pdf)

## Incentives for Green Infrastructure – Key Messages

Green infrastructure is proving to not only be a cost-effective addition to municipal stormwater services, but it provides many other social, environmental, and economic benefits as well. While municipalities can implement stormwater user fees and plan for green infrastructure projects on public lands, they also need to work with residents and businesses to offer incentives for green infrastructure on private land.

Some of the most common or innovative incentives used by local governments include:	
<b>Credit/Discount Program</b>	A credit or discount is applied to a stormwater user fee to reward property owners who implement green infrastructure best management practices that reduce their stormwater service requirements by reducing the amount of stormwater their site generates. <i>Ex. City of Mississauga credit program for non-residential properties</i>
<b>Rebates</b>	A one-time payment provided to property owners to assist with specific projects, such as the purchase and installation of a rain barrel. <i>Ex. City of Victoria, BC, Rainwater Rewards rebate program</i>
<b>Stormwater Credit Trading</b>	A market for stormwater management whereby an unregulated property owner can choose to create a stormwater retention credit (SRC) by managing stormwater on their site, then selling that credit to property owners who are required to meet specific stormwater management requirements (i.e. retention of volume of water). <i>Ex. Washington, D.C. stormwater retention credit trading system</i>
<b>Development Cost Charges</b>	Charge applied to new developments for the capital cost of stormwater services—may be reduced if green infrastructure is integrated into the development. <i>Ex. City of Penticton, B.C. development cost charge reduction for green infrastructure</i>
<b>Public-Private Partnerships</b>	An agreement between government and a private sector entity for the design, construction, and management of green infrastructure projects. <i>Ex. Prince George’s County Clean Water Partnership</i>

## New Solutions for Stormwater Management – Implications for Canadian Local Governments

The case studies reviewed in Section 3 of this report revealed a number of key findings or implications for Canadian local governments looking for new solutions for their stormwater management challenges.

### USER FEES CAN PUT STORMWATER FUNDING ON A MORE FINANCIALLY SUSTAINABLE FOOTING

A dedicated revenue stream created through a user fee system will ensure that existing and future infrastructure requirements are not competing with other municipal services for resources. It will ensure that costs for stormwater services are open and transparent to residents, who will better understand their load on urban stormwater management systems, but also their ability to make positive changes through on-site stormwater reductions.

### A COMBINATION OF USER FEES WITH GREEN INFRASTRUCTURE CAN PROVIDE AN INTEGRATED APPROACH FOR BETTER URBAN STORMWATER MANAGEMENT

While each of the tools described in more detail in Section 2 of this report can individually help local governments address growing stormwater management challenges, an integrated program, using multiple tools, is necessary to achieve ambitious goals. A variety of programs, combined with a strong emphasis on monitoring and assessment, will be required to find the right programs for each local government.

## APPROACHES SHOULD BE COMMUNITY SPECIFIC

The approach taken to enhance the resiliency of a community through the use of green infrastructure should be tailored for each community based on the unique community context, political context, landscape characteristics, existing infrastructure, and future vision. Each of the six case studies examined used a different model for achieving natural stormwater management, reducing pollution, and increasing resiliency. There are many common factors, including the green infrastructure tools that are used, but the ways in which these tools are combined and implemented differs.

## THE PRIVATE SECTOR CAN BE AN IMPORTANT PARTNER

The private sector can be an important partner that should be engaged early to determine how it could work with local governments to improve stormwater management. As the innovative approaches of stormwater credit trading and P3 partnerships gain momentum in the U.S., there is growing interest from the private sector in market instruments and collaborating with local governments for the benefit of all parties. Canadian local governments that are already looking for innovative solutions can harness this momentum.

## Case Study Highlights

- PHILADELPHIA, PA** Two key subsidy programs (SMIP & GARP) allow the private market to work with the City in accelerating green infrastructure projects and reducing stormwater volumes and pollution in a highly cost effective way, while also creating a new job market and industry within the city.
- MISSISSAUGA, ON** The transition to stormwater user fees has created a fair, dedicated and transparent stormwater funding stream that helps the city provide better stormwater management services and provides a learning experience for all residents.
- VICTORIA, BC** A comprehensive stormwater user fee combined with the Rainwater Rewards program provides incentives and support for private property owners wishing to reduce their costs and build a better community through green infrastructure projects.
- KITCHENER, ON** A collaborative effort between the City of Kitchener and the City of Waterloo led to the development of a fair and transparent stormwater user fee system.
- WASHINGTON, DC** Revised stormwater regulations requiring stormwater to be retained on site or through voluntary projects has created a market for trading stormwater retention credits (SRCs), which not only encourages more effective stormwater management but also a greater distribution of green infrastructure projects across the District.
- PRINCE GEORGE'S COUNTY, MD** The first public-private partnership (P3) for stormwater management is demonstrating how local governments and private industries can work together to achieve ambitious sustainability goals.



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