



Showcasing
Water
Innovation
case study

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Ecological stormwater management in Kitchener and Waterloo

High level results

RAIN, a community-based social marketing program, was successfully combined with municipal stormwater fees and credits to motivate property-level implementation of infiltration landscaping and other stormwater source control measures. The project was supported by the Ontario government's Showcasing Water Innovation program.

"This innovative project encourages property owners to implement actions which assist in the City's efforts to improve stormwater management ... [RAIN] increases awareness of property owners and service providers and helps property owners be rewarded for their actions. We collaborate with community partners to develop educational material for non-residential, multi-residential and residential sectors that helps protect of our drinking water through better stormwater management."

- Mayor Carl Zehr, City of Kitchener

"Our RAIN program shows other communities how it is possible to alleviate pressure on our aging stormwater infrastructure and protect our aquifer, our river and our natural heritage."

- Mayor Brenda Halloran, City of Waterloo

Context

RAIN: *an ecological approach to stormwater management* is a community-based social marketing program that engages property owners in action and long-term behaviour change based on three key messages: *Slow it Down, Soak it Up, Keep it Clean*.

With financial support from the Ontario government's Showcasing Water Innovation program, the project (2011-13) demonstrated an enhanced version of the RAIN program in conjunction with a "user pay" stormwater utility and credit/incentive system for residential and commercial property owners.

Goals included protection of water quality, reduced flooding, and reduced burden on overtaxed infrastructure.

RAIN in Kitchener and Waterloo was a four-partner project including the two cities, local non-profit REEP Green Solutions, and national non-profit Green Communities Canada.

The partnership met its goal of improving the program model developed by Green Communities Canada and demonstrating its effectiveness in encouraging the adoption of on-site stormwater management best practices, including the implementation of green stormwater infrastructure.

Challenges

Traditional “grey infrastructure” does not provide a sustainable solution to the management of urban stormwater. Municipal capital budgets are unable to keep up with the growing demand for stormwater infrastructure. In 2008, Kitchener and Waterloo identified an annual deficit in spending of \$4.7 million - a 25 percent shortfall relative to a sustainable service scenario. In many communities, consequences include flooding, erosion, and contamination of receiving waters. Further, the challenges of urban stormwater management are growing more severe as a result of two trends:

- **urbanization**, which increases impervious landscapes, intensifying the volume and speed of run-off; and
- **climate change**, which is expected to be accompanied by increasingly severe rainfall events and prolonged droughts, already in evidence.

Green stormwater infrastructure (also known as Low Impact Development) has been identified as a solution. Measures aim to reduce run-off pollution by maintaining, restoring, and mimicking natural ecological processes, including infiltration, evapotranspiration, and filtration of water-borne contaminants. Increased infiltration also supports groundwater recharge.

Measures include bioswales, rain gardens, rain barrels, permeable pavement, and infiltration galleries/soakaway pits.

However, implementation of green infrastructure brings its own set of challenges: lack of familiarity and track record in an Ontario context, development approvals (hurdles, competing agendas), and the need to engage individual property owners in lot-level action. Barriers for individual property owners include lack of knowledge, low motivation, high upfront costs, ongoing maintenance and hassle factor (lack of access to trusted and knowledgeable contractors).

Training contractors

Contractor training is important to ensure property owners have skilled people to advise them and provide green services. **Below:** Jeff Thompson of Thompson Environmental demonstrates proper infiltration gallery installation.



Project goals

The goal of the RAIN project in Kitchener and Waterloo was to develop, test, and implement a coordinated community-based strategy for mobilizing installation of green stormwater infrastructure, including retrofits on individual properties.

Six objectives were identified, including:

1. Grow expertise among related fields and service providers;
2. Engage community in making wise choices for stormwater management;
3. Facilitate stormwater mitigation demonstration projects;
4. Provide incentives and credits to landowners who implement stormwater mitigation measures;
5. Develop and deliver home consultations on stormwater mitigation measures; and
6. Communicate the RAIN stormwater management approach to other jurisdictions, and provide resources that can be used by other jurisdictions.

Solution

Our solution is a comprehensive community-based social marketing (CBSM) strategy. While conventional communications-based strategies focus on information and awareness as tools for motivating action, CBSM recognizes that these tools are necessary but not sufficient to overcome barriers and achieve action. In this project, CBSM elements included:

- financial credits for property owners who install green stormwater measures
- contractor training, to increase access to knowledgeable contractors, and to engage contractors in promoting infiltration landscaping
- face-to-face and neighbour-to-neighbour engagement, inspiring action through personal contact
- yard signs that encourage neighbours to join in taking action
- creation of residential and non-residential participant case studies
- hands-on workshops and training - because doing is learning
- high profile demonstration projects
- clear, simple, and consistent messaging
- multiple partnerships and support from community champions, which reinforces credibility and impact



Above: Stormwater professionals examine the infiltration planter boxes on King Street in Kitchener during a best practices tour.



The RAIN Home visit. Certified RAIN guide Allan Taylor engages with the homeowner to identify his rain-related issues and objectives, and develop an action plan that suits his needs. A RAIN Business Visit was also developed.

- home and business visits, which engage the property owner as an active partner in creating a customized action plan that addresses their site specific needs, priorities, barriers, opportunities

Results

The project demonstrated the effectiveness of an enhanced RAIN program in conjunction with the stormwater utility and credit model in place in Kitchener and Waterloo. Project outcomes in the period from spring 2011 to fall 2013 included:

- 7765 people engaged at 128 events
- \$676,595 in stormwater credits issued
- 115 service providers trained
- 553,664 m³ of rainwater diverted in 2013
- Home Visit developed, 260 delivered
- Business Visit developed, tested
- Knowledge sharing/online library established for practitioners
- RAIN continuing in 2014
- RAIN model communicated to other jurisdictions - 33 events
- replication underway in other cities

Lessons learned

- stormwater credits/incentives are insufficient by themselves to motivate significant action – a multi-faceted community-based social marketing program like RAIN is needed to inspire and achieve action
- residential participants receiving credits should be required to re-certify every five years (not annually), to reduce administrative costs
- program partnerships pay off – the benefits justify the upfront effort required. Successful partnerships under this program included schools, universities, faith groups, neighbourhood associations, and industry associations.
- train volunteers to multiply impact – the Rain Barrel Blitz event, which used 30 trained RAIN volunteers in 10 community groups sold 1,200 rain barrels in one day
- spring is primetime for stormwater action – focus resources on this window of opportunity
- take time – a community engagement program takes at least two years to build up a full head of steam
- change is inevitable - stay flexible, adapt
- get professional help – complement program staff with professionals (e.g., communications, videography, design)
- show, don't tell – high profile demonstration projects sell themselves
- capitalize on word of mouth – simple, consistent messaging is needed to get the most of a potentially unreliable communication channel

Next steps

Based on the success of the Ontario Ministry of the Environment's Showcasing Water Innovation-funded RAIN project, the partnership is continuing the RAIN program in Kitchener and Waterloo into 2014. The program will focus on the business sector and non-residential properties, primarily because of the increased potential for volume and pollution reduction with larger properties.

Additionally, the municipalities are developing a storm water master plan to identify short and long term program objectives over the next 15 years. Potential enhancements to the credit system will be explored to increase participation. The success of the program to date has helped to strengthen political support for this approach.

Application for Ontario communities

RAIN is a community-based program that is designed to be adapted to local conditions, priorities and partnerships. A version of this program is applicable in any and all Ontario communities with the objective of promoting uptake of infiltration landscaping and other green stormwater infrastructure measures. Although Kitchener and Waterloo have adopted the useful tool of stormwater credits/incentives, RAIN is effective in communities that have yet to implement a stormwater utility model.

Contact information

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Partnerships are everything!

From left to right: RAIN Program Manager Grant Murphy, Kitchener Mayor Carl Zehr, Waterloo Mayor Brenda Halloran, Executive Director at REEP Green Solutions Mary Jane Patterson