

**Environment & Sustainability Standing Committee  
February 7, 2013**

**TO:** Chair and Members of Environment & Sustainability Standing Committee

Original Signed

**SUBMITTED BY:** \_\_\_\_\_  
Jane Fraser, Director, Planning & Infrastructure

**DATE:** January 21, 2013

**SUBJECT:** Alteration of Clean Nova Scotia Partnership Agreement

**ORIGIN**

- Regional Council, January 10, 2012: Item 11.2, Partnership Agreement Clean Nova Scotia
- Environment & Sustainability Standing Committee, January 10, 2013: 6.3.2, Clean Nova Scotia Presentation, Stormwater Management Program

**LEGISLATIVE AUTHORITY**

HRM Charter, 79, Power to Spend money: (1) (p) preventing or decreasing flooding

**RECOMMENDATION**

It is recommended that the Environment & Sustainability Standing Committee recommend to Regional Council to direct staff to terminate the partnership agreement with Clean Nova Scotia for a Fleet Fuel Reduction Project and initiate an agreement for a two year Rain Yards project, as proposed by Clean Nova Scotia (Attached), with the previously allocated funding of \$50,000 from the Sustainable Communities Reserve.

## **BACKGROUND**

### ***Stormwater Management Program: Clean Nova Scotia Rain Yards:***

At the January 10, 2013, meeting of Environment & Sustainability Standing Committee (ESSC), Clean Nova Scotia presented the results of a 2013 Rain Yards Stormwater Management Program that was funded by other organizations. A copy of the presentation can be viewed at: <http://www.halifax.ca/boardscom/SCenv/documents/CleanNovaScotiaRainYards.pdf> and the final report can be viewed at: <http://clean.ns.ca/programs/water/rainyards/>.

Following the presentation, the committee passed the following motion:

*“that the Environment & Sustainability Standing Committee direct staff to prepare a report exploring ways in which HRM could support Clean Nova Scotia’s stormwater management program and identifying potential neighbourhoods and public facilities that would be appropriate candidates for an expanded Rain Yards program”.*

### ***Fleet Fuel Reduction Project:***

In late 2011, Clean Nova Scotia and HRM developed a partnership agreement with a joint objective of acquiring significant leveraged funding with an objective of supporting the fleet fuel reduction activities prescribed in the Council approved Corporate Greenhouse Gas Emissions Reduction Plan.

## **DISCUSSION**

During 2012, staff has worked with Clean Nova Scotia on investigating Fleet Fuel Reduction measures, opportunities and funding programs. While the \$50,000 HRM contribution did not result in the successful leveraging of other programming funds that met HRM programming needs or objectives (which was the impetus of the partnership agreement), a strong effort has been completed and a number of successes have been achieved.

An overview of activities lead by Clean NS include:

- Joint meeting with municipal, fire, and Metro Transit fleet operators to:
  1. Discuss current and past status of fuel reduction efforts; and
  2. Identify ideas and opportunities for investigation.  
One example from this effort included complementing the Metro Transit mentorship program for new drivers with materials for mentors to encourage fuel efficient driving.
- Investigation of the use of an idle management system in the Police Fleet (<http://www.gripidlemanagement.com/benefits.php>). Unfortunately, the current version requires a control component that requires cabin space that the current vehicle layout cannot provide. It is hoped that the next version of these systems will be suitable.
- Discussions with staff working on developing the corporate AVL (Automatic Vehicle Locator) projects to align opportunities to support the technology provision with training, communications and/or monitoring.

- Development of a Regional Green Municipal Fund application to support Transit vehicle adoption of EMP minihybrids by engaging CBRM and Kings Transit.

In addition, in support of the Provincial roll-out of the Sustainable Transportation Strategy, Clean Nova Scotia staff has been collaborating with staff across the organization on opportunities to maximize municipal and provincial investment in sustainable transportation. However, during the past year, leveraged funding has not been realized. As such, the opportunity to discuss how to use this funding is now present.

It should be noted that outside the Clean Nova Scotia efforts, HRM is progressing a number of fuel reduction efforts including the continued purchase of EMP minihybrids, continued enforcement and education of the corporate anti-idling policy, fleet consolidation and management efforts, and development of the corporate AVL project (which will open a variety of fuel reduction opportunities).

The Clean Nova Scotia Rain Yards project aligns well and timely with HRM efforts related to stormwater. It is expected that in 2013, a Stormwater/Lot Grading By-Law will be presented for deliberation in conjunction with a Stormwater Management Functional Plan. Further, there is ongoing discussion, deliberation and efforts related to the integrated roles that HRM and Halifax Water play with respect to stormwater management. This proposal aligns with these efforts and supports residents by empowering them with knowledge and information on how they can manage rainwater on their own properties.

Benefits of the proposal include:

- Homeowner education and awareness
- Measurement of key performance indicators
- Relatively low cost per household for system improvements and potential benefits (compared to hard infrastructure solutions)
- Supports current municipal and utility focus on stormwater management

Staff is keen on the opportunity to examine how such a program provides performance measurement, citizen engagement and behaviour change, and the venue to deliver future integrated stormwater management programming.

**Neighbourhood Selection:** The selection of target neighbourhoods will be recommended by subject matter experts jointly from Halifax Water and HRM based on the opportunity to benefit the community/municipality, support current local community efforts, and compliment any stormwater infrastructure projects approved by Regional Council.

## **FINANCIAL IMPLICATIONS**

With the revision in the partnership agreement, there is no new funding commitments impacting the 2012/13 or 2013/14 operating or project budgets. The partnership agreement was funded from a Green Municipal Fund program through the Sustainable Communities Reserve, and not funded from general tax revenues.

## **COMMUNITY ENGAGEMENT**

This project engages homeowners and empowers them to do actions that can reduce their impact on the stormwater system.

## **ENVIRONMENTAL IMPLICATIONS**

Both fuel reduction and stormwater management provides environmental benefits to the residents of HRM. The municipality is seeing success in adopting fuel reduction efforts and increasing focus on stormwater management.

## **ALTERNATIVES**

Committee or Regional Council may:

1. Insist that staff and Clean Nova Scotia continue to work on the Fleet Fuel Reduction project;
2. Not transfer the funding to the Rain Yards project and determine another eligible project meeting Council priorities.

## **ATTACHMENTS**

Rain Yards Proposal

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A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/cc.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Richard MacLellan, Manager, Energy & Environment, 490-6056

Financial Approval by:

**Original Signed**

Greg Keefe, Director of Finance and Information Technology/CFO, 490-6308

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# RainYards:

## A Stormwater Management Program

Proposal 2013



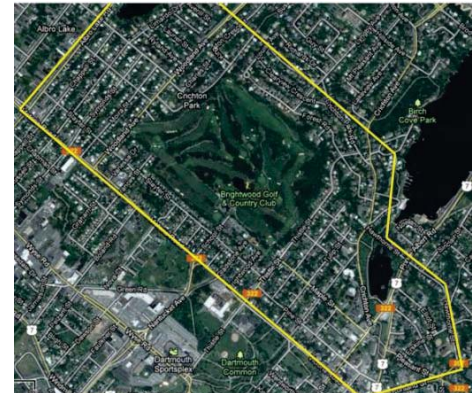
# RainYards

by Clean Nova Scotia



## Background

The **RainYards Program** is Nova Scotia's first property specific stormwater education program. RainYards delivers information and site specific solutions directly to homeowners through site assessments performed by knowledgeable program officers. Following the visit, homeowners receive a detailed homeowner report including a site diagram of problem areas and the program officer's observations and recommendations for decreasing inflow of stormwater into the municipal systems.



**Figure 1: Pilot area in South Dartmouth**

RainYards is unique as it offers homeowners time for one-on-one discussion with program officers which provides an opportunity to discuss issues, as well as particular interests and abilities that can influence the homeowner's recommendations. In



**RainYards officer, Nick Osbourne on CBC news**

addition, the visits not only provide homeowners with a rain barrel, but also with a full tool kit of stormwater management options that can be used to better manage stormwater on their properties.

RainYards was piloted last summer (2012) thanks to funding from Halifax Water and the Halifax Port Authority. The program was delivered to 100 homeowners in South Dartmouth (Figure 1). Overall, the program feedback was positive with all post-survey respondents advocating the continuation of the program. Some of the recommendations that homeowners were inspired to implement included installing French drains, rain gardens and re-grading properties to slope away

from homes (Appendix B). RainYards also garnered attention from outside the pilot community, in part through word of mouth, as well as through media coverage by CTV and CBC Evening News.

## Objectives

The focus of the RainYards program is to reduce flooding and runoff of stormwater into overburdened municipal stormwater management infrastructure through landscape changes. Our goal is to educate and empower homeowners on ways they can better manage stormwater on their properties to protect their homes and communities from overflow events.

In 2013, we are aiming to at least double the capacity for delivery of this program. Once a community is selected, RainYards officers will perform site assessment for 200 to 400 homes (table 1).

**Table 1. RainYards deliverables and targets for 2013**

Deliverable/Objective	Targets
<b>Deliver property specific stormwater assessment and education program to homeowners</b>	200-400*
<b>Install rain barrels on properties in target communities</b>	200-400*
<b>Hold community workshops including a rain barrel painting kick-off and sessions on implementation of selected recommendations</b>	2-3
<b>Develop more interactive RainYards website where homeowners can access videos, links, blogs and other relevant information</b>	-

\*see budget for scaled costs

## Description

The RainYards program aims to work with homeowners to address stormwater issues on their properties and in their communities through a multi-step process. Homeowners will be invited to take part in home assessments, as well as in community workshops covering more popular recommendations. An inaugural workshop will be held in the spring to kick off the program. Community members will be invited to learn more about the program and to paint their own rain barrels. The workshop is a great opportunity for people to sign up for their own RainYards assessment.

The homeowner visit will consist of the following:

### 1) Registration:

- To book a visit, homeowners will contact a RainYards program officer.
- During that call, officers ensure that homeowners fall within the pilot area, brief participant on program components, and schedule a time.
- Participants are sent an e-mail outlining site preparation requirements including:
  - The selection of a rain barrel location.
  - Clearing the area around the associated downspout (removing debris, plants, equipment, etc.)
  - Levelling the ground so that surface is flat.
  - Preparing a splash pad (covering the rain barrels surrounding area in gravel) if desired
  - Adding cement blocks, patio stones, or wooden planks underneath rain barrel (homeowners will be sent the height and width of their rain barrel so that they can prepare accordingly)

### 2) Site visit

- A pre-survey is administered to get an idea of homeowner awareness of stormwater management, as well as on site conditions including flooding issues and management techniques being employed.

- Officer completes walk-around of property with homeowner to talk about issues.
- Officer fills out assessment report including property diagram.
- Rain barrel is installed by assessor
  - Downspout is cut
  - Diverter is installed
  - Downspout reconnected
  - Rain barrel set in place on level area with
  - Rain barrel additions such as spigot or hoses installed
- Homeowner given an information package including a rain barrel pamphlet including tips for winter storage, Halifax Water's pamphlets on combined sewage-stormwater systems, tips for water conservation, and a list of native plants for a rain garden.

### 3) Homeowner Report

Within two weeks, homeowners will receive a report including a summary of water flow issues on their property. The homeowner report will be modified to address some of the feedback received during the pilot. Recommendations will be laid out in a more step-by-step fashion, including visuals wherever possible. In addition, recommendations will be clearly ranked according to cost and time requirements. Links to other stormwater resources such as the *Ecology Action Centres* stormwater blog and videos will also be included. The report will include methods and locations for retrofit options such as:

- proper roof drainage
- rain water harvesting
- French drains and ditching techniques
- enhancements to soil for better water retention
- traditional grass surfaces with larger plants
- rain gardens (including suitable plant selection)
- tree and topsoil preservation
- replacement of exposed area surfaces (hardscapes)
- rain chains
- xeriscaping
- green roofs

### 4) Post-Survey

Approximately 2- 3 months following the site visit, a post-survey will be administered to determine which recommendations were implemented by the homeowner. In addition, participants will be asked to evaluate their experience with the program. Site visits will accompany the post-survey for at least 25% of program participants.

## Scope

The target community will be within the Halifax Regional Municipality and on a combined storm-wastewater system. Ideally, the selected area will be relatively small to ensure greater coverage and more visible results. RainYards will be delivered to at least 200 homes within the selected community depending on budget. Communities will be selected in conjunction with Halifax Water, HRM and other partners.



## Timeline

**R**ainYards will be delivered throughout Spring and Summer 2013. Based on results from the pilot, the inaugural workshop will now take place in early May, with home visits taking place shortly thereafter. An earlier start will allow for additional time for post-surveys and follow-up site visits. A second workshop will be held in late June early July depending on participant availability and demand. The program will be completed by August 31<sup>st</sup> 2013.

## Benefits for HRM

**B**y providing knowledge and building capacity amongst one of the wastewater systems' key stakeholders: HRM homeowners. The RainYards project not only educates homeowners in problem areas, but also helps to slow stormwater runoff through the installation of rain barrels and implementation of other recommendations by participants.

The RainYards program also directly support to the goals and priorities of HRM Environmental Services pertaining to the management of stormwater and wastewater infrastructure. These goals include<sup>1</sup>:

- Managing Halifax Water's wastewater and stormwater systems to ensure the systems are effectively and efficiently used
- Improving the system performance through the implementation of such programs as Infiltration/Inflow reduction and Source Control (pollution prevention)

As proud supporters, HRM could participate in all aspects of the process including:

- Special events and celebrations
- Co-promotion
- Proud supporter with a shared vision
- Media attention and coverage

Opportunities for acknowledgement include:

- the inaugural community workshop and follow up workshop
- logos and links on appropriate websites
- logos on rain barrels
- educational and promotional materials
- through CNS-led promotion including our website, Twitter and Facebook
- verbal recognition and thanks at each homeowner visit, on the homeowner's report, and in media coverage

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<sup>1</sup> HRM. (2012). Stormwater/Wastewater Management. Available January 2012:  
<http://www.halifax.ca/pollutionprevention/wastewaterindex.html>

## History of CNS

CNS (Clean Nova Scotia) is a not-for-profit organization founded in 1988. Our staff is guided by a Board of Directors with representation from the realms of business, academics, government, and the community at large. Over the last 24 years, the organization has evolved into an effective, high profile institution with a broad mandate to work with individuals, government, business, and communities to improve our environment.

CNS is effective in part because we are independent, yet we are able to work with business, governments and communities, collaboratively and in a non-adversarial way. We are able to bring business, governments, institutions, communities and individuals together to work toward a sustainable society. That means long-term protection of the environment, health, and economic viability. We implement programs that other organizations could or would not be able to undertake effectively. These programs will make a real difference toward sustainable long-term prosperity. Our strength is in finding solutions that fit the communities they are intended to reach. By engaging members of those communities in a meaningful way during the early stages of our planning process and throughout discovery and implementation, it keeps them entrenched and involved.

CNS has had long involvement with various programs which educate and instill the importance of protecting, conserving and remediating Nova Scotia's water resources including; FlushLess, Adopt a Watershed, Environmental Home Assessment Program, Stream Restoration Projects, Project Webfoot, TOX Free, Lake Banook Mussel Moving and the Great Nova Scotia Pick Me Up.

## Budget

HRM, Halifax Water, and the Halifax Port Authority have been approached for 2013/2014 program funding. We are seeking program funding over 2 years, with at least 200 home visits per year. The following is a breakdown of program costs and funding requests. In-kind donations such as rain barrels are also welcome.

**Table 2: Requested funding**

Organization	Amount Requested (\$)		Total
	2013	2014	
HRM	25,000	25,000	50,000
Halifax Water, and other	20,000 - 30,000	20,000 – 30,000	40,000 – 60,000
<b>TOTAL</b>	45,000 – 55,000	45,000 – 55,000	90,000 – 110,000

**Table 3: RainYards budget per year for 200 and 400 homes**

Items	200 homes	400 homes
1.0 Human Resources	\$ 19,457.00	\$ 36,186.00
2.0 Program Materials, Equipment & Supply	\$ 18,064.00	\$ 35,702.00
3.0 Media, Advertising & Promotion	\$ 350.00	\$ 700.00
4.0 Travel	\$ 370.00	\$ 740.00
5.0 Office Services & Supply	\$ 110.00	\$ 220.00
<b>SUBTOTAL</b>	<b>\$ 38,351.00</b>	<b>\$ 73,548.00</b>
6.0 Administration & Overhead	\$ 5,760.00	\$ 11,040.00
<b>TOTAL</b>	<b>\$ 44,111.00</b>	<b>\$ 84,588.00</b>

## Appendix A: Pre-survey Results

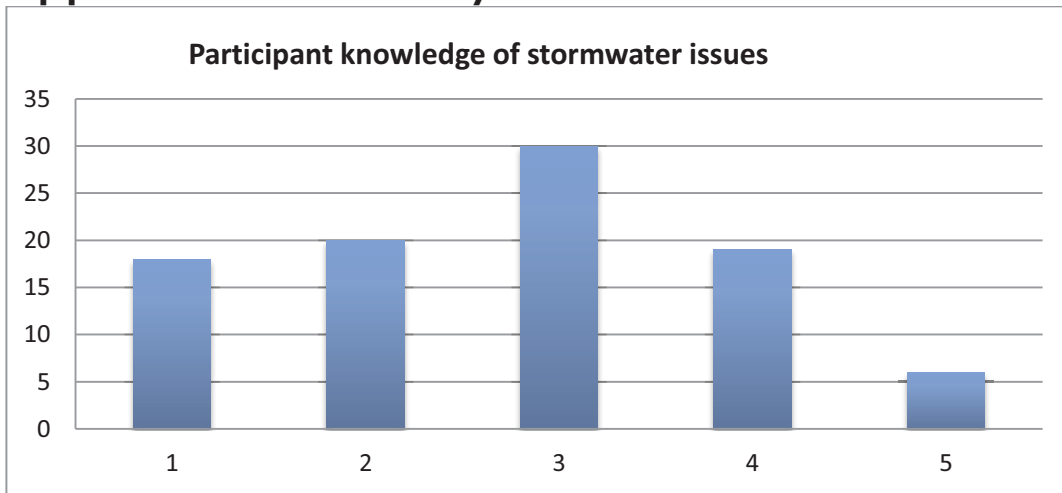


Figure 1: One hundred program participants ranked their knowledge of stormwater issues prior to the RainYards assessment on a scale of 1 to 5 – 1 being very little and 5 being very much.

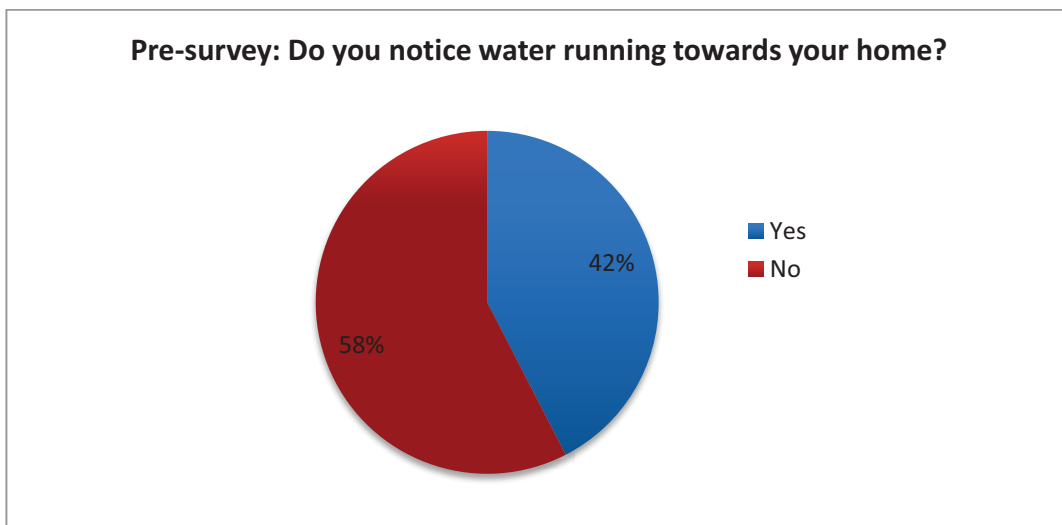


Figure 2: Nearly half of program participants reported issues with water running towards their homes. Affected participants were encouraged to consider re-grading their properties so that the ground sloped away from their foundations.

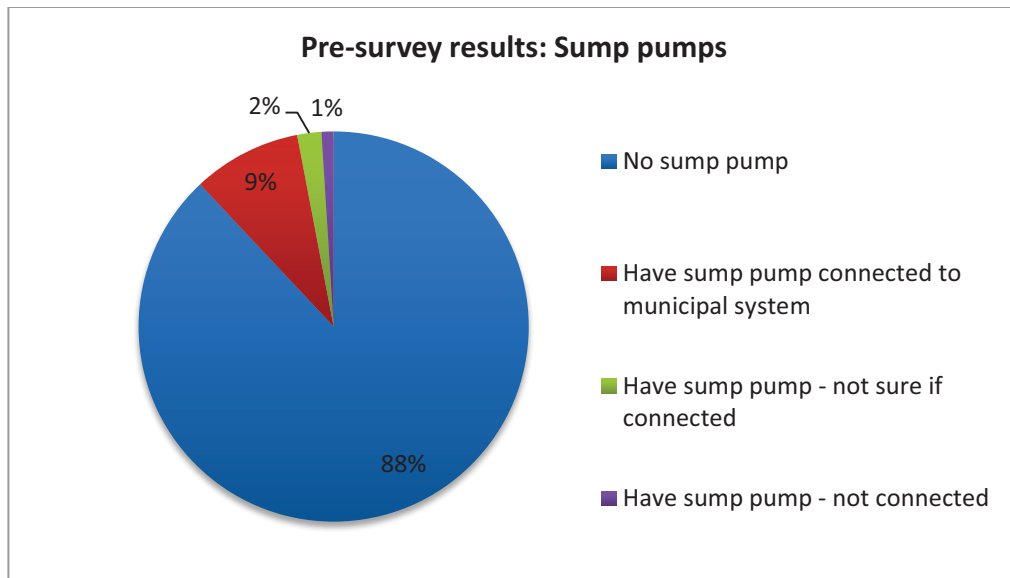


Figure 3: Of the programs 100 participants, 12 homes had sump pumps. Nine of these homeowners said their sump pumps were connected to the municipal storm/waste-water system, two were unsure as to where they were connected, and one homeowner had redirected that water to his yard.

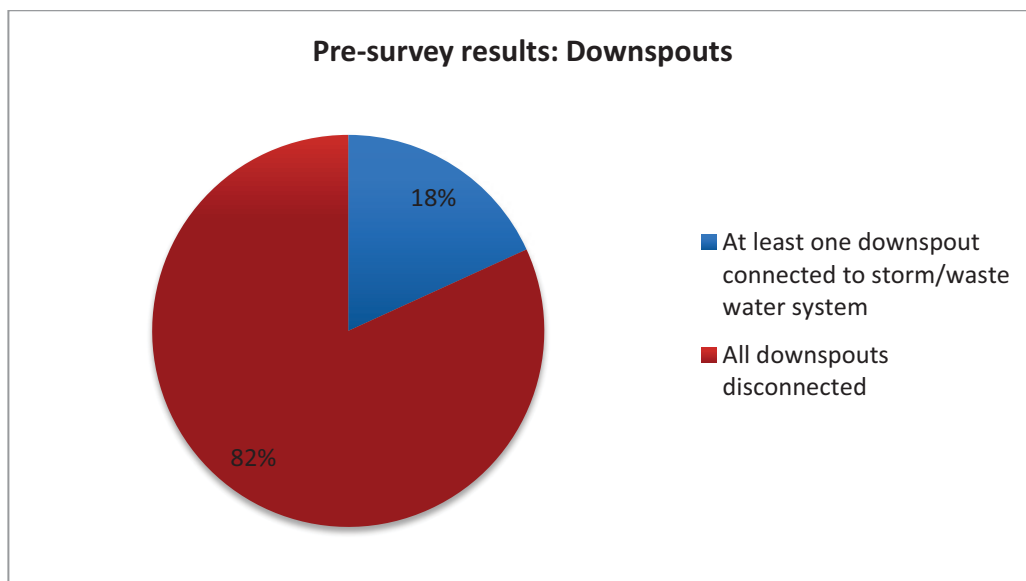


Figure 4: Of the 100 participating homes, 18 possessed downspouts that were directed back into the home and connected to the stormwater/wastewater system. For all of these homes, it was recommended that the downspouts be disconnected and redirected outside. In most cases, the suggested rain barrel location for these homes fell under a connected downspout.



## Appendix B: Post-Survey Results

Table 4: Implemented recommendations of post-survey respondents

<b>Recommendation</b>	<b>Number of times implemented</b>
Rain garden	3
Re-graded slope away from home	2
French drain	2
Installed gutter screen	1
Diverted water away from pavement and towards gardens	1
Installed dry well	1
Repaired broken drain	1

Table 5: What do post-survey respondents plan on implementing?

<b>Recommendation</b>	<b>Number of times identified</b>
Rain garden	5
Additional rain barrel	4
Soil ammendments	3
Addition of soaker hose to rain barrel	2
Permeable pavement	2
French drain	2
Downspout extensions	1
Regrading of property	1
Removal of pavement	1

Table 6: Why did post-survey respondents implement certain recommendations?

<b>Recommendation</b>	<b>Number of times identified</b>
Want to use less municipal water	4
Easiest/quick fix	2
Want to be environmentally sound	2
Addressing home flooding/wet basement issues	2
Save money	1

## Appendix C: Potential rainwater capture<sup>1</sup>

	July	Aug	Sep	Oct	Total to date
<b>Rain fall (mm)<sup>2</sup></b>	<b>75.9</b>	<b>58.6</b>	<b>299.1</b>	<b>85.6</b>	<b>519.2</b>
<b>Amount diverted by 50 rain barrels (210 L)<sup>3</sup></b>	<b>58,000</b>	<b>54,800</b>	<b>129,500</b>	<b>90,600</b>	<b>332,900</b>
<b>Amount diverted by 400 L rain barrels<sup>4</sup></b>	<b>75,100</b>	<b>70,000</b>	<b>205,900</b>	<b>94,000</b>	<b>445,000</b>
<b>Total diversion potential (L)</b>	<b>132,000</b>	<b>124,800</b>	<b>335,400</b>	<b>184,000</b>	<b>777,900</b>
<b>Wastewater treatment cost savings (\$)<sup>5</sup></b>	<b>170</b>	<b>161</b>	<b>433</b>	<b>244</b>	<b>1004</b>

<sup>1</sup> Calculations made with a rain barrel calculator using values for an average Dartmouth home (900 square foot roof) with 3 down spouts draining roof sections of equal area:

[http://www.aquabarrel.com/learn\\_rain\\_barrel\\_calculator.php](http://www.aquabarrel.com/learn_rain_barrel_calculator.php)

<sup>2</sup> Total rainfall and records for individual precipitation events from HRMweather.com

<sup>3</sup> A 210 L rain barrel is at capacity after approximately 7.6mm of rain fall.

<sup>4</sup> A 400 L rain barrel is at capacity after approximately 14.1 mm of rain fall.

<sup>5</sup> Based on current wastewater treatment fee (\$1.29/m<sup>3</sup>) charged to Halifax Water rate payers. An increase to 1.40/ m<sup>3</sup> by July 1<sup>st</sup>, 2013 and another to 1.726/ m<sup>3</sup> after April 1<sup>st</sup>, 2014 have been proposed: <http://www.halifax.ca/hrwc/documents/PressRelease.pdf>

## **Appendix D: RainYards pilot - participant testimony**

*"[RainYards] is a great program which suggests easy and obtainable goals for homeowners. I appreciate the rain barrel, though it was not a deciding factor in participating. If possible I would like to see (and participate in) workshops on creating green roofs and rain gardens."*

*"I was very pleased with the service and information provided to me and would highly recommend continuation of the program."*

*"I greatly appreciate that the program replaced my first barrel after it failed. [It] made the process easy as the new barrel was dropped off at my home. Looking forward to using the water collected on my garden next year."*

*"Really appreciated [the program. It] was great to be a part of"*

*"Extend [RainYards] to other parts of the city"*

*"Most older homes have problems, somehow every home should be looked at for storm water solutions. A process perhaps integrating with the water department so that every property gets a quick assessment as part of property ownership. Home owners could get a blueprint for improvement - as money allows"*

*"I have friends in the area looking for the program if it expands, Thank You for providing me with info on knotweed which is a big problem around my place"*

*"Property drawing was excellent feature, very accurate as well, report was exactly as discussed with onsite staff, whole experience was excellent."*

*"Good program thank you."*

*"Visit and info was more important than the rain barrel, but admit I would not have taken part without the free offer of rain barrel - Thank You, good program."*

*"Thanks for allowing me to participate, greatly appreciated."*