

2018-2019

## Water Guardian: Incorporation of Nature-Based Infrastructure within the Petitcodiac River Watershed



Environmental Trust Fund

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Petitcodiac Watershed Alliance

Project #: 180114

## Environmental Trust Fund Final Report

Group Name: Petitcodiac Watershed Alliance (PWA) Inc.

Address: 236 St. George Street, Suite 405, Moncton, NB, E1C 1W1

Amount: \$25,000

### **Summary**

In 2018, the Petitcodiac Watershed Alliance (PWA) expanded on our water guardian program initiated in 2014 within the Petitcodiac and Memramcook River watersheds.

The objective of the water guardian program is to benefit the ecosystems and communities surrounding the Petitcodiac River watershed by reducing floods & flood damage, reducing surface runoff flowing into the Petitcodiac River, creating habitat for species with a focus on pollinators and species-at-risk, and increasing local knowledge of cost-efficient, minimal maintenance landscape features, such as rain gardens, to address climate change.

To fulfil this objective, the PWA collaborated with EOS Eco-Energy Inc. to help us with the design for rain gardens, worked with the City of Moncton's Department of Environmental Planning and Management to select and approve rain garden sites, installed two large rain gardens within the City of Moncton, and worked with other municipalities, community groups and citizens to encourage action around incorporating nature-based systems to adapt to climate change.

### **Evaluation**

Short Term Goals (Reached? Yes or no. If no, why?):

- Create 2 full-time jobs (One 9-month project leader position, one 4-month senior assistant position): Yes
- Create a rain garden planting guidebook: Yes
- Conduct 5 site assessments for suitable rain garden locations (identify drainage area, determine inflow, soil texture and organic matter content, slope, infiltration rate): Yes
- Construct 5 rain gardens in identified suitable locations: No, we identified 2 locations that required very large rain gardens (compared to the ones we've seen) and therefore could only construct 2 rain gardens instead of 5 due to funding constraints.
- Collect 5 samples from rain gardens and analyse data on a monthly basis: No because we were unable to complete the installation of our rain gardens in 2018.
- Sample 4 parameters post-construction to determine rain garden efficiency (infiltration rate, lead, copper, zinc): No, see answer above.
- Analyze infiltration rate pre and post-construction of rain gardens in the field or in the PWA lab: No, see answer above.
- Send all samples for metals testing: No, see answer above.
- Conduct post-construction maintenance of rain garden (watering): No, see answer above.
- Conduct post-construction monitoring of rain garden for 3 months (plant mortality rate, evidence of physical damages): No, see answer above. This will be completed in 2019.
- Identify 5 potential locations for future nature-based infrastructure construction in the watershed: Yes

- Advertise project with 5 press release to local news channels (radio, television, and newspaper): No, we did not advertise on local news channels because we were not allowed to bring volunteers on site for the rain garden plantings (See explanation below).
- Advertise project on social media by posting 1 educational piece per week for 3 months (June to August): Yes
- Involve 50 volunteers with the rain garden planting: No, volunteers were recruited for the rain garden plantings, however we were not allowed to have them on site due to one being an active construction zone and the other one being not easily accessible to the public.
- Conduct 5 school presentations on the project: Yes
- Contact 5 local businesses to talk about the project: Yes
- Host a water themed community event at existing rain gardens at Mapleton Rotary Lodge in Mapleton Park, Moncton (environmental awareness, volunteer recruitment): No, we did not receive enough funding to organize this event in 2018.
- Collect data on media outreach efficiency (views, share, etc.): Yes
- Post-project community outreach survey to project participants: No, we did not need a survey because there was no project participants (See answer above for more explanation).
- Create a detailed report for the Water Guardian Program: No, because we were unable to complete our rain garden installations in 2018, we will wait for their completion in 2019 and produce a report afterwards.
- Translate all materials to French to ensure universal access: No, our social media posts were only in English, however, information on our website and signage will be bilingual.
- Meet with multiple government departments to share project successes and challenges: Yes
- Report release to our project stakeholders and on our website: No, a final report will be completed in 2019-2020 and shared with our project stakeholders before March 31, 2020.

Long Term Goals (Yes/No):

- Raise awareness of local stormwater issues and the importance of nature-based infrastructure in urban management: Yes
- Improve water and aquatic habitat quality in the watershed for species like the endangered Inner Bay of Fundy Atlantic salmon: Yes
- Increase biodiversity and improve air quality in urban areas by creating more green spaces for wildlife and people: Yes
- Build relationships with local stakeholders concerned with stormwater management issues (homeowners, municipalities): Yes
- Act as a partner with Government to identify sites for nature-based infrastructure incorporation in the city: Yes

Table 1: Detailed goals, targets and outcomes of the project delivery

<b>Goals</b>	<b>Target</b>	<b>Outcomes</b>
Goal 1: Employment	- # of positions	- The PWA was able to hire one project leader for a 9 month position with this project and one senior project assistant for the duration of 4 months
Goal 2: Rain Garden Planning, Construction and Monitoring	<ul style="list-style-type: none"> <li>- # of site assessments (target: 5)</li> <li>- # of rain gardens planted (target: 5)</li> <li>- # of samples taken overall for infiltration and metals (target: 20)</li> <li>- # of parameters measured (target: 4)</li> <li>- # of samples analyzed for infiltration rate (target: 20)</li> <li>- # of samples tested for metals (target: 15)</li> <li>- # of rain garden watering events (target: 15)</li> <li>- # of months parameters measured (target: 3)</li> <li>- plant mortality rate in rain gardens</li> <li>- amount of physical damages in rain gardens</li> <li>- estimate of stormwater absorbed by rain gardens</li> <li>- estimate of metals absorbed by rain gardens</li> <li>- # of identified potential locations for future nature-based infrastructure construction (target: 5)</li> </ul>	<ul style="list-style-type: none"> <li>- We assessed two sites for our two rain garden installation</li> <li>- Two rain gardens will be finalized in the spring of 2019 because of changes in project timeline and unusual weather (rain events) in September 2018</li> <li>- No samples were taken due to the fact that no rain gardens were completed in 2018</li> <li>- No parameters were measured</li> <li>- No samples were analyzed</li> <li>- No samples were tested for metals</li> <li>- No rain garden watering events occurred</li> <li>- No parameters were measured and therefore no number of months were recorded</li> <li>- Plant mortality rate in rain gardens was not measured</li> <li>- Physical damages in rain gardens was not measured</li> <li>- No estimate of stormwater absorbed by rain gardens was performed</li> <li>- No estimate of metals absorbed by rain gardens was performed</li> <li>- We identified 2 locations at the Dieppe Farmer’s Market, 1 location at the Salisbury High School, 1 location at the Evergreen Park School, and 1 location at Beaverbrook School</li> </ul>
Goal 3: Community Education & Outreach	<ul style="list-style-type: none"> <li>- # of press releases (target: 5)</li> <li>- # of social media posts (target: 12)</li> </ul>	- No press releases were made during the length of the project because we were not allowed to bring volunteers on site for the

	<ul style="list-style-type: none"> <li>- # of volunteers involved (target: 50)</li> <li>- # of presentations in schools (target: 5)</li> <li>- # of presentations to businesses (target: 5)</li> <li>- # of community event (target: 1)</li> <li>- # of online views of documents</li> <li>- # of surveys sent and collected to and from project participants</li> </ul>	<p>rain garden planting and did not have enough funding to host a workshop at Mapleton Park</p> <ul style="list-style-type: none"> <li>- 12 separate posts were made on social media about rain gardens, natural infrastructure, stormwater management, climate change and more</li> <li>- No volunteers were involved in the project because volunteers were not allowed on site for the rain garden plantings</li> <li>- We presented about natural infrastructure at the 7 following schools: Evergreen Park School, JMA Armstrong High School, Riverview High School, Abbey-Landry School, Dorchester Consolidated School, Kingswood Academy, and Champlain School</li> <li>- We meet the 6 following businesses to present about natural infrastructure: Dieppe Farmer's Market, City of Dieppe, City of Moncton, Town of Riverview, Atlantic Canadian Organic Regional Network (ACORN), New Brunswick Community College (NBCC)</li> <li>- We did not organize a community event, however we presented about natural infrastructure at ACORN's Climate Resilience Workshop and will be organizing a workshop on sustainable land-use and practices (e.g. natural infrastructure in urban areas) for the Sustainapalooza in Riverview this coming April</li> <li>- From our posts on social media, we reached over 50,000 people (online views of documents)</li> <li>- No surveys because there was no project participants</li> </ul>
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<p>Goal 4: Final Reporting</p>	<ul style="list-style-type: none"> <li>- # of reports (target:1)</li> <li>- # of materials translated in French</li> <li>- # of meetings with government departments to share project successes and challenges (target: 3)</li> <li>- # of reports available (target: 1)</li> </ul>	<ul style="list-style-type: none"> <li>- 2 reports were written for the ETF (Interim and final)</li> <li>- Information on our website will be translated in French</li> <li>- We met with the City of Moncton to discuss the rain garden installations and plan for 2019. We are open to meet with an Environmental Trust Fund representative to discuss project successes and challenges further</li> <li>- A detailed report will be shared with our funders and the public before March 31<sup>st</sup> 2020</li> </ul>
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