



ALLIANCE DU BASSIN VERSANT  
**PETITCODIAC**  
WATERSHED ALLIANCE

# Water Guardian Project 2019-2020

March 1<sup>st</sup>, 2020

*Authored by:*

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*Organization:*

The Petitcodiac Watershed Alliance (PWA) Inc.

Project #: **190177**

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## **Environmental Trust Fund Final Report**

Group Name: Petitcodiac Watershed Alliance (PWA) Inc.

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Phone Number: (506) 384-3369

Amount: \$27,500

### **Summary:**

In 2019, 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, worked with Really Local Harvest to install one rain garden in Dieppe, worked with the Riverview Boys & Girls Club to install a rain garden in Riverview, 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?):***

##### Employment:

- Create 1 full-time director position, 1 full-time management position, 1 technical leading job and 1 summer job: Yes

##### Rain Garden Planning, Construction, and Monitoring:

- Conduct 3 site assessments for suitable rain garden locations (identify drainage area, determine inflow, soil texture and organic matter content, slope, and infiltration rate): Yes, 8 site assessments were conducted (Centennial Park, Forest 2020 site, Dieppe Market, Coverdale Center, NBCC Moncton campus, Riverview Redwater Park, Salisbury Middle School, and Maplehurst Middle School).
- Construct 3 rain gardens in identified suitable locations: Yes, 4 rain gardens were constructed (at Centennial Park, Forest 2020 site, Dieppe Market, and Coverdale Center).
- Conduct post-construction maintenance of rain garden (watering, weeding): Yes
- Conduct post-construction monitoring of rain gardens for 3 months (plant mortality rate, evidence of physical damages): Yes
- Identify 3 potential locations for future rain garden installation: Yes, 4 potential locations were identified.

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### Other Natural Infrastructure Planning and Implementation:

- Complete the design for the green roof at the Dieppe Market: No, the design for the green roof was discussed, but postponed due to lack of sufficient funding for the planned extension.
- Map of areas to target for naturalized ditches: No; though areas that could benefit from naturalized ditches were identified and partners approached, no complete map has been created.
- Contact landowners adjacent to targeted areas for naturalized ditches: Yes, landowners of the Dieppe Market and Salisbury Middle School were contacted for naturalized ditches.
- Commitment from 5 landowners to naturalize their ditch: No; however, commitment from Dieppe Market and Salisbury Middle School has been obtained to naturalize their ditches, which would benefit an area of 108,000 m<sup>2</sup>.

### Community Education and Outreach:

- Host one community event at a rain garden: Yes, there was a TD tree planting event at the Dieppe Market rain garden location with TD Tree Canada and Fed Ex employees in attendance, and the Riverview Boys & Girls Club helped with the preparation of the Coverdale Center rain garden and were given an informal workshop on rain gardens on-site.
- Advertise project with press releases to local news channels (radio, television, newspaper): No, the rain gardens were either exhausted by the heat in the summer or planted later in the season and were not prepared for news coverage.
- Advertise project on social media by posting 1 educational piece per week for 4 months – June to September (Target: 16 posts): Yes, 24 posts were made from June – September that was educational about topics related to the Water Guardian project.
- Collect data on media outreach efficiency (views, shares, etc.): Yes
- Update our website with information about natural infrastructure: Yes
- Develop and deliver information pamphlets about natural infrastructure to citizens: Yes
- Involve 50 volunteers with the rain garden planting: Yes, there were over 60 volunteers involved in the rain garden installations.
- Conduct 5 school presentations on the project: Yes
- Paint 50 stormwater drains in urban areas with the help of volunteers: No, biodegradable spray paint was not obtained this summer due to difficulty in accessing this product in Canada; however, a buyer was found in the fall of 2019 and will be supplying biodegradable paint for the next field season in 2020.
- Create educational videos about naturalized ditches and green roofs: No, as these projects were stalled due to a green roof delay in construction and naturalized ditches agreement both postponed to 2020. Educational videos will be done when these projects can move forward.
- Receive feedback/survey information from project participants: Yes, verbal feedback was received by participants at the events and also at meetings with project partners, who all enjoyed hearing about green infrastructure.

### Final Reporting:

- Create detailed report for the Water Guardian Program: Yes
- Translate all material to French to ensure universal access: Yes
- Meet with project stakeholders to share project successes and challenges: Yes
- Release report to our project stakeholders and on our website: Yes

### ***Long term goals (Yes/ No)***

- Raise awareness of local stormwater issues in urban and semi-rural areas and the importance of natural infrastructure in land management: Yes
- Reduce polluted urban run-off from directly entering nearby streams and rivers, ultimately improving the water quality of the Petitcodiac River: 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, businesses): Yes
- Act as a partner with Government to identify sites for natural infrastructure incorporation: Yes

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

Goals	Target	Outcomes
Rain Garden Planning, Construction, and Maintenance:	<ul style="list-style-type: none"> <li>• # of site assessments (target: 3)</li> <li>• # of rain gardens planted (target: 3)</li> <li>• # of garden watering and weeding events (target: 6)</li> <li>• plant mortality rate in rain garden</li> <li>• Amount of physical damages in rain gardens</li> <li>• Estimate of stormwater absorbed by rain gardens</li> <li>• # of identified locations for future rain garden installation (target: 3)</li> </ul>	<ul style="list-style-type: none"> <li>• 8 site assessments</li> <li>• 4 rain gardens planted</li> <li>• 8 garden visits/ events where watering, weeding, re-mulching took place.</li> <li>• Approx. 35% mortality rate recorded in rain gardens at Centennial and Forest 2020, 45% mortality rate recorded at the Dieppe Market rain garden, and 10% mortality rate recorded at the Coverdale Center rain garden.</li> <li>• Low amount of physical damage to rain gardens, Coverdale Center rain garden had minor erosion from a heavy stream through it.</li> <li>• Between July and October, there was an average approx. rainfall of 439.3mm over the City of Moncton. The EPA national stormwater calculator estimates the rain gardens would absorb 0.4 inches of rainfall per hour. The rain gardens would receive 439.3mm of rainfall after their installation in 2019 but calculating the runoff from impermeable surfaces is more difficult. Though we currently do not have an equation to measure stormwater absorbed by the rain gardens, a reliable equation is being investigated, to include the amount of rainfall received by the square meter area of the rain garden added to the rainfall received to adjacent impermeable surfaces that would runoff to the rain gardens.</li> <li>• 4 identified locations for future rain garden installation</li> </ul>
Other Natural Infrastructure Planning:	<ul style="list-style-type: none"> <li>• # green roof design created (target: 1)</li> </ul>	<ul style="list-style-type: none"> <li>• 0 green roof designs created due to the postponed Dieppe Market</li> </ul>

	<ul style="list-style-type: none"> <li>• # of maps created for naturalized ditches (target: 3)</li> <li>• # of adjacent landowners contacted (target: 15)</li> <li>• # of commitments to naturalize property owner ditch (target: 5)</li> </ul>	<p>extension, but a design plan was discussed.</p> <ul style="list-style-type: none"> <li>• 0 maps created for naturalized ditches; however, two partners were approached.</li> <li>• 2 adjacent landowners contacted: the Dieppe Market and Salisbury Middle School.</li> <li>• 2 commitments to naturalize property owner ditch: the Dieppe Market and Salisbury Middle School.</li> </ul>
<p>Community Outreach and Education:</p>	<ul style="list-style-type: none"> <li>• # of community events hosted (target: 1)</li> <li>• # of press releases (target: 5)</li> <li>• # of social media posts (target: 16)</li> <li>• # of online viewers, through Facebook and YouTube (target: 1,500 plus friend shares which is unknown)</li> <li>• # of post interactions (comments, shares, and likes)</li> <li>• # of individuals directly communicated with (target: unknown)</li> <li>• # of additional information pages/ updates to website content</li> <li>• # of online views of documents</li> <li>• # of people accessing website, volunteer emails, and other statistic-keeping forms</li> <li>• # of additional information available to public</li> <li>• # of pamphlets printed and delivered to citizens (target: 150)</li> <li>• # of volunteers involved (target: 50)</li> <li>• # of presentations in schools (target: 5)</li> <li>• # of stormwater drains painted (target: 50)</li> <li>• # of videos created (target: 2)</li> </ul>	<ul style="list-style-type: none"> <li>• 2 community events hosted</li> <li>• 0 press releases but will be sought out next year when the rain gardens are more established.</li> <li>• 24 social media posts</li> <li>• 30,255 online viewers, through Facebook and YouTube</li> <li>• 3144 of post interactions (comments, shares and likes)</li> <li>• 502 individuals directly communicated with</li> <li>• 3 additional information pages / updates to website content</li> <li>• Potential count of 30,255 online views of PWA documents about and/or related to the project</li> <li>• A potential number of 1,695 people accessing website, volunteer emails, and other statistic-keeping forms through following the PWA page on Facebook</li> <li>• 2 educative material developed and available to public</li> <li>• 40 educative materials on stormwater management printed and delivered to citizens; decision was made to print information on paper to biodegrade and keep within zero waste project goals, making less pamphlets and using social media more.</li> <li>• Over 60 volunteers involved</li> <li>• 6 presentations in schools</li> <li>• 0 stormwater drains painted, lack of biodegradable spray paint, for which supplier was found</li> <li>• 1 video created for youth to highlight issues of land</li> </ul>

		management practices, which discusses stormwater runoff impacts and green infrastructure.
Final Reporting:	<ul style="list-style-type: none"> <li>• # of reports (target: 1)</li> <li>• # of materials translated to French</li> <li>• # of meetings with stakeholders to share project successes and challenges (target: 3)</li> <li>• # of reports available (target: 1)</li> </ul>	<ul style="list-style-type: none"> <li>• 1 report</li> <li>• 3 material translated to French: rain garden how-to guide, Centennial rain garden signage, rain garden rock engraving design.</li> <li>• 5 meetings with stakeholders to share project successes and challenges</li> <li>• 1 report available</li> </ul>