

EOS Depaving Project Communications Plan

Rain as a Resource Community of Practice Final Report



Submitted by:

Kelli-Nicole Croucher, Watershed Coordinator

Eric Arbeau, Summer Intern

Amanda Marlin, Executive Director

EOS Eco-Energy

June 28, 2019



Project Summary

EOS promoted the first depaving site in the Tantramar Region at the Bill Johnstone Memorial Park. Sackville Public Works tore up a 335 sq ft parking area of asphalt pavement from a corner of the parking lot adjacent to the park on Monday, June 3rd, which was then covered in a permeable pavement layer by Dexter Construction on Wednesday, June 5th. Permeable asphalt and its base layers allow rainwater to pass through to the soil below, unlike traditional asphalt, which directs water to storm drains. The porous nature of the pavement also traps suspended solids and pollutants, keeping them from entering the soil. By covering parking lots and driveways in this type of asphalt, pollutants are filtered out before water reaches local water bodies and water pooling won't occur.

Leading up to and following the depaving event, EOS promoted depaving and its benefits to the general public in Sackville and the Tantramar area as well as across the Maritimes with the intention of leading to behavior changes among the public and local municipalities.



Figure 1: Before (left) the permeable asphalt was installed water pooled on the parking spot. After (right) the permeable asphalt was laid water was able to flow through the surface to the ground below

Goals

Immediate success is a more aware public. A longer-term success is noticeable behavior changes among the general public and local municipalities. Long-term changes could include: (1) homeowners depaving their driveways, patios, decks, etc. and replacing them with permeable pavers and or gardens containing native plants; (2) businesses, organizations and institutions choosing to de-pave or not pave their parking lots, etc. and replacing them with permeable pavers, gardens, etc.

Results

EOS promoted depaving through our social media sites ([Facebook](#), Instagram (@eosecoenergy), Twitter (@EOSEcoEnergy), etc.), via our seasonal newsletter, and over our mailing list. We also had a very successful media campaign which included press releases that reached print, radio, and TV across the maritime (see Appendix 1 for media coverage).

We also started obtaining commitments for low impact development using the hashtag **#RainAsAResource**. At all our events in June we asked for commitments using a whiteboard and a photo that could be shared on social media with the hashtag. Commitments were collected (and are still on-

going) from local municipalities, homeowners, and business to depave and/or employ other low impact developments such as using rain barrels, planting rain gardens, etc.



Figure 2: The poster created to promote the #RainAsAResource campaign



Figure 3: Sample of commitments gathered for the #RainAsAResource campaign

The photos have been shared on EOS social media, as well as on our new depaving project website (<https://eosecoenergy.com/en/depaving/>) to showcase what others in the area are doing and to encourage others to do the same and to build support for this new way of doing things.

In addition to showcasing our #RainAsAResource commitments, our new depaving project webpage also includes photos from all steps of the depaving process, more info on the benefits of depaving, as well as resources to help get them started such as links to local permeable pavement companies, other low impact development options like rain gardens, etc.

EOS hosted 5 events throughout this project:

1. Community Based Social Marketing Workshop – May 2-3

EOS hosted a community-based social marketing workshop with Doug McKenzie-Mohr May 2-3. We learned lots of great approaches from this workshop to implement in our projects. Some examples included:

- Collecting written commitments (eg. from people promising to depave and use low impact developments)
- Building community support by influencing social norms (making depaving normal, reducing barriers to it, and showing the uptake for it with events at the depaving site)
- Incentives (eg. talk to municipalities about creating incentives to reduce runoff)
- Convenience (eg. make it easier for people to depave and use low impact developments by placing resources on a website)



2. Depaving Day – June 3rd

The Town of Sackville public works crew cut up the pavement on June 3rd. The parking area on Ford Avenue was known for pooling of water. Even after the town had taken out the asphalt water was found pooling underground so they had to pump it out prior to putting in the 1 m deep ¾ inch clearstone fill. EOS staff were on site to take pictures as well as local media.



Figure 4: The traditional asphalt at the site was broken up and caused water to pool. During excavation, a pump had to be used to remove excess water from the hole leading to the storm sewer.

3. Natural and Nature-Based Adaptation Learning Day – June 4th

On June 4th the New Brunswick Environmental Network hosted a Natural and Nature-Based Adaptation Learning Day for municipalities, engineers, and planners. This learning day included site tours at the EOS depaving site and rain garden sites. During the tour of our sites, participants were invited to make commitments to using rain as resource using the hashtag #RainAsAResource.

This workshop had 63 participants which included:

- 15 government employees
- 2 planning service commission employees
- 6 municipal government employees
- 4 consultants
- 30 NGO representatives
- 3 university employees



Figure 5: During the NBEN Learning Day, the over 60 participants were able to ask questions and see first hand what the project was all about.

4. Permeable Pavement Laying Day – June 5th

On June 5th Dexter Construction covered the parking spot in a permeable pavement. There had been a lot of interest raised in this event so a number of media outlets were on site for the laying of the pavement and people slowed down while driving or walking by to check it out. The following day Sackville received heavy rainfalls which showed the permeable pavement was working well and off to a great start! [See our Facebook page for a video of rain water flowing over regular pavement and seeping into the permeable pavement.](#)



Figure 6: The Town of Sackville prepped the site by removing the existing asphalt, digging out a metre of fill, and placing crushed stone in the hole to fill it back in. Dexter Construction delivered and rolled out the permeable asphalt two days later.

5. Sackville Farmer's Market – June 22nd

On June 22nd, EOS set up an information booth at the Sackville Farmer's Market to promote the depaved space. People were able to drop some water on both regular depaved areas to compare the absorption of water and runoff and see first-hand the benefits of depaving and the technologies that exist to replace it. We also continued to collect commitments using the hashtag #RainAsAResource.

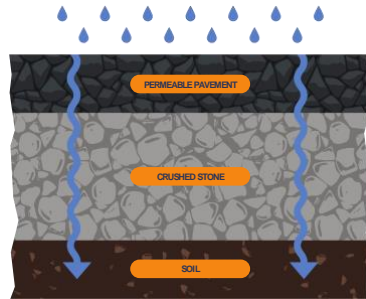


Figure 7: EOS was at the Sackville Farmer's Market on June 22nd to promote the depaving project and talk to the public about how to use rain responsibly.

Finally, a well-designed and eye-catching sign was erected at the depaving site to help explain what depaving is and what materials were used in the construction of the site, how it functions and why it is important in helping to deal with flooding.

Permeable Pavement

Unlike regular pavement, permeable pavement allows rainwater to flow through it to a reservoir of crushed stones below. The ground can then absorb water that enters the reservoir, reducing runoff that reaches storm sewers.



BENEFITS

- Reduces flooding
- Filters pollutants
- Recharges groundwater
- Requires less road salt
- Reduces potholes
- Maintains durability

EOS

ECO-CITY

CLUB L'UNION

Sackville

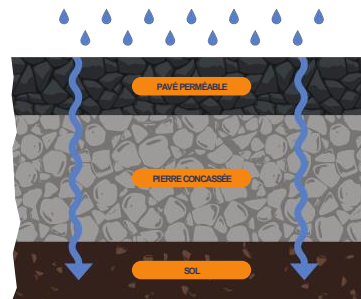
Canada

Environment and

Climate Change Canada

Pavé perméable

Contrairement au pavé habituel, le pavé perméable permet à l'eau de pluie de le traverser et d'atteindre un réservoir de pierre concassée. Le sol peut ensuite absorber l'eau qui entre dans le réservoir, réduisant ainsi l'écoulement dans les égouts.



BIENFAITS

- Réduit les inondations
- Filtre les polluants
- Recharge les eaux souterraines
- Nécessite moins de sel
- Réduit les nids-de-poule
- Conserve sa durabilité

EOS

ECO-CITY

CLUB L'UNION

Sackville

Canada

Environment and

Climate Change Canada

Project Budget

Item	Budgeted amount	Actual amount
Wages	\$4000	\$4000
Promotion and materials (sign design and supplies including aluminum sign and post)	\$850	\$877.57
Travel to site (none as the sited ended up being nearby)	\$50	\$0
Meeting costs (hot soup for staff onsite during cold rainy depaving day)		\$35.85
Overhead (bookkeeping, rent, phone, insurance, etc)	\$100	\$86.58
TOTAL	\$5000	\$5000

Discussion

Overall our first depaving project went very well. We have already seen the permeable pavement working in big rainstorms and the communications around this project has really help advance our community towards the goal of increasing green infrastructure. There has been lots of media attention surrounding this project and seeing the pavement in action has opened people's eyes to the benefits of low impact development options. There has already been people asking about using permeable pavement for their driveways, local business parking lots, as well as interest expressed from the town and Mount Allison University at the potential of using it in the future.

The timing of the NBEN Learning Day and site tours was very convenient for showcasing our project and collecting commitments from other NGOs, watershed groups, engineers, etc. This project also links well to the ongoing Lorne Street Stormwater Management project here in Sackville.

The partnership with the Town of Sackville was paramount to this project. They were very supportive in helping secure a depaving site that would have the biggest impact to our community in terms of flood reduction but also publicly visible to help push the behavioral change toward green infrastructure. They also provided the preparation and fill for the spot. Not only has the town agreed to continue to look after the permeable pavement spot (sweeping/cleaning the spot), they are also really excited about this project and curious to see how it will function year-round as they are considering using it more if the pavement works well. Going forward to see how the pavement performs and how often the town can clean it out is also a possible challenge associated with the project, however this is a pilot site, so we can learn from it for future projects.

The timing of the project did create a bit of a challenge. While we did receive the funding earlier in the year, we were quite rushed to meet a June deadline for an outdoor/rain related project where our spring started so late this year. However, we are still collecting ongoing commitments that will be shared on our depaving website and social media.

Next Steps

EOS plans on continuing to advance the Tantramar region towards transformative green infrastructure this summer by planting 10 rain gardens in downtown Sackville to reduce flooding (<https://eosecoenergy.com/en/projects/climate-change-adaptation/rain-gardens/>). Next year we will be doing another depaving project in the Tantramar region (site TBD) as well as planting an additional 10 rain gardens in downtown Sackville.

We are also hosting a Sustainable Home Show on July 6th that will include some vendors specializing in green infrastructure. In addition, we are partnering on a project in Port Elgin that involves shoreline stabilization using a living shoreline approach. This project will also include 3 public workshops on shoreline stabilization and stream/river buffers.

Finally, EOS' Chignecto Watershed Monitoring helps identify areas of concern within the watershed that could be in need of restoration projects or green infrastructure projects to help improve water quality or riparian health.

Appendix 1 – Media Coverage & Press Releases



<https://www.cbc.ca/news/canada/new-brunswick/asphalt-pavement-depave-sackville-eos-water-quality-1.5163654>

The CBC coverage was also included on CBC New Brunswick Evening News on TV and the CBC Shift Radio show.

<https://www.sackvilletribunepost.com/news/local/pilot-project-with-permeable-asphalt-passes-first-test-319804/>

<https://warktimes.com/2019/06/06/cool-clear-water-eos-testing-new-rain-friendly-asphalt-in-sackville/>

FOR IMMEDIATE RELEASE

Friday, May 31st, 2019

Eco-Energy plan new depaving project at the Bill Johnstone Memorial Park in Sackville, NB

Sackville, NB - On Tuesday, June 4th 2019, EOS Eco-Energy, in partnership with Environment and Climate Change Canada, Green Communities Canada, the Freshwater Alliance, Our Living Waters and the Town of Sackville will be at the Bill Johnstone Memorial Park to begin the first-ever depaving project in Sackville. Sackville Public Work's will be tearing up the asphalt pavement from a parking space adjacent to the park, which will soon be covered in a permeable pavement layer.

"EOS is very excited to be able to showcase this project to the residents of Sackville, the surrounding area and visitors to the town this summer. This is a first for the Tantramar region, and we are planning to depave a second site in the summer of 2020," explains Kelli-Nicole Croucher, EOS Watershed Coordinator.

The parking space will be covered in a porous asphalt layer that will allow rain water to enter the groundwater system naturally. Permeable asphalt and its base layers allow rainwater to pass through to the soil below, unlike traditional asphalt, which directs water to storm drains. By covering parking lots and driveways in this type of asphalt, pollutants are filtered out before water reaches local water bodies and pooling water won't occur. The porous nature of the pavement also traps suspended solids and pollutants, keeping them from entering waterways.

EOS will be gathering commitments from people and organizations who want to make low-impact development choices around their homes, workplaces and communities. Actions such as planting a rain garden, installing a rain barrel to collect and use rainwater, or replacing traditional asphalt with a permeable alternative are just a few of the ways to make a difference says EOS staff.

"We want our community members to make simple changes that will lead to larger impacts. By planting a rain garden or laying down permeable paving stones and then sharing these actions, we hope that more and more people will make low-impact development choices. We have chosen #RainAsAResource as the hashtag community members can use on social media to share what they're doing at home, work, school or in their community to reduce the impacts of storm runoff and flooding," explains Eric Arbeau, EOS summer intern.

More information about the depaving project and commitment sharing can be found on the EOS Eco-Energy website at <https://eosecoenergy.com/en/depaving/>. Contact EOS at water.eos@nb.aibn.com or 506-536-4487 for more information.



*Part of the parking lot by the Bill Johnstone Park will be recovered with permeable asphalt in June to help reduce flood impacts naturally.
Photo credit: K-N Croucher*

FOR IMMEDIATE RELEASE

Date: Friday, June 7, 2019

**EOS Eco-Energy completes depaving project at the
Bill Johnstone Memorial Park**

Sackville, NB - On Wednesday, June 5th 2019, EOS Eco-Energy, in partnership with Environment and Climate Change Canada, Green Communities Canada, the Freshwater Alliance, Our Living Waters and the Town of Sackville were at the Bill Johnstone Memorial Park to finish the first-ever depaving project in the Tantramar Region. Sackville Public Works tore up the asphalt pavement from a corner of the parking lot adjacent to the park on Monday, June 3rd, which was then covered in a permeable pavement layer by Dexter Construction on Wednesday, June 5th.

The 335 sq. ft parking area was covered in a porous asphalt layer that will allow water to enter the groundwater system naturally. Permeable asphalt and its base layers allow rainwater to pass through to the soil below, unlike traditional asphalt, which directs water to storm drains. The porous nature of the pavement also traps suspended solids and pollutants, keeping them from entering the soil. By covering parking lots and driveways in this type of asphalt, pollutants are filtered out before water reaches local water bodies and water pooling won't occur.

Jamie Weatherbee, a Quality Control Manager at Dexter Construction, explained that the porous asphalt laid at the site is mixed differently than traditional asphalt. By adding a higher volume of large rocks, as opposed to sand, the permeable pavement has a higher percentage of air voids compared to traditional asphalt. These voids allow water to pass through it to the reservoir below. That reservoir is over a meter of ¾ inch clear stone subbase where water can be held before the ground absorbs it naturally.

"Another benefit to this type of pavement is its performance in the winter months. During periods of freezing, the kind of asphalt used in this project will still allow water to percolate to the ground below whereas soils would still be frozen and lead to an increase in storm water runoff," explains Kelli-Nicole Croucher, EOS Watershed Coordinator.

This asphalt also prevents the formation of ice on the pavement surface, eliminating the possibility of black ice forming. This could lead to a reduction in the amount of road salt required. Researchers at the University of New Hampshire have observed that permeable asphalt only needs 0 to 25% of the salt routinely applied to normal asphalt. A 2014-2016 USGS study of permeable pavements in Wisconsin found that the deeper layers remained above freezing even when air temperatures dropped below freezing. While this temperature difference didn't allow for the melting of snow and ice covering the sites, the higher temperatures below kept the voids open, promoting melted snow and ice to infiltrate the surface upon the rising of air temperatures.

"In terms of cost, comparing this project to large-scale implementation of permeable pavement, or even standard asphalt has its challenges. The permeable asphalt requires special processing and mixing equipment, raising costs," Eric Arbeau, EOS Summer Intern, points out.

Also, because our project is a small-scale pilot, costs were higher (per tonne of material used) than a more substantial, full-scale repaving would be. Maintenance costs over the life of the pavement could

be reduced though due to needing less road salt and repairing fewer pot holes. Due to the above factors, an accurate cost comparison is difficult to complete at this time.

More information about the depaving project can be found on the EOS Eco-Energy website <https://eosecoenergy.com/en/depaving/>.

Media Contact:

Kelli-Nicole Croucher, Watershed Coordinator

EOS Eco-Energy

Water.eos@nb.aibn.com

506-536-4487



The parking space with permeable asphalt as rain runoff begins to percolate through the surface. – Eric Arbeau



A crew from Dexter Construction begins laying the permeable asphalt on top of the clear stone prepared by the Town of Sackville. – Eric Arbeau



The parking space chosen for the project, shown before prep work was completed, was deteriorating and caused water to pool on the surface. – Eric Arbeau



Regular asphalt on the left and our permeable asphalt on the right, showing the higher percentage of coarse rock in permeable asphalt. – Kelli-Nicole Croucher