

Clear Water Projects in Cooksville Creek Watershed

Armstrong Manufacturing Inc.

What is a Watershed?

No matter where you are, you are in a watershed. A watershed is the area of land that catches rain and snow which travels over land or through soil into a marsh, stream, or lake. Another way to understand a watershed is to think of an area of land that drains to a low point such as a stream, marsh, creek or lake.

Cooksville Creek Watershed

Cooksville Creek starts south of Britannia Road and flows for 12 kilometres parallel to Highway 10 through the heart of Mississauga and into Lake Ontario. Cooksville Creek Watershed has many unique natural features and important water resources. Nestled within the heart of the city, Cooksville Creek Watershed faces many challenges as a result of urbanization.



Cooksville Creek

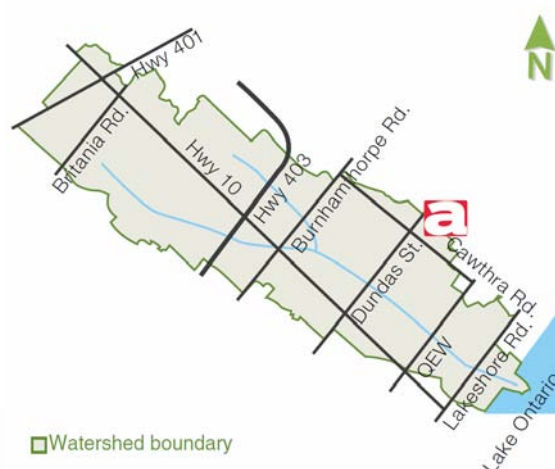
To protect Cooksville Creek and Lake Ontario, it is important to have clean water. One threat to clean water is rain water that washes across lawns, parking lots and roads carrying with it sediment, lawn fertilizers, pesticides, metals and pollution such as road salt. Pollutants are then washed into Sheridan Creek impacting environmental health and Lake Ontario, the source Mississauga's drinking water.

Leading the Charge

The good news for restoration is that leaders like **Armstrong Manufacturing** (in partnership with City of Mississauga and Ministry of the Environment) are implementing projects on their property to help protect the health of Cooksville Creek and Lake Ontario – Mississauga's drinking water supply.



Cooksville Creek at Lake Ontario



Armstrong Manufacturing Inc. is located at 2485 Haines Rd, Mississauga within Cooksville Creek Watershed.

Implementation Planning

Funding

Armstrong Manufacturing, in partnership with CVC and City of Mississauga received funding from the Ministry of the Environment to implement in-the-ground projects to protect the supply of surface water for small and medium sized businesses.¹

Through development of demonstration sites, the goals were to:

- remove and reduce threats to surface water and municipal drinking water supplies;
- empower stakeholders to take action and protect municipal drinking water supplies by implementing in-the-ground projects;
- increase public and community awareness of the importance of pollution prevention and making a connection between stormwater drainage and municipal drinking water supplies;
- gain knowledge and experience to apply to future watershed studies as they relate to innovative pollution prevention and protecting surface water municipal drinking sources.

Demonstration Site Selection

Demonstration sites were selected based on building a community where a number of properties could showcase pollution prevention practices. Each landowner could be an expert on pollution prevention measures implemented on their own property and be a resource to other property owners within their community.

Strategy

The following sections describe potential sources of pollutants that may wash into storm sewers and strategies for keeping water clean.

Prevention is stopping or avoiding pollutants and waste from coming into contact with water in the first place. CVC's initiatives take a multi-faceted approach to prevent negative water quality impacts.

¹ This project has received funding support from the Government of Ontario. Such support does not indicate endorsement by the Government of Ontario of the contents of this material.

Education

Education is a preventative measure that raises awareness and understanding of how certain activities affect the environment. Education helps increase environmental awareness, change attitudes and behaviours and provides knowledge for making change.

Fact Sheets

Fact sheets are an educational tool to provide technical information on how to change a particular behaviour or practice. Fact sheets have been developed to provide businesses with actions they can take to improve operations and protect watershed health. This includes:

- Outdoor material storage
- Parking lot maintenance
- Building maintenance

Fact sheets are accessible online at www.creditvalleyca.ca/sustainability/.

Credit Valley Conservation POLLUTION PREVENTION • FACT SHEET #7

Outdoor Storage

IN INDUSTRIAL & COMMERCIAL DISTRICTS

Many businesses store materials or products outdoors. The risk of stormwater pollution is greatest for operations that store large quantities of liquids or bulk materials at sites that are connected to the storm drain system.

Protecting outdoor storage areas is a simple and effective pollution prevention practice. The underlying concept is to prevent runoff contamination by avoiding contact between outdoor materials and rainfall (or runoff). Unprotected outdoor storage areas can generate a wide range of stormwater pollutants, such as sediment, nutrients, toxic materials, and oil and grease.

Materials can be protected by installing covers, secondary containment, and other structures to prevent accidental release. Outdoor storage areas can be protected on a temporary basis (tarps or plastic sheeting) or permanently through structural containment measures (such as roofs, buildings, or concrete berms).

Pollution prevention opportunities include:

- Emphasize employee education regarding storage area maintenance.
- Keep an up-to-date inventory of materials stored outdoors, and try to minimize them.
- Store liquids in designated areas on an impervious surface with secondary containment.
- Inspect outdoor storage containers regularly to ensure that they are in good condition.
- Minimize stormwater run-on by enclosing storage areas or building a berm around them.
- Slope containment areas to a drain with a positive control (lock, valve, or plug) that leads to the sanitary sewer (if permitted) or to a holding tank.
- Schedule regular pumping of holding tanks containing stormwater collected from secondary containment areas.
- Ensure all containers are properly sealed or covered, such as lids on drums and small containers.
- If you use a service provider, add language to protect water quality in the maintenance contract.

The intent of this fact sheet is to provide guidance only and if there is any discrepancy between the fact sheet and current versions of applicable Federal and Provincial Acts and Regulations and/or Municipal By-laws, the Acts, Regulations and/or By-laws take precedence. Since this document is only meant to be a guidance document, site specific analysis of each facility is required to identify the most effective pollution prevention measures. CVC accepts no responsibility for site loss, damage, or injury whatsoever to any person or property using the fact sheet.

www.creditvalleyca.ca

Example of the fact sheets available on CVC's website

Signs

Different signs have been created to reach the greatest audience. This was done in three tiers, with a large sign to notify passersby there is a clear water project on site. The next type of sign was posted either in front or inside the business to provide more information about the type of technology implemented. The third type, a cautionary sign, alerts people on site of the project to discourage illegal activities.

Informational Signs

Signs provide facts about the site and connections to local watershed including:

- Who the project partners are
- Connection to Cooksville Creek Watershed
- Site map
- Projects implemented
- Where to get more information

Warning Signs

Many businesses are faced with the challenge of controlling waste being illegally dumped after regular business hours. This issue can be attributed to a lack of understanding about the environment and how pollution can impact the health of Cooksville Creek Watershed. Drainage features, such as swales, may appear as a convenient location to dispose of waste far from the property owner's line of vision.



Example of the signage installed

Spill Diversion - Post Indicator Valve

Liquids are stored near the loading dock, which contains a catch basin that drains to a swale. Trucks load and unload materials in this location, so any spill would drain directly into the catch basin which then empties into Cooksville Creek and Lake Ontario, Mississauga's drinking water source.



Catch basin in close proximity to loading dock

A post indicator valve (PIV) was installed in the storm sewer pipe between the catch basin and loading dock. As part of loading procedures, the valve will be shut when the loading dock is in use. If a spill happened, it would be contained between the PIV and catch basin, preventing it from reaching Cooksville Creek.



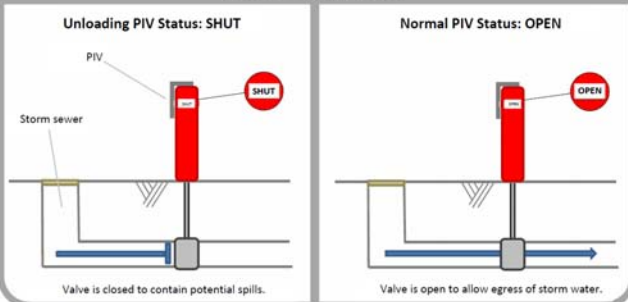
PIV design

PIV installed

Post Indicator Valve (PIV) INSTRUCTIONS FOR USE

1. The purpose of the PIV is to prevent any potential chemical spills from entering the municipal storm sewer network, which ultimately discharges to Lake Ontario (the source of our drinking water).
 2. The PIV at the north property line opens or closes a valve on the storm sewer line that runs from the storm sewer manhole at the bottom of the loading dock to the municipal storm sewer system.
 3. The valve is to remain normally open (showing OPEN on the PIV) at all times except during unloading of chemicals in the loading dock area.
 4. When unloading of chemicals is about to begin, the PIV must be closed (showing SHUT on the PIV) to prevent any potential spills from discharging to the municipal storm sewer system.
 5. Once unloading is complete, the PIV must be set to OPEN again.
 6. If a spill occurs, the PIV is to remain closed (SHUT) to contain the spill.
- Call the Spills Action Centre immediately: 1-800-268-6060.

PIV Configuration



PIV instructions

Instructions were developed to provide direction on operating various on-site prevention measures, including the PIV.

Spill Containment Sump

The bulk filling station had no barriers or spill containment. Because the station is outside, spills would be washed away by rain and drained into the catch basin. Employees or customers would not fully understand the impact because of a lack of information.



Filling lines before construction

The spill containment sump captures any material spilled from the delivery area located beneath the filling lines. Two bollards (posts) were constructed to prevent cars or service vehicles from coming into contact with valves and people parking in the area.



Filling lines after construction of spill containment sumps and bollards

Lessons Learned

Reflecting on original objectives of the project, the following are some of the lessons learned:

- Empower stakeholders to take action and protect municipal drinking water supplies through implementation of in-the-ground projects.
- Successful implementation of in-the-ground projects requires full time construction inspection to ensure project success. The contractor will often have questions regarding project design and intent. Having an inspector on site to answer questions helps the construction process move smoothly because the contractor can verify questions or concerns. This also provides a smaller potential for error since the contractor will not be building based on assumptions.
- Maintaining constant dialogue between the landowner and contractor also ensures questions and/or concerns can be addressed promptly. Unexpected issues can arise that require adjusting the design to ensure project success. There were a number of instances when the landowner was able to shed light on activities that could impact the project. Minor modifications were made to the design to ensure project success.

- Landowner cooperation was an integral part to the success of this project. Armstrong Manufacturing assisted by preparing the site for construction by removing all equipment and obstacles so the contractor could complete work without interruption.
- Provide operation and maintenance instructions for landowners and tenants.
- Increase public and community awareness about why it is important to prevent pollution and show people the connection between storm water drainage and municipal drinking water supplies.
- Based on feedback from participating landowners, interpretive signage was modified to incorporate more visual images and less text.
- Once you have captured public attention, offer additional educational materials such as fact sheets and case studies to provide more information.
- Landowners were consulted on how to name and market future workshops to encourage a broad variety of stakeholders. Choosing appropriate words is important to ensure educational events are appealing to a broad audience.
- For additional tips to landowners and property managers interested in pursuing a clear water project, please see CVC's "Recommendations for Future Clear Water Projects". Details can be found on: Management Agreements, Tenders, Maintenance, Constructing to Specification, and Permits

This partnership also supports the vision, goals and objectives of Mississauga's Strategic Plan "Our Future Mississauga" by ensuring healthy and attractive communities, natural environments and drinking water supply. These features would benefit even more by using pollution prevention strategies. This is also consistent with the vision of "Our Future Mississauga". As an environmentally responsible community, the City of Mississauga is committed to environmental protection, conducting its corporate operations in an environmentally responsible manner and promoting awareness of environmental policies, issues and initiatives.

Benefits of Partnership

This partnership will help to:

- support MOE with source water protection initiatives and guidelines since this site drains to Lake Ontario – Mississauga's drinking water supply;
- support City of Mississauga with pollution prevention, storm sewer bylaws, Mississauga's Storm Water Quality Strategy Update and Green Development Strategy;
- support Region of Peel's Sanitary Sewer Bylaw;
- support and complement low impact development initiatives;
- support the municipality, region and MOE when dealing with spill response and preparedness.

More Information

For more information on this demonstration site or general information on clear water projects and source water protection please the following websites:

Ministry of the Environment (MOE)

- Sewer Use Best Management Practices (BMP) Documents
<http://www.ene.gov.on.ca/en/publications/forms/index.php#bmp>
- Snow Disposal and De-icing Operations in Ontario (1994)
<http://www.ene.gov.on.ca/envision/gp/0412e.pdf>
- Guidelines for Snow Disposal and De-icing Operations in Ontario (1975)
<http://www.ene.gov.on.ca/envision/gp/B4-1.pdf>
- Ontario Stewardship Drinking Water Program
<http://www.ene.gov.on.ca/en/water/cleanwater/index.php>

Region of Peel

- Sanitary Sewer Use Bylaw
<http://www.peelregion.ca/pw/water/sewage-trtmt/seweruse-bylaw.htm>

Credit Valley Conservation

- Strategies for Sustainability
<http://www.creditvalleyca.ca/sustainability/>

City of Mississauga

- Storm Sewer Use Bylaw
http://www.mississauga.ca/file/COM/Storm_Sewers.pdf
- Protect Our Water
http://www.mississauga.ca/file/COM/Protect_Our_Water_brochure.pdf

The Bloom Centre for Sustainability (Formerly OCETA)

- <http://www.bloomcentre.com>

Canadian Centre for Pollution Prevention (C2P2)

- <http://www.c2p2online.com/>
- <http://www.c2p2online.com/main.php3?session=§ion=39&heading=84>

Landowners and property managers interested in pursuing a clear water project, please see helpful tips in CVC's Recommendations for Future Pollution Prevention Projects:

- <http://www.creditvalleyca.ca/sustainability/pollutionprevention/index.html>