ECA Number: 023-S701

St. Catharines

City of St. Catharines

Stormwater Management System

2025 Annual Performance Report

For submission to the Ministry of Environment, Conservation and Parks

April 2026

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*Request access to the appendices by emailing Engineering Facilities and Environmental Services at env@stcatharines.ca

Glossary

Term	Explanation
CLI-ECA	A framework approval that outlines pre-authorized conditions for changes to the sewage works system and ensures standardized operating and reporting conditions to safeguard accountability and oversight, with enhanced requirements for monitoring and system operation.
Combined Sewers	A sewer in which all sanitary and storm flows are collected within the same pipe.
CSO Regulators / Overflows	A flow-regulating device / structure that directs dry weather flow to a Wastewater Treatment Plant and diverts wet weather flows in excess of the regulator's capacity to outfalls / receiving waters.
Forcemains	Pipes located downstream of a pump station that convey wastewater under pressure.
Fully Separated Sewer	Sewers that allow only sanitary flows to be collected within the sewer - there are no stormwater connections. All stormwater is collected within a separate sewer.
Impervious Surfaces	Hard, non-porous surfaces that prevent water from infiltrating into the ground, leading to increased stormwater runoff and potential environmental impacts.
MECP Procedure F-5-5	Determination of treatment requirements for municipal and private combined and partially separated sewer systems - outlines the rules for treating the wastewater from municipal and private combined and partially separated sewage systems.

Glossary

Term	Explanation
Outlets / Outfalls	The point where the system discharges into the natural environment / receiving waters.
Overflow Events	Events that result in a surcharge of the sanitary sewer system or WWTP, which discharge into the natural environment / receiving waters.
Partially Separated Sewer	Sewers that collect all sanitary flows and some stormwater from weeping tiles and roof leaders. Stormwater from roadways is collected in a separate sewer.
Receiving Water	Receiving waters are surface waters into which wastewater, stormwater, industrial effluent, or other discharges are released.
Spill	An accidental, unplanned or unpermitted release of wastewater into the natural environment.
Stormwater	Refers to rainwater runoff, snow melt and surface runoff.
Wastewater Collection System	City-owned sewage works / infrastructure that collects and transmits sanitary wastewater.
Stormwater Management Facilities	Components of our system that offer some treatment to stormwater before being discharged into the natural environment.
Stormwater Management System	A system designed to collect stormwater from private and public properties across the city, consisting of storm sewers, urban ditches and swales, culverts, catch basins, outlets, and stormwater management facilities.

Glossary

Acronym	Definition
City	City of St. Catharines
CLI-ECA	Consolidated Linear Infrastructure Environmental Compliance Approval
CSO	Combined Sewer Overflow
CSO Outfall	Combined Sewer Overflow Outfall
GEI	GEI Consultants Canada Ltd.
MECP	Ministry of Environment, Conservation and Parks
MTO	Ministry of Transportation
Niagara Region or Region	The Regional Municipality of Niagara
OGS	Oil / Grit Separator
SAC	Spills Action Center
SWMS	Stormwater Management System
WWTP	Wastewater Treatment Plant

Introduction and Purpose

The City of St. Catharines (the City, or St. Catharines) owns and operates the St. Catharines Stormwater Management System, which is operated under a Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA), issued by the Ministry of the Environment, Conservation, and Parks (MECP). The approval replaces the numerous pipe-by-pipe Environmental Compliance Approvals (ECAs) that were previously issued for components of the municipal system. The streamlined CLI-ECA outlines pre-authorized conditions for changes to the sewage works system. The CLI-ECA ensures standardized operating and reporting conditions to safeguard accountability and oversight, with enhanced requirements for monitoring and system operation. One condition of this CLI- ECA is preparing an annual report outlining actions relating to the CLI-ECA.

Unless otherwise noted, this Annual Performance Report covers the period of January 1 to December 31, 2025, and is intended to fulfil CLI-ECA reporting requirements. It is important to note some of the CLI-ECA requirements are phased in; therefore, not all requirements are in place. As additional requirements come into effect and additional information becomes available it will be reflected in future annual reports.

Background

Stormwater Management System

The Municipal Stormwater Management System (System or SWM System) serving the St. Catharines' drainage area, is a separate system for stormwater (i.e. designed not to convey sanitary or combined sewage) within the Lake Ontario watershed. This system consists of storm sewers, urban ditches and swales, culverts, catch basins, outlets, and Stormwater Management Facilities including wet ponds, constructed wetlands, and dry ponds, and other components such as Oil / Grit Separators (OGS). The SWM System helps to protect water quality and lowers the risk of flooding that can damage property and impact the environment.

This CLI-ECA covers the entire Municipal Stormwater Management System owned and operated by the City of St. Catharines. It does not cover municipal or privately owned sewage works on industrial or commercial land or roadside ditches outside of the urban area. It does not contain any third pipe systems or storage tanks.

The City's SWM System is designed to collect stormwater from private and public properties across St. Catharines. The City's stormwater system operates in conjunction with assets from both the Regional Municipality of Niagara (Niagara Region) and Province of Ontario (e.g. Provincial highways operated by the Ministry of Transportation Ontario [MTO]), such as storm sewers and ponds. The stormwater assets operated by the Niagara Region and the MTO are beyond the scope of this report.

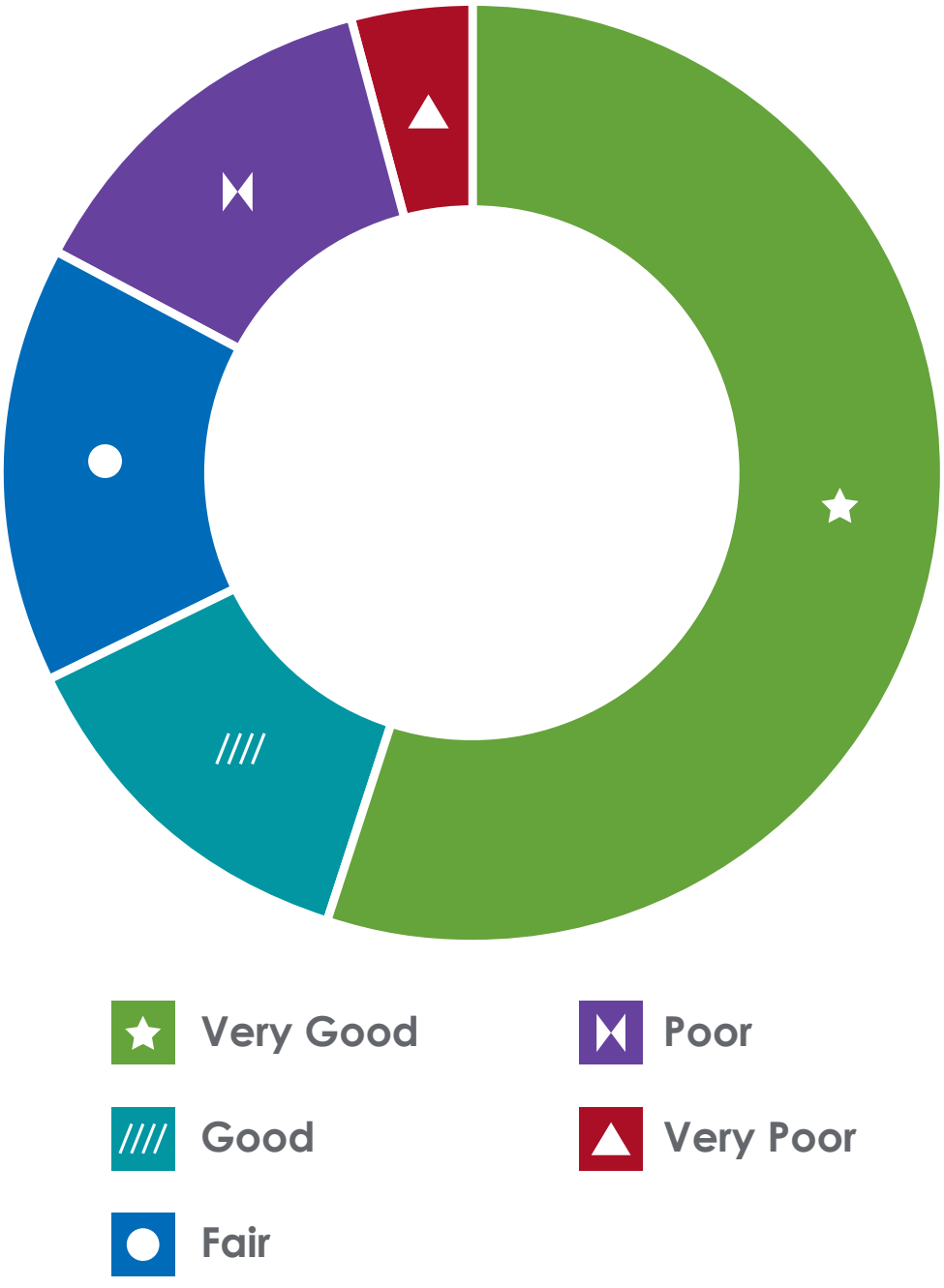
All the watersheds in St. Catharines ultimately drain into Lake Ontario. The drainage includes three major waterways (Welland Ship Canal, Twelve Mile Creek, and the former Welland Canal), and 25 local watercourses / creeks totaling 120 kilometres in length. Notable features include three beaches (Lakeside Beach, Sunset Beach, and Jones Beach), Martindale Pond, and Provincially Significant Wetlands (e.g. Barnsdale and Briarsdale Marshes). A map depicting the locations of these local watershed features can be found in Appendix A.

The City actively monitors, operates, and maintains the system to ensure regulatory compliance and system reliability. The City is also responsible for maintaining the system in a state of good repair.

As part of the City's asset management program, condition assessments are undertaken. Nearly 70 per cent of the assets are in Good or Very Good Condition and 15 per cent are in Fair condition. Approximately 17 per cent have been rated in Poor or Very Poor condition.

Background

Figure 1: Summary of Stormwater Asset Conditions



Note: Asset condition distribution is based on the asset replacement cost.

Background

Types of Sewers

St. Catharines is serviced through networks of fully separated, partially separated and combined sanitary and storm sewers. These types of sewers are defined as follows:

Fully Separated

Only sanitary flows are collected within the sanitary sewer - there are no stormwater connections. All stormwater is collected within a separate storm sewer. These types of sewers are mandatory for all new developments where no new storm connections to the sanitary sewer are allowed. Figure 2 shows a typical separated sewer system.

Partially Separated

Stormwater from roadways is collected in a separate storm sewer. The partially separated sanitary sewer collects all sanitary flows and some stormwater from weeping tiles and downspouts.

Combined Sewers

All sanitary and storm flows are collected within the same sewer. Figure 3 shows a typical combined sewer system.

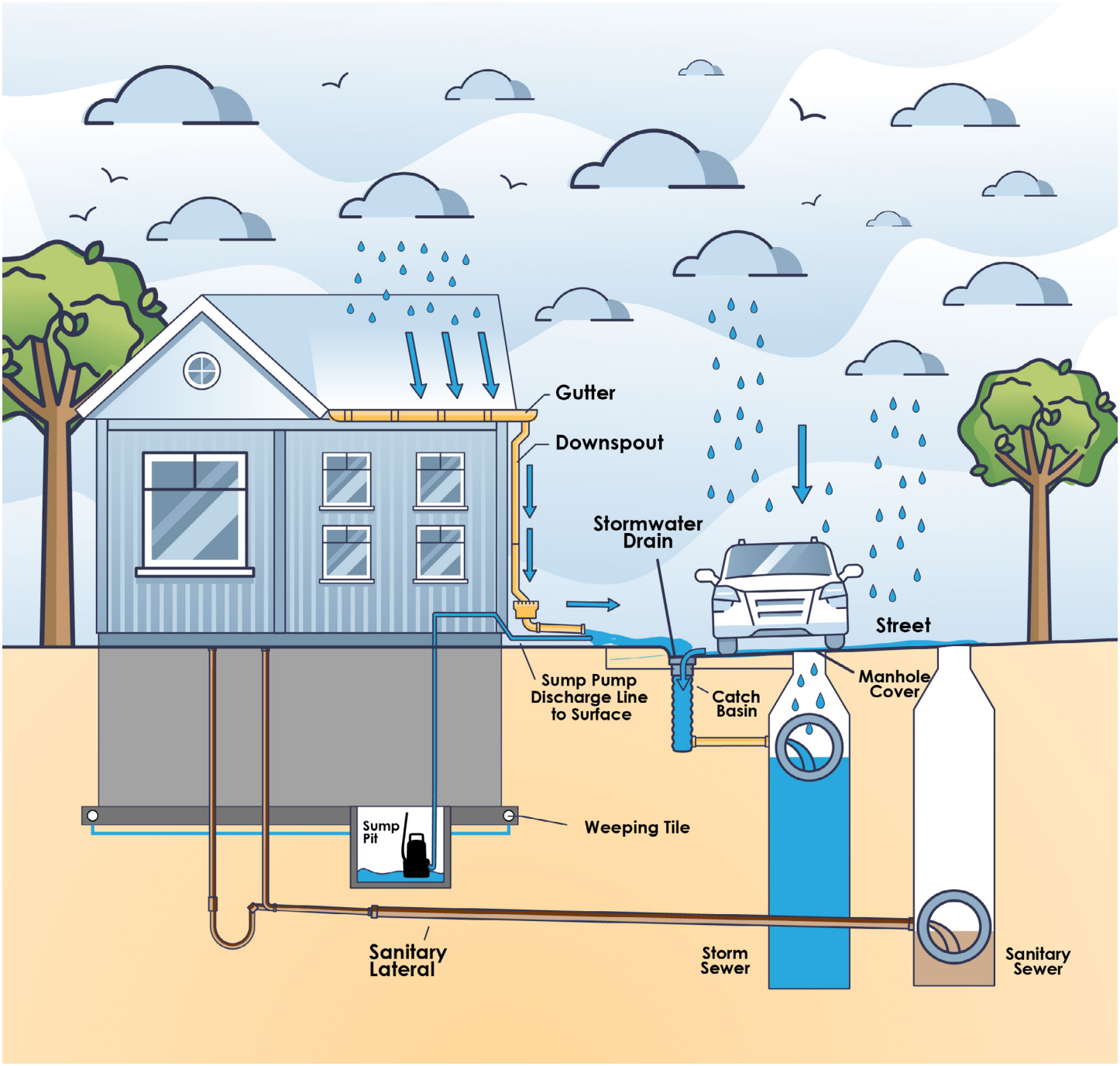
Storm Sewers

Collects and transmits runoff resulting from precipitation and snow melt.

Note: the above sewer system type definitions are slightly different than those defined in the CLI-ECA. The City is working to better align these discrepancies, as part of the ongoing transitional efforts for improved consistency. Additional information about the St. Catharines Wastewater System can be found in the 2025 Annual Wastewater Report.

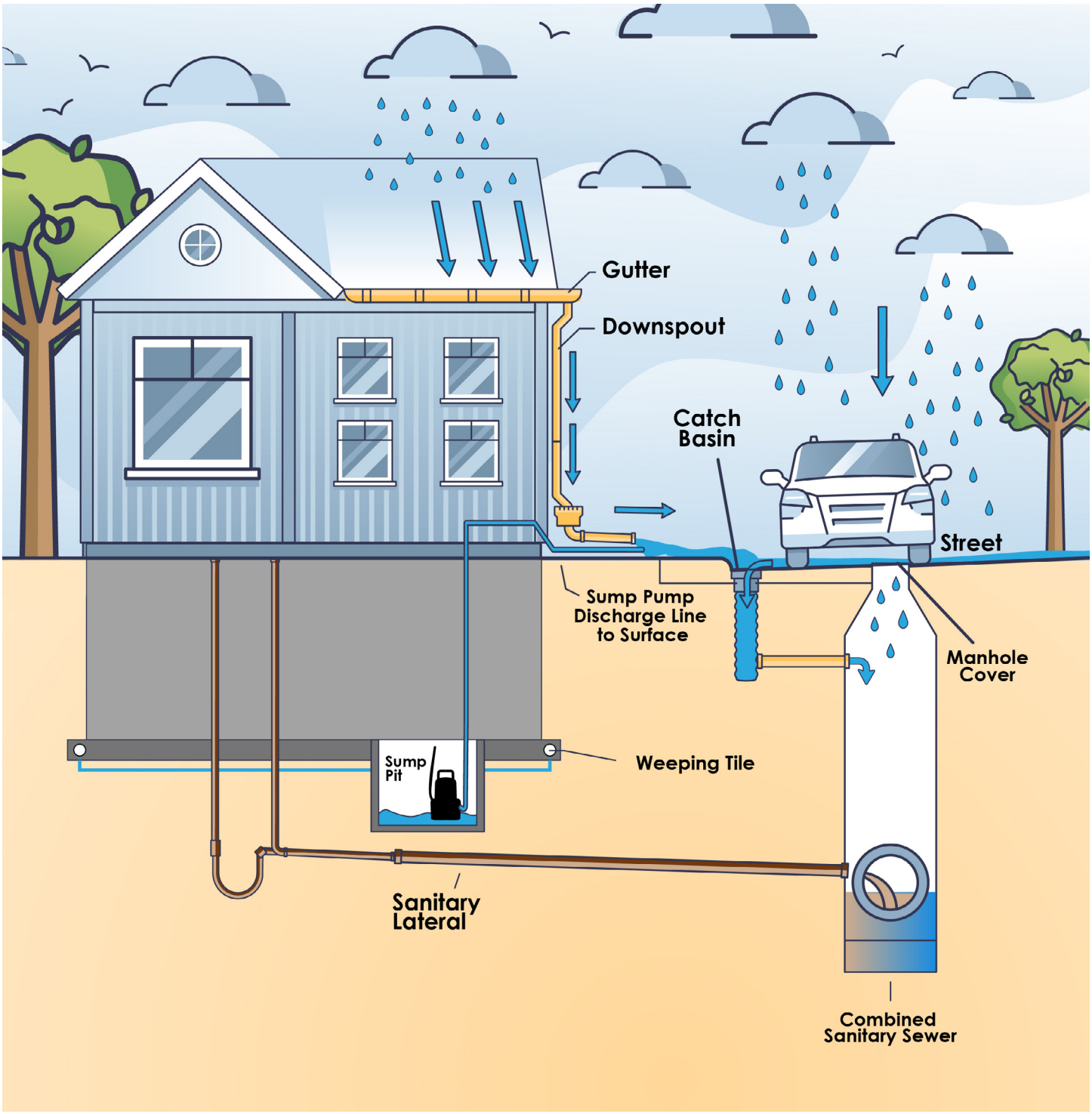
Background

Figure 2: Typical Separated Sewer System



Background

Figure 3: Typical Combined Sewer System



Background

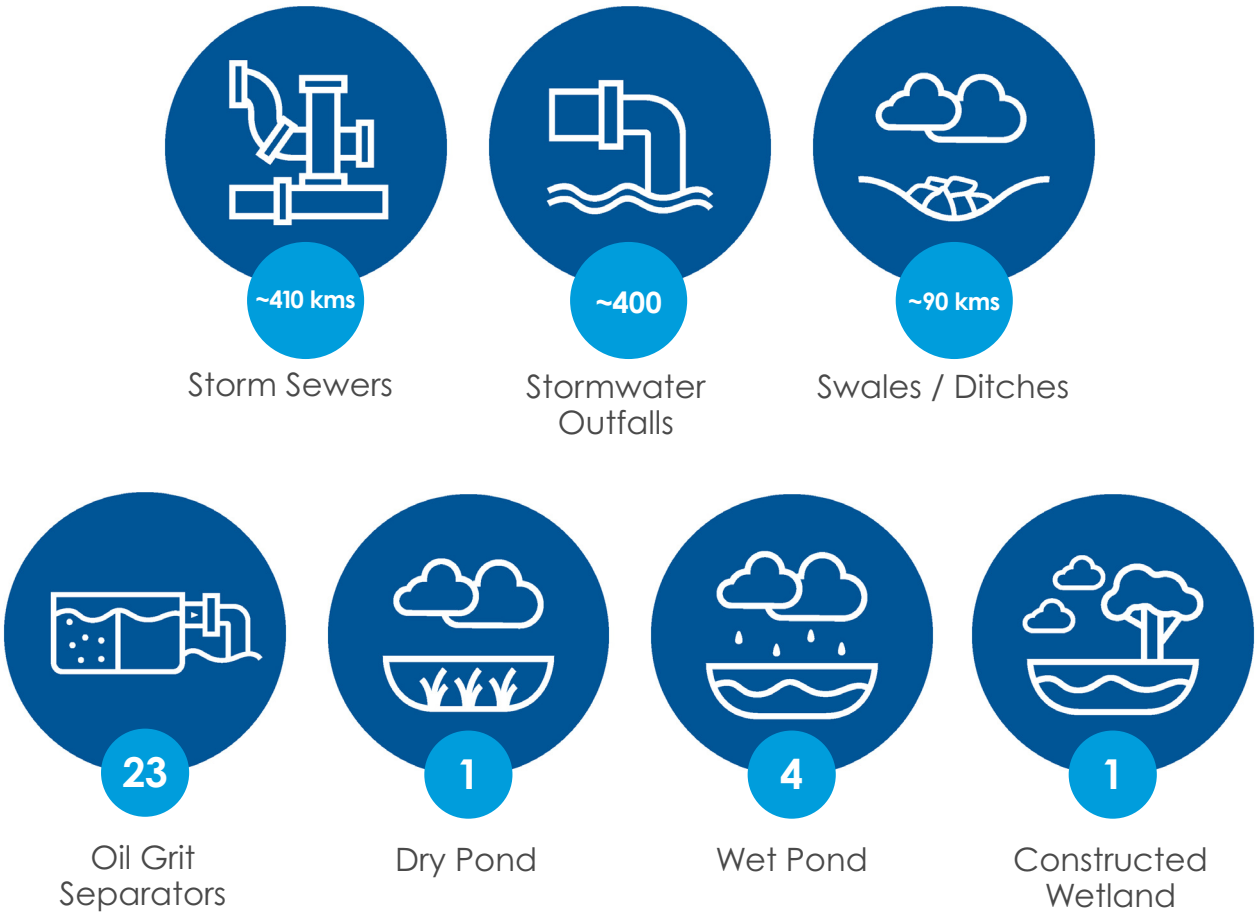
Stormwater, including rain and snow melt, enters the SWM System through downspouts, weeping tiles, and run-off from impervious surfaces such as driveways, parking lots, and roadway drainage. Stormwater captured in combined sewers is transported to a wastewater treatment plant. Conversely, stormwater captured in a storm sewer, ditches or swales enters the SWM System and is discharged directly to our local waterways, typically with minimal treatment. Impacts from the urban stormwater system are illustrated in Figure 4. A map depicting the City's storm sewers by size (diameter) and urban ditches can be found in Appendix B.

Figure 4: Urban Stormwater Flows

Components of the Stormwater Management System

In addition to storm sewers, ditches and swales, culverts, catch basins and outlets, the City's SWM System also includes other components that offer some treatment to stormwater before discharging into the natural environment. Known as Stormwater Management (SWM) Facilities, they are designed to help eliminate pollutants captured in stormwater runoff including harmful bacteria from pet waste, fertilizers, motor oil, detergents, trash, and sediment. These SWM facilities include wet and dry stormwater ponds, a constructed wetland and OGSs. Characteristics of St. Catharines Stormwater Management System can be found below in Figure 5.

Figure 5: Stormwater Management System Components



Stormwater Management Facilities - Stormwater Ponds and Constructed Wetlands

St. Catharines operates several Stormwater Management Facilities including four wet stormwater ponds, one constructed wetland, and one dry stormwater pond. Dry stormwater ponds hold water for a given period of time (typically 24 to 72 hours) to allow pollutants to settle out. Wet stormwater ponds, on the other hand, maintain a permanent pool of water throughout the year. Figure 6 depicts how a typical stormwater pond would function. A constructed wetland operates similarly to a wet stormwater pond, with an added benefit of providing important habitat for local species. The City also owns two additional informal ponds (duck ponds) at Happy Rolph's Animal Farm. These informal ponds are not designed for formal stormwater management and are outside of the scope of the CLI-ECA. A list of the various City owned and operated wet and dry SWM ponds can be found in Table 1 and illustrated in Appendix A.

Table 1: Stormwater Management Facilities

Asset ID	Asset Type	Description
SWP3	Dry Stormwater Pond	Scullers Way Pond
SWP4	Wet Stormwater Pond	Erion Road Pond
SWP5	Constructed Wetland	Pelham Road Pond
SWP6	Wet Stormwater Pond	Garden City Golf Course West Pond
SWP7	Wet Stormwater Pond	Garden City Golf Course East Pond
SWP13	Wet Stormwater Pond	132 Cushman Road

Background

Figure 6: Typical Stormwater Pond

Stormwater Quality – Oil / Grit Separators

The City owns and operates 35 OGSs that contribute to protecting stormwater quality. Of these, 23 are part of St. Catharines' SWM System and listed in the CLI-ECA. The remainder are located at City-owned buildings and facilities (e.g. arenas, fire halls, etc.) and are not part of the SWM System and not included in the scope of the CLI-ECA. OGSs are designed to help remove suspended solids and debris from stormwater runoff. They can also trap oil and other floatable materials. These devices come in a variety of configurations but are generally unnoticeable and look like a typical manhole cover. Figure 7 illustrates the inside configuration of a typical OGS.

Figure 7: Typical OGS Configuration

View looking down inside the manhole chamber into the OGS device.

2025 Annual Stormwater Activities

Each year the City undertakes a number of projects and programs related to the stormwater management system. For the purposes of this report the actions are categorized as:

- Environmental Education and Public Outreach
- Operations and Maintenance
- Capital Works Projects
- System Monitoring

These actions were taken, in part, to address CLI-ECA requirements.

Environmental Education and Public Outreach Activities

Public education and awareness campaigns have always been an important and highly visible component of the City's outreach activities. For example, the City is a partner in the Niagara Children's Water Festival held at Brock University. In 2025, the festival was held from April 29 to May 2 and provided engaging presentations and activities focused on water themes, with approximately 3,300 students attending in person.

In addition to public education initiatives, the City has targeted awareness campaigns related to specific topics. In 2025, the City participated in several events throughout the year, targeting different environmental topics such as stormwater, protecting pipes with proper disposal of fats, oils and grease (FOG) and non-flushable wipes, basement protection measures such as the Flood Alleviation Program (FLAP), and an annual rain barrel sale. In 2025, specific events included.

- World Water Day;
- Niagara Home and Garden Show;
- Earth Day (in conjunction with Links for Greener Learning);
- St. Catharines Downtown Block Party (in conjunction with the St. Catharines Downtown Association);
- Hot Summer Nights (in conjunction with St. Catharines Fire Services); and
- Pumpkinville (in conjunction with St. Catharines Community Recreation and Culture Services)

2025 Annual Stormwater Activities

Rain Barrel Subsidy

On June 7, 2025, the City held an annual rain barrel sale for St. Catharines residents. Approximately 325 rain barrels were subsidized for sale, at a cost of $60 each. It is estimated that the installation of each new rain barrel captures 1,200 litres of stormwater annually. Approximately 20 per cent are installed on properties serviced by a combined sewer, with the rest being installed on properties serviced by fully or partially separated sewers. On average, each rain barrel is filled six times per year (Source: Region of Waterloo).

Urban Forestry Master Plan

The City is working towards a goal of 25 per cent canopy cover by the year 2030. Tree canopy can help slow down stormwater runoff and support erosion control measures. Current canopy coverage within the urban boundary has been estimated at 22.5 per cent (2019). The Urban Forestry Management Plan (UFMP) created in 2011, outlines the action items necessary to be able to achieve target canopy goals including a robust tree planting program, public education on tree stewardship, the tree giveaway program, etc.

Annual Tree Planting

The City plants approximately 1,000 trees (50mm caliper size) per year on boulevards and parks throughout the local urban landscape. Approximately 90 per cent of those trees are native species, chosen to support the natural ecosystem.

Restoration Planting

The City partners with the Niagara Peninsula Conservation Authority (NPCA) to plant native shrub and tree species in strategic locations on City owned parks and greenspaces, with the goal of naturalizing those areas. Environmental restoration technicians from the NPCA assist with site and species selection for these projects. This initiative is hosted twice a year and typically includes riparian buffer zone protection areas.

Community partnerships, including with the NPCA, the Niagara Community Foundation, and other local environmental and community groups, result in approximately 2,300 trees planted per year.

2025 Annual Stormwater Activities

Watercourse Erosion Control

St. Catharines is committed to maintaining sustainable natural watercourses to prevent the erosion of City owned property and reduce impacts to private property.

Over time, watercourses will meander naturally within their valleys. The City has completed a Watercourse Flooding and Erosion Control Study to identify priority areas. Rehabilitation work is undertaken where erosion is impacting public or private infrastructure, with a preference for natural channel design techniques whenever feasible. In 2025, the City invested over $3 million in watercourse and stream restoration projects, many of which were influenced by stormwater infrastructure.

Operations and Maintenance Activities

Inspection and maintenance activities are critical programs, designed to capture deficiencies, and proactively mitigate issues. The City has a variety of maintenance and inspection activities, to ensure sewer assets are operating as designed. These programs help identify operational issues and keep sewer assets in good working order. A summary of these initiatives can be found in Table 2.

Table 2: Inspections, Maintenance, and Service Requests

Inspections, Maintenance Programs and Service Requests		
Type	**Frequency**	**2025 Comments**
CCTV Sewer Inspections	Inspections based on budget	~94 km
Street Sweeping	All City roads twice a year, and roads with curbs an additional two times	Annual budget: $151,300
Watercourse and Drainage Corridor Inspections and Cleaning	Annual inspection and cleaning as required	Inspected by City staff Cleaned as needed
Watercourse and Drainage Corridor Complaints	As reported	23 Complaints

2025 Annual Stormwater Activities

Inspections, Maintenance Programs and Service Requests		
Type	**Frequency**	**2025 Comments**
Outlet and Culvert Inspection and Maintenance	Bi-Annual Inspection and Priority Locations - monthly	160 Bi-Annual locations 32 Priority Locations
Road Culvert Inspection, Maintenance and Repair / Replacement	As reported	69 Inspections
Roadside Ditch Inspection and Maintenance	As reported	82 Inspections
Catch Basin Cleaning, Maintenance and Repair	Once every five years	2,305 Catch Basins cleaned Annual budget: $101,230
Catch Basin Complaints	As reported	208 Inspections
Catch Basin Repairs	As requested	9 Repairs
Oil / Grit Separator Inspections	Annual Inspection	Inspected by City Staff
Oil / Grit Separator Cleaning	As Required	13 Cleaned Annual budget: $33,500
Storm Sewer Repairs / Replacement	As Required	5 Storm Sewer Repairs / Replacement
Storm Flooding Response (over land / surface)	As Reported	As Reported
Storm Sewer Related Complaints	As Reported	31 Complaints

2025 Annual Stormwater Activities

Street Sweeping Program

The City has an annual street sweeping program, to remove dust and dirt from roadways and improve water quality in stormwater runoff. The removal of sediment including salt and debris accumulated on the side of roads, is an important part of protecting our local waterways. Street sweeping is completed on all City roads twice a year (spring and fall). In addition, all roads with curbs are swept two additional times during the summer months. The budget for the street sweeping program in 2025 was $150,400.

Watercourse and Drainage Corridor Inspections and Cleaning

The City has an annual drainage corridor cleaning program, in which watercourses and open channels are inspected. The objective of the program is to remove accumulations of debris (including organic and other debris such as garbage) that are obstructing, or may obstruct flow in watercourses, open channels, and storm outlets. Each year, all local watercourses are inspected and maintained throughout St. Catharines.

Additionally, in 2025, the City responded to 23 complaints related to obstructions, blockages and debris in watercourses, that required clearing.

Outlet and Culvert Inspection and Maintenance

The City has an inspection and maintenance program for grates located at ditch and culvert inlets and outlets. These grates help capture unwanted debris that would otherwise significantly impede stormwater flows. Typically, inspections are completed, at minimum, twice per year, while priority locations are inspected monthly and before significant rain events. Maintenance and repairs are completed as required. In 2025, there were 160 locations where grates were inspected bi-annually, and an additional 32 priority locations received enhanced inspections.

Catch Basin Cleaning, Maintenance and Repair

The City has a catch basin cleaning program that is designed to ensure they are operating properly and mitigate ponding on road surfaces. Catch basin sumps are proactively cleaned once every five years. In 2025, the City proactively inspected and cleaned 2,305 catch basins. The budget for this cleaning was $101,230.

Additionally, in 2025, the City responded to 208 requests for investigation related to plugged or slow draining catch basins that were either cleared by hand or vacuum cleaned. As well, 9 catch basins received additional repair works including cracked frames, frame settling or broken leads.

2025 Annual Stormwater Activities

Oil / Grit Separator Inspections and Cleaning

The City inspects all OGSs annually, with cleaning performed as required. In 2025 the City cleaned 13 OGSs. The budget for this cleaning was $33,500.

Storm Sewer / Outlet Repairs

Storm sewer maintenance, repair and CCTV inspection is completed as required. In 2025, the City repaired or replaced five storm sewer mains. Additionally, 94 kms of storm sewer were CCTV inspected to identify operational deficiencies.

The City also repairs storm sewer outlets on an as needed basis when repairs are required. There were no storm sewer outlet repairs required in 2025.

Road Culvert Inspection and Maintenance

Culverts are inspected on an as required basis to identify maintenance needs related to structure, erosion measures and debris removal to ensure stormwater can flow freely.

The City received 69 requests for investigation regarding culverts which required maintenance services including cleaning, flushing, repair or replacement.

Roadside Ditch Inspection and Maintenance

Roadside ditch inspections are competed on a complaint basis. In 2025, the City received 82 requests for investigation regarding ditch drainage issues. These complaints were responded to with an inspection and if required, maintenance was completed.

2025 Annual Stormwater Activities

Salt Management Plan

St. Catharines has a salt management plan with respect to winter control activities. The use of salt is vital to providing safe roadways throughout the winter season. The Plan's objective is to reduce salt's negative environmental impacts by using best management practices and using new technologies to ensure its most effective use over the road system. Some of the actions included in the Salt Management Plan are:

- Pre-wetting – At critical locations (such as bridges and hills, for example) a brine solution is applied to the road. Brine can reduce the total amount of salt needed as it reduces the amount of salt that is lost by bouncing or blowing off the road.
- Electronic Spread Controls - which provide consistent application rates that are tied into a truck's speedometer.
- Automated Vehicle Locations – GPS systems are utilized to allow staff to monitor the deployment of the fleet including what streets have been done, whether or not the trucks have been plowing, salting, or sanding and what the application rates are.
- Information Tools – Vehicle-mounted infrared thermometers allow staff to determine the pavement temperature of the road and plan winter control operations accordingly.
- An indoor salt storage facility is in place at the Lake Street Service Centre. This not only keeps the salt itself inside, but also allows for trucks to be loaded indoors on an impermeable surface which reduces the amount of salt lost to wind and run-off.
- Sand (with a minimal amount of salt) is applied to the roads in agricultural areas, outside of the urban boundary.

Storm Response

In 2025, City staff responded to numerous surface flooding and water ponding events on the road. These events were generally the result of the accumulation of debris, sediment, or damage to existing infrastructure such as culverts or outfalls, resulting in capacity reduction in the system, or overland flooding during wet weather events. The City's typical response to these issues includes debris removal, replacement of damaged culverts, catch basin maintenance and dredging of ditches to restore the normal flow.

2025 Annual Stormwater Activities

Storm Sewer Related Public Complaints, Requests and Investigations

In 2025, the City received 31 complaints regarding the SWM system, which included odour complaints, sink holes, missing catch basin covers, personal items dropped into catch basins (keys and cell phones) and animal welfare (rescuing ducklings!). All complaints were investigated, and corrective actions were taken as needed. These complaints were in addition to the various service requests (e.g. ditch maintenance) noted elsewhere in this report.

Figure 8: Catch basin Service Requests - Saving Ducklings

Unfortunately, sometimes ducklings get trapped in local catch basins. City staff promptly respond, rescuing the little ones.

2025 Annual Stormwater Activities

Equipment Calibration and Maintenance

All in-house monitoring equipment is verified and calibrated as per manufacturer's recommendations. Staff utilize the Ventis MX4 Gas Meters to conduct atmospheric testing before entering a confined space or opening manholes. These multi-gas monitors are capable of detecting oxygen, carbon monoxide, hydrogen sulphide and combustible gases. All meters are verified prior to daily use, using the bump testing method with methane, according to manufacture specification. These meters are also calibrated by a third party on an annual basis.

Preventative maintenance is regularly scheduled for all equipment (frequency depends on the equipment and type of maintenance).

2025 Capital Works Projects

Authorized Alterations

Under the CLI-ECA, the City is pre-authorized for alterations to the existing works including changes, additions and extensions. These pre-authorized alterations are completed in accordance with conditions in the CLI-ECA and guidance materials titled 'Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Pre-authorized' under a CLI-ECA.

Pre-Authorized Requirements

There are various requirements that must be met for pre-authorization, including sewer capacity checks for both City and Regional sewers (if identified), permission if connecting into another system (e.g. connecting to a regional trunk sewer) and works requiring Niagara Peninsula Conservation Authority permits and/or approvals.

Significant Drinking Water Threat Assessment Report

All proposed alterations to the Stormwater Management System must include a completed Significant Drinking Water Threat (SDWT) assessment report. The City must ensure that any alteration to the authorized system(s) are designed, constructed, and operated in such a way as to be protective of sources of drinking water in vulnerable areas as identified in the Source Protection Plan. A copy of the SDWT assessment report can be found in Appendix C.

2025 Capital Works Projects

Direct Submissions

Activities that alter or modify the City's Stormwater Collection System and have not been included as a preauthorized condition in the CLI-ECA, require an amendment or direct submission to the ministry for approval. The City did not require any direct submissions in 2025.

Storm Sewer Improvement Projects

In 2025, the City invested nearly $6 million into storm sewer improvement projects. These capital investments resulted in improvements to the system specifically to reduce stormwater impacts in these catchments. In some cases these involve sewer separation projects, where new storm sewers are installed in areas with combined sewers, to help divert stormwater drainage. This reduces the risk for basement flooding and reduces the amount of wastewater flows directed to treatment plants. In addition, the City partnered with Regional Municipality of Niagara to cost share one storm sewer project delivered alongside a road works project. A summary of budgeted projects is included in Appendix D.

2025 System Monitoring Activities

Niagara Peninsula Conservation Authority NPCA - Stream Flow Monitoring

The NPCA monitors stream flow, rainfall, and other meteorological information at two locations (Walker Creek and Port Dalhousie) in the St. Catharines watershed. The information is transmitted to the NPCA where it is monitored and analyzed. The data provides the NPCA an up-to-date picture of the conditions within the watershed. The data and location of these gauges can be found on the NPCA website at https://npca.ca/.

Niagara Peninsula Conservation Authority - Watershed Report Card 2023

The NPCA prepares an annual report card every five years to provide a summary of the state of local forests, wetlands, and water resources. It involves analyzing data from groundwater quality, surface water quality, forest conditions, and watershed features across the watershed. The surface water quality is assessed using three indicators – phosphorus, E. coli, and benthic macroinvertebrates. While the water quality does vary, St. Catharines watercourses are rated as fair or poor water quality, which is typical for an urban area. The NPCA rates most watersheds in the Niagara Region as having poor water quality.

Rainfall Monitoring

In 2025, the City retained GEI Consultants Canada Ltd (GEI) to complete an analysis of the wastewater system and included rainfall analysis. For F-5-5 requirements rainfall data is analyzed for the period of April to November. Table 3 summarizes the total rainfall volume, maximum one-hour volume and maximum twenty-four-hour volume for the seven-month period of April to November (F-5-5 Reporting Period).

2025 System Monitoring Activities

Table 3: Rainfall Summary compared to a Typical Year

		Typical Year	2025	Difference
St. Catharines – North[1]	Total (mm)	463.5	450.0	-2.9 per cent
	Max 1-hr (mm)	26.5	38.25	+44.3 per cent
	Max 24-hour (mm)	41.75	74.5	+78.4 per cent
St. Catharines – South[2]	Total (mm)	599.0	442.3	-26.2 per cent
	Max 1-hr (mm)	25.5	19.5	-23.5 per cent
	Max 24-hr (mm)	60.0	36.6	-39.6 per cent

Notes:

1 – As measured at the Port Dalhousie WWTP Climate Station

2 – As measured at Niagara Region's Environmental Centre Climate Station

3 – The City uses 2014 as a Typical Year

In North St. Catharines comparing the 2025 rainfall to a Typical Year, the 2025 total precipitation is 5.2 per cent lower, the maximum 1-hr rainfall is 44.3 per cent greater, and the maximum 24-hr rainfall is 78.4 per cent greater.

In South St. Catharines comparing the 2025 rainfall to a Typical Year, the 2025 total precipitation is 27.6 per cent lower, the maximum 1-hr rainfall is 23.5 per cent smaller, and the max 24-hr rainfall is 39.6 per cent smaller.

2025 System Monitoring Activities

Stormwater Model

In collaboration with Niagara Region, the City developed a hydraulic model of the Stormwater Management System. The model was developed using Info SWMM and Innovyze modelling software which predominantly utilizes the US EPA Stormwater Management Model (EPA-SWMM) structure and computation engine.

The City's GIS data, which includes storm sewer pipes, manholes and ditches, was used as the basis of the network development. The model will be refined and updated as the City investigates assets through various program.

Response to Spills and Abnormal Events

The City of St. Catharines investigates all reported potential spills to the natural environment. If required upon investigation, contamination and clean-up measures are employed. Additionally, mandatory regulatory authorities are notified when required. In 2025, the City did not respond to any abnormal spills or flooding events related to the SWM System.

Public Reporting

Public reporting is conducted through various social media platforms. Additionally, public reporting is posted on the City's public website at https://www.stcatharines.ca/

Publicly reported information includes:

- Annual Performance Reports
- Emergency repairs requiring road closures
- Water – Wastewater Budgets and Financial Plans
- Capital Programs and Asset Management Plans
- Upcoming / Ongoing construction projects (e.g. sewer rehabilitation projects) Environmental Assessments and related studies posted publicly at https://www.engagestc.ca/

Planned Stormwater Activities

Planned Activities and Maintenance

The City will continue to monitor, improve and invest in maintaining the Stormwater Management System. Table 4 summarizes the various activities that the City will continue to implement for 2026, which includes system monitoring activities and programs, environmental education and public outreach activities and operations and maintenance activities. The City has approved a multi-year budget for 2024, 2025 and 2026. The 2026 Readoption Capital Budget provides additional investments for projects that will support environmental sustainability such as sanitary and storm sewer projects, which are also supported by the Building Faster Funding (BFF) from the Provincial government. The approved capital budget investment for storm sewer is:

- $3.8 million in 2024
- $6.4 million in 2025
- $5 million in 2026

A copy of the approved multi-year capital budget can be found on the City of St. Catharines website at https://stcatharines.ca/Budgets.

Planned Stormwater Activities

Table 4: Planned 2026 Programs, Activities and Maintenance

System Monitoring Activities	
Project	**2026 Budget**
Sewer System Update	Ongoing
Rainfall Monitoring Program	Ongoing
Sewer Sampling	Ongoing
Storm Sewer Capital Works	$5 million

Environmental Education and Outreach Activities	
Project	**2026 Budget**
Environmental Education	Ongoing
Rain Barrel Program	$34,000
Tree Giveaway	Ongoing
Annual Tree Planting	Ongoing
Restoration Planting	Ongoing

Planned Stormwater Activities

Operation and Maintenance Activities	
Project	**2026 Budget**
Street Sweeping	$150,400
Watercourse and Drainage Corridor Inspections and Cleaning	Ongoing
Outlet and Culvert Inspection and Maintenance	Ongoing
Catch Basin Cleaning, Maintenance and Repair	Ongoing
Oil / Grit Separator Cleaning	$35,000
Storm Sewer / Outfall Repair	$300,000
Road Culvert Inspection and Maintenance	Ongoing
Salt Management Plan	Ongoing

No additional information has been requested by the Niagara District MECP office.

Summary

The City of St. Catharines operates the St. Catharines Stormwater Management System, which services a population of approximately 144,800 residents.

This report details 2025 activities including system maintenance, capital investments, monitoring, and compliance efforts. A wide variety of activities were undertaken with budget approval and expenditures for storm sewers of approximately $6 million and $3 million in watercourse / stream restoration works. A copy of the approved Water and Wastewater budget for 2024 to 2026 can be found on the City of St. Catharines website at stcatharines.ca/Budget. In 2025, City staff responded to over 400 service requests / repairs related to the stormwater system including roadside ditch and culvert maintenance, inspected, and cleaned over 2,300 catch basins, and maintained the core programs of inspection and cleaning of watercourses, outlets, and street sweeping. These activities demonstrate the City of St. Catharines is in full compliance with CLI-ECA requirements.

It is important to note some of the CLI-ECA requirements are phased in and not all the requirements are in place at this time. As additional requirements come into effect and additional information becomes available this will be reflected in future annual reports.

Moving forward, the City will maintain ongoing system improvements, capital investments, and regulatory compliance efforts to ensure the long-term sustainability and efficiency of the Stormwater Management System.

For further details, visit stcatharines.ca.

Notice

Please note that every reasonable effort has been made to ensure the accuracy of this report and it contains the best available information at the time of publication. In the event that errors or omissions occur, the online report will be updated. Please refer to the online report for the most current version.

ECA Number: 023-S701

City of St. Catharines

Stormwater Management System

April 2026

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