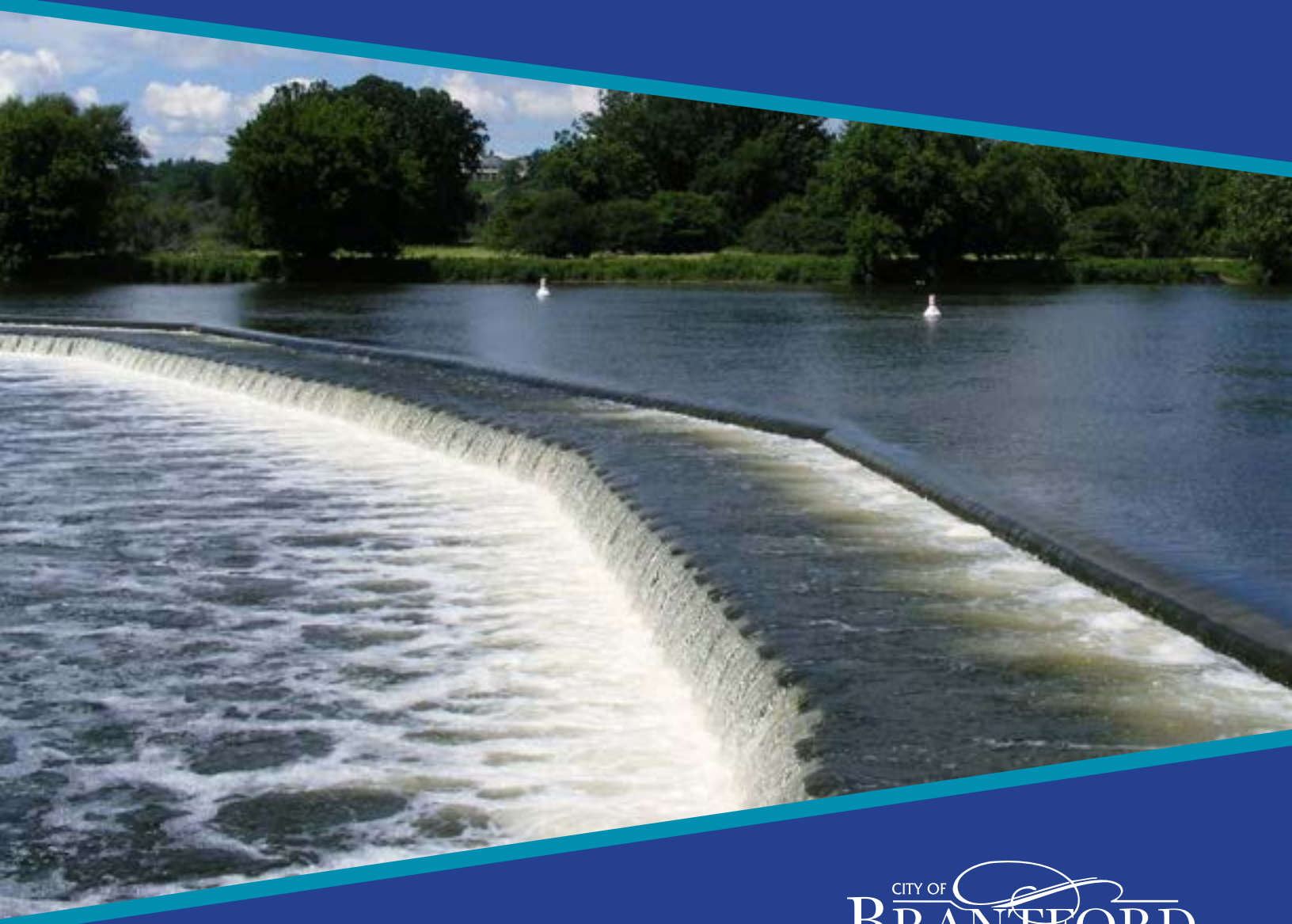
April 30, 2026

City of Brantford

Stormwater Management System

Annual Performance Report 2025

ECA No. 063-S701



CITY OF BRANTFORD

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System Owner

The Corporation of the City of Brantford

Reporting Period

January 1, 2025 to December 31, 2025

Report prepared by

The Corporation of the City of Brantford

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Glossary of Terms and Abbreviations

Contaminant: has the same meaning as defined in section 1 of the EPA.

CCTV: Closed Circuit Television

Conveyance Channel: Open channels that convey stormwater from one structure to another or directly to the water course

CCME: Canadian Council of Ministers of the Environment

Director: A person appointed by the Minister, pursuant to section 5 of the EPA for the purpose of Part II.1 of EPA (Environmental Compliance Approvals)

ECA: Environmental Compliance Approval issued by the Ministry of the Environment, Conservation, and Parks

Mainline Sewer: a pipe that collects wastewater from smaller laterals and conveys to a larger trunk sewer

Maintenance Hole (M/H): A structure that provides access to a sewer system for inspection, cleaning, maintenance, sampling, or flow monitoring

MECP: Ministry, of the Environment, Conservation and Parks

Ministry: The Ministry of the Minister and includes all employees or other persons acting on its behalf

OGS: Oil and Grit Separator

PWQO: Provincial Water Quality Objectives

pH: Measure of the alkalinity or acidity in water

SAC: Spills Action Centre

SDWT: Significant Drinking Water Threat

Spill: As defined in Part X of the Environmental Protection Act, is a discharge a) into the natural environment, b) from or out of a structure, vehicle or other container; or c) that is abnormal in quality or quantity in light of all of the circumstances of the discharge.

Stormwater: Rainwater runoff, water runoff from roofs, snowmelt, and surface runoff

STP: Sewage Treatment Plant, also known as Wastewater Treatment Plant ('WWTP')

SWMP: Stormwater Management Pond

Third Pipe Collection System: Sewage Works designed to collect and transmit foundation drainage and/or groundwater to a receiving watercourse

Total Ammonia Nitrogen (TAN): A measure of the amount of ammonia (nitrogen pollution) in water

Total Phosphorus (TP): An essential nutrient used by microorganisms for growth. Excess amounts can lead to environmental issues like algae over-growth

Total Suspended Solids (TSS): Suspended particles (organic and inorganic material) present in the water sample

Wastewater: Water that has been used and discharged by homes, businesses, and industries. Everything we flush down a toilet or pour down a drain, collectively

Executive Summary

This report has been prepared to assess the performance of the City's stormwater infrastructure (stormwater ponds, OGS units, conveyance systems) as set out in the City of Brantford's Ministry of the Environment, Conservation and Parks issued ECA No. 063-S701 Issue No. 3 (ECA, MECP 2024). ECA No. 063-S701 outlines the terms and conditions for operating the Stormwater Collection System. Schedule E, Section 5.2 of the ECA mandates the submission of an Annual Performance Report to the Director.

This report covers the period from January 1st, 2025, to December 31st, 2025, and will be made available on the City of Brantford's website by June 1st, 2025. A copy of this report can be obtained on the City's website (www.brantford.ca) and at Brantford Customer Service by contacting (519)-759-4150. This report includes monitoring data, operational challenges, inspections, maintenance, repairs, calibration, spills, public complaints and other operational information in respect to the system.

The performance of the City's stormwater management infrastructure is assessed through the laboratory analysis of stormwater samples for routine parameters typically associated with freshwater watercourse health. The monitoring locations utilized by the City of Brantford do not allow for specific evaluation of the performance of SWM ponds and OGS units individually, so analysis of watercourse health was applied to three subwatershed areas: D'Aubigny Creek, Grand River (includes Mohawk Lake) and Fairchild Creek. Water quality in watercourses within the City of Brantford is highly variable depending on the subwatershed. Many of the PWQO and CCME water quality guideline exceedances are likely independent of the performance of stormwater management ponds and/or OGS units.

For the reporting period, City Staff worked diligently completing several maintenance, rehabilitation renewal projects to ensure the adequacy of the City's Stormwater Collection System. No Ministry of the Environmental, Conservation and Parks inspections occurred during this time. Overall, there were no major failures with the operation of the system; all stormwater infrastructure appears to be working as designed or plans have been established to improve their condition, based on the condition assessments and water quality analysis within this report.

1.0 Stormwater Management System Overview

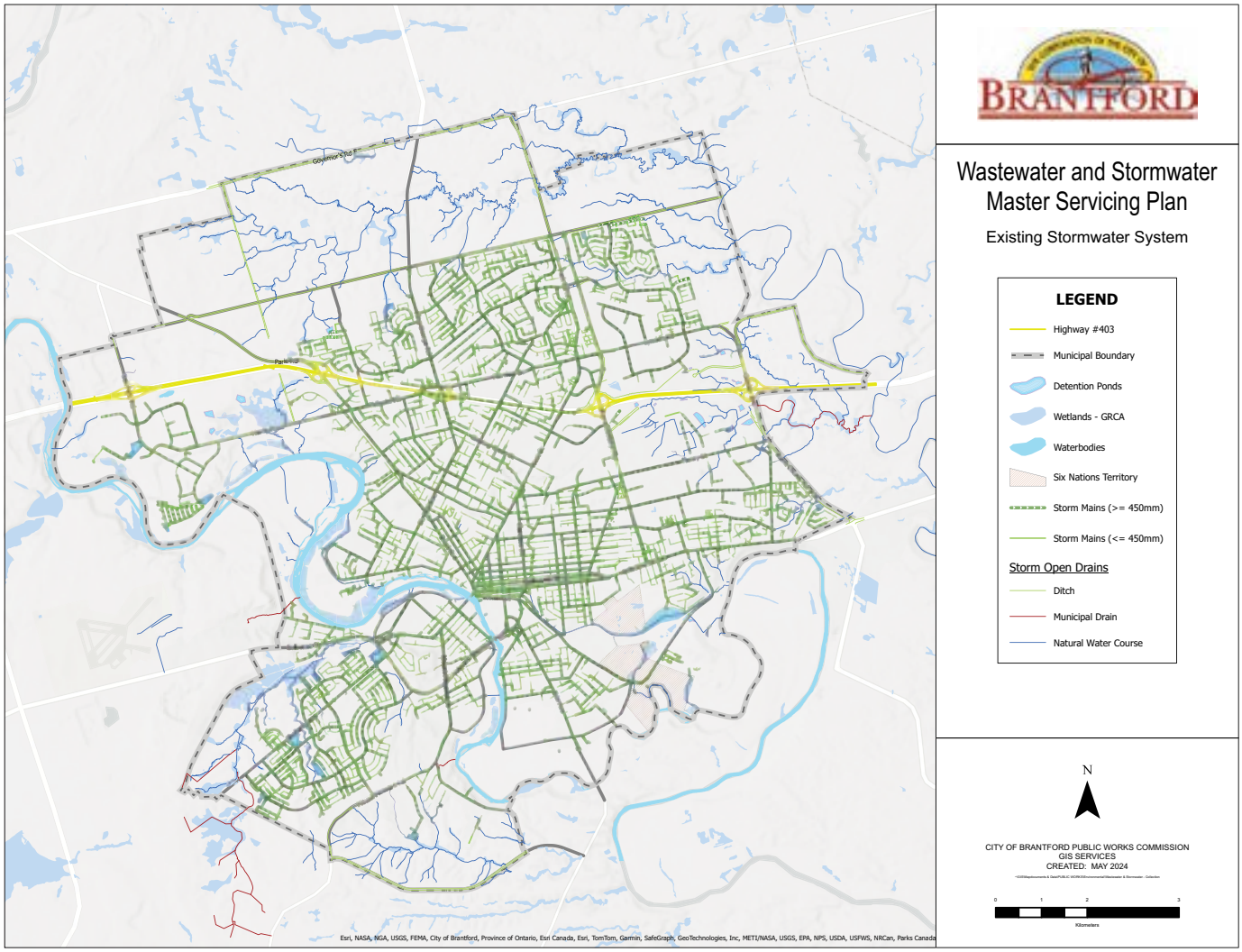
The Corporation of the City of Brantford ("The City") owns, maintains, and operates the Stormwater Collection System designed for the collections, transmission, and treatment of stormwater, consisting of approximately 430 kilometers of storm sewers, 228 kilometers of channels, ditches, culverts, 26 oil grit separator units (OGS), 23 stormwater management facilities, including catch basins and other related infrastructure that transmits stormwater to the Grand River, or its tributaries.

The entirety of the City is located within the Grand River Watershed, regulated by the Grand River Conservation Authority (GRCA). The majority of the City's stormwater system drains directly to the Grand River or its tributaries; Mohawk Lake, D'Aubigny Creek and Fairchild Creek. A significant portion of the northeastern segment of the City discharges to local creeks along the City's north and east boundaries to Fairchild Creek.

Within the Fairchild Creek catchment, there is a major ditch network along Hwy 403 and Wayne Gretzky Parkway that receives a large portion of Fairchild Creek catchment, conveying flows to the southeast, and to the Garden Avenue Municipal Drain. The Mohawk Lake and canal is a receiving body for a substantial portion of the City's stormwater. Figure 1 provides an overview of the Stormwater Management System.

The Stormwater Management System operated under the authority of an Environmental Compliance Approval for a Municipal Stormwater Management System number 063-S701. Regulatory compliance, inspections and reporting are completed through the Ministry of Environment, Conservation, and Parks Guelph District Office.

Figure 1: An overview of the Stormwater Management System



2.0 Operational Performance

As per the ECA, this section's purpose is to provide a summary of significant operational problems encountered and any associated corrective actions that were implemented.

Stormwater management infrastructure is inspected on a routine basis to ensure it is performing as designed and operating effectively. Inspection and maintenance activities are recorded and retained for record retention purposes and the data is used to assess performance, compliance and identification of trends and anomalies that require further investigation and or remediation to maintain proper function of the system. Where issues are identified during inspections, work orders are generated for maintenance/repairs.

2.1 Operating Challenges and Corrective Actions

- In July 2024, the City experienced a major flooding event in the North Area of Brantford. In response the City offered a Residential Compassionate Flood Relief Grant and Basement Flooding Prevention Grant Program to assist residents. In addition, the City has been working on finalizing the North Brantford and Tutela Heights Subwatershed Study, which plays a critical role in reducing the risk of flooding. In 2025, the City conducted detailed field investigations, updated hydraulic and hydrologic models, and developed a recommended subwatershed management strategy.
- In 2025, the City identified stormwater assets that were not maintained in accordance with recommended best management practices (BMPs). The issue was attributed primarily to inadequate staff awareness, resulting from staff turnover and the absence of stormwater-specific training and documentation practices. As a result, routine inspection, maintenance, and record keeping for these systems were not consistently performed. Corrective actions will be implemented in 2026.
- Operating challenges regarding the unclear assignment of operating and maintenance responsibilities were identified for certain stormwater assets. Corrective actions include facilitating stormwater meetings as well as updating the O&M Manual in 2026 to expand on roles and responsibilities for stormwater assets.
- As part of the Stormwater Monitoring Plan, City of Brantford staff are tasked with sampling established routine monitoring locations during baseline (dry) and rainfall conditions to establish historical trending results for water quality.
    - It is challenging to respond to rainfall conditions when they present themselves since staff may be busy with other duties. This may require staff to change tasks and priorities to ensure samples are collected within the rainfall timeframe.
    - During winter sampling, a few monitoring locations were unable to be sampled due to ice.
    - The 2025 water quality samples were compared with the previous 5-years of trending data 2020 – 2024 averages as well as the CCME Guidelines for water quality. The monitoring results show ongoing water quality concerns related to chloride, suspended solids, and nutrients. In summary:

- Total Suspended Solids (TSS) exceeded CCME guideline levels in a small number of samples. Most of these higher-than-normal readings occurred during rainfall events, when sediment is more likely to enter waterways. However, this is not uncommon and no major trends in sediment loading were identified at the monitoring locations within the stormwater management system that would require immediate remediation or urgent project maintenance works. While many elevated measurements did not exceed natural background levels, they are still worth continuing to monitoring as they may indicate stormwater management infrastructure performance.
- Chloride levels frequently exceeded long-term guideline levels, with about 66% of samples above recommended limits. Short-term spikes were less common but still occurred in 17% of samples. Elevated chloride levels were mainly observed during rainfall events, including in the summer months. This pattern suggests that winter road salt may accumulate in the environment and be gradually released during rainfall events. In addition, stormwater management ponds can retain salt over the winter and subsequently discharge it during warmer months, contributing to elevated chloride levels outside the winter season.
- Total Phosphorus (TP) consistently exceeded PWQO, indicating a high risk of nutrient enrichment. Levels in 2025 increased by approximately 21% compared to historical data, with most exceedances occurring during rainfall events. Elevated phosphorus can contribute to excessive algae growth, which can harm water quality and aquatic life. Future stormwater management infrastructure development and rehabilitation projects should focus on designs that have the capacity to filter and fix phosphorus from stormwater to help address the hypereutrophic concentrations of phosphorus observed in the City.
- Overall, results indicate that stormwater runoff and dry-weather sources are both contributing to water quality challenges, and continued monitoring and management efforts are important to protect local waterways.

3.0 Monitoring Program Information

The City's Environmental Services Department was responsible for conducting stormwater monitoring within the Stormwater Management System during the reporting period.

Table 1 includes a summary of the monitoring program details.

Monitoring Details	
No. of Water Quality Monitoring Stations	36
Monitoring Level	Level 1-3
Key Receivers Monitored	D'Aubigney Creek, Grand River, Fairchild Creek
Name of Laboratories Used	Wastewater Compliance Lab and E3 Laboratories Inc. (Accredited)

The City of Brantford is committed to maintaining high standards in water quality and has an established monitoring program that focuses on key creek and stormwater drainage locations. During 2024 – 2025 notable adjustments to the Brantford Stormwater Monitoring Program were completed. In response to the recommendations outlined in the Brantford Stormwater Monitoring Plan Recommendations Report (LGL, July 2024), modifications to the sampling frequency and locations were implemented. City staff are actively working to adapt to these evolving monitoring requirements to ensure the continued effectiveness of the program.

Since the Recommendations Report was not published until mid-summer 2024, a gradual change in monitoring locations and frequency lead to a gradual adjustment in the monitoring locations and frequency. This introduced some variability in the data for the monitoring years 2024 and 2025. Prior to 2024, routine monitoring was conducted on a monthly basis using a rotating 4-week schedule, alongside targeted wet-weather sampling that followed an event-based timeline. The revised monitoring program, initiated in July 2024, now operates on a seasonal framework aimed at capturing one baseflow sample and two rainfall response samples each season, in accordance with the draft MECP Monitoring Plan Guidance Document. Importantly, winter rainfall response samples are interpreted to include snowmelt samples. The 2025 analyses evolved towards evaluating current-year data against the previous five-year averages as well as comparing base and rainfall response values. The revised structure is intended to provide improved characterization of seasonal variability, stormwater system response to rainfall, and runoff water quality under typical and elevated flow conditions. For reference, the seasons are defined as follows: Spring (March 20 – June 20), Summer (June 21 – September 21), Fall (September 22 – December 20), and Winter (December 21 – March 19). Samples are collected from a diverse range of sources, including stormwater manholes, open watercourses, and outfalls.

4.0 Monitoring Results Analysis

LGL Limited was retained by the City to develop the City's Stormwater Monitoring Plan in response to requirements of ECA No. 063-S701. LGL Limited completed the analysis of the City's previous 5 years of stormwater monitoring sample results to produce recommendations for future monitoring programs.

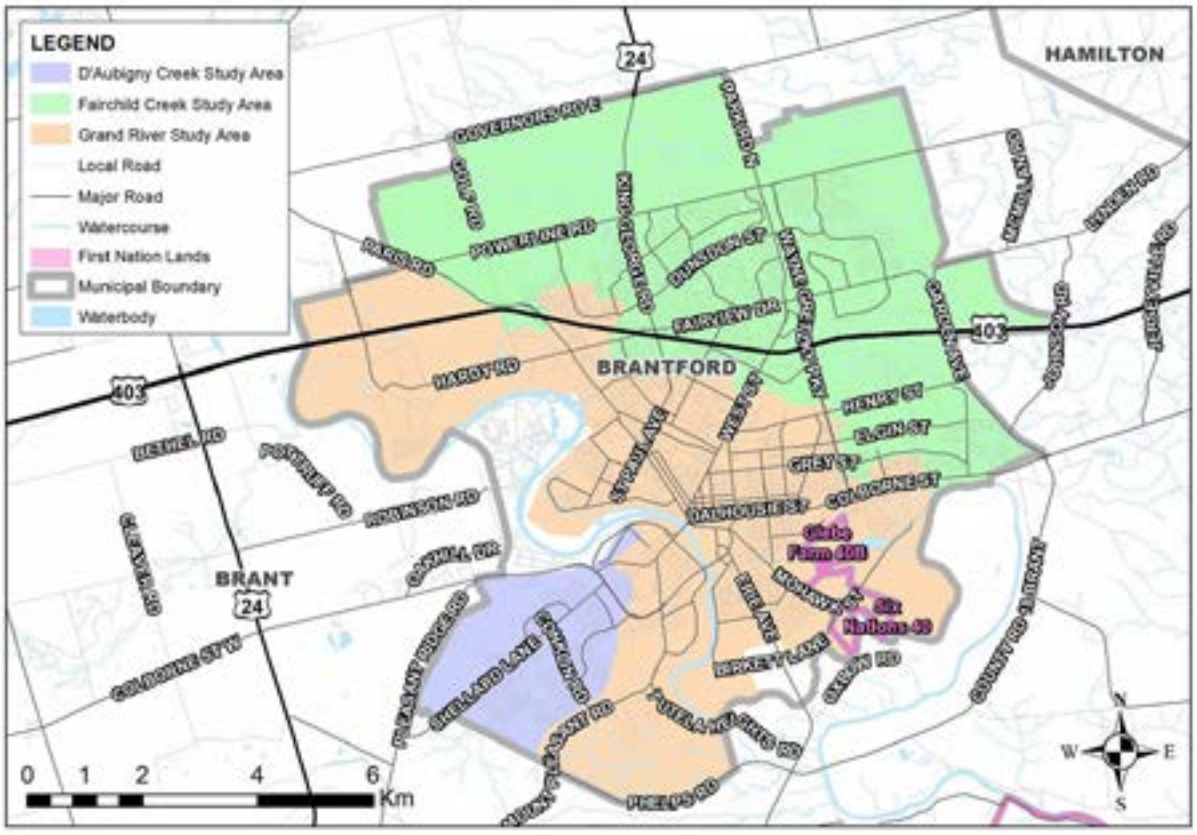
The City operated a wide-ranging monitoring and sampling program, and results were based on the measured criteria that are relevant to evaluate the performance of stormwater management infrastructure as well as health of receiving watercourses.

Throughout 2025, going into-2026, the City and LGL Limited will continue to develop and refine the Stormwater Monitoring Plan to meet the requirements of the ECA and MECP Monitoring Plan Guidance. The City is awaiting the release of the Ministry's monitoring guidance documents to fulfil this obligation.

4.1 Catchment Areas being Monitored

Within the City of Brantford's municipal boundary there are three (3) Subwatersheds that have been identified, see Figure 2.

Figure 2: City of Brantford Subwatersheds



4.1.1 The Grand River

The Grand River watershed is the largest watershed in southern Ontario, encompassing approximately 6,800 km^2 and draining southward from the highlands of Dufferin County to Lake Erie at Port Maitland.

The reach of the Grand River between Paris and the City of Brantford has been designated as "Exceptional Waters" under a provincial, community-based resource management program, in recognition of its high ecological, hydrological, recreational, and cultural values (GRCA, 2006). This designation reflects the presence of cold-water tributary inputs, intact riparian and valleyland features, significant fish habitat, and its importance as a shared community resource.

The Grand River is critically important to the City of Brantford's municipal drinking water supply, with the City drawing 100 percent of its raw water from the river. As such, the City conducts continual water quality monitoring to inform operational and treatment requirements at the Brantford Water Treatment Plant and to ensure compliance with provincial drinking water regulations (City of Brantford, 2024).

Based on the GRCA's Water Quality Index, the surface water quality of the central reaches of the Grand River in and around Brantford is generally rated as "Fair." This rating reflects ongoing water quality stressors, particularly elevated concentrations of suspended sediments and nutrients, including total phosphorus and nitrates. These conditions are attributed to cumulative watershed influences such as upstream land use, agricultural runoff, urban stormwater inputs, and treated wastewater discharges (GRCA, 2021).

Within the City of Brantford, a system of engineered flood protection works, including extensive dykes and channel modifications, has been constructed to reduce the risk of flooding associated with high river flows and ice jam events. These structures provide critical protection to developed areas adjacent to the Grand River. The City is responsible for the operation, inspection, and monitoring of the dyke system, including the implementation of emergency response measures and active surveillance during flood and ice jam conditions, in coordination with the GRCA. For the reporting year, there were 4 SWMF and 5 OGS units that formed part of the Authorized System, each outlet into the Grand River or its tributaries.

For the reporting year, there were 6 SWMF and 8 OGS units that formed part of the Authorized System, each outlet into the Grand River or its tributaries.

4.1.2 Mohawk Lake

Mohawk Lake is a waterbody located southeast of the downtown core of Brantford and receives the majority of drainage from downtown and the most highly developed areas of central Brantford. The Mohawk Lake drainage area captures runoff from a predominantly urban catchment characterized by high proportions of impervious surfaces, including roadways, parking areas, commercial development, and older residential neighbourhoods. Drainage within the sub-catchment is conveyed primarily through East Ward Creek, which functions as the principal stormwater conveyance corridor. East Ward Creek conveys urban runoff eastward through Mohawk Lake, where flows are attenuated prior to discharging downstream of the Beach Road Dam and ultimately into the Grand River. As such, Mohawk Lake serves an important role in hydraulic attenuation, sediment deposition, and partial water quality treatment of urban stormwater runoff prior to release to the receiving watercourse. The Mohawk Lake sub-catchment has identified future restoration and drainage improvement opportunities, including enhancements to shoreline and in-lake wetland vegetation to improve sediment retention, nutrient uptake, and overall water quality treatment. These measures are intended to enhance the stormwater management function of Mohawk Lake, improve aquatic habitat, and further mitigate the effects of urban runoff generated within the downtown core prior to discharge to the Grand River.

4.1.3 D'Aubigny Creek

D'Aubigny Creek is a coldwater tributary originating in the D'Aubigny Swamp, a Provincially Significant Wetland. The creek flows through swamp areas and D'Aubigny Creek Park before discharging to the Grand River.The system is groundwater fed, with coldwater inputs originating from recharge areas along the Pleasant Ridge Road and Shellard Lane corridor, a feature that supports year-round coldwater conditions despite the creek flowing through an urban landscape. The D'Aubigny Creek subcatchment is generally a mix of residential subdivisions and agricultural lands in the process of development into residential subdivision. D'Aubigny Creek is the closest to a pristine and minimally human-influenced watercourse within the City.

For the reporting year, there were 11 SWMF and 9 OGS units that are a part of the Authorized System, and each outlet into D'Aubigny Creek.

4.1.4 Fairchild Creek

Fairchild Creek is a largely agricultural subwatershed with headwaters based in the Beverly Swamp Wetland Complex, a Provincially Significant Wetland. Fairchild Creek flows from this wetland complex south-southwest towards Brantford, where it eventually outflows into the Grand River near Onondaga.

In 2016, the Grand River Conservation Authority (GRCA) completed a subwatershed characterization study on Fairchild Creek and found that winter average chloride, TSS, and phosphorus concentrations were all over the CCME long-term guidelines. Winter chloride concentrations were 129.3 mg/L, with other seasonal values recorded below 75 mg/L. TSS concentrations were above 25 mg/L in 83.3% of samples collected.

Phosphorus concentrations were above the PWQO threshold of 0.03 mg/L in 98.1% of samples collected (MECP 1994). Fairchild Creek has been found to contribute more TSS and phosphorus to the Grand River per square kilometer than any other major tributary in the watershed. There are 13 SWMF and 9 OGS units that are a part of the Authorized System, each outlet into Fairchild Creek.

4.2 Supporting Information for Monitoring Results

The City's Stormwater Monitoring Program locations were analyzed to determine the closest upstream and downstream locations for each of the stormwater infrastructure to be monitored under the ECA requirements.

LGL Limited conducted compilation and trending of results obtained during the previous 5 years of baseline monitoring and completed specific trending of the 2025 monitoring period. The obtained stormwater monitoring results were compared to the Provincial Water Quality Objectives (PWQO) and Canadian Council of Ministers of the Environment (CCME) – Standards for the Protection of Aquatic Life.

The majority of Stormwater Management Facilities did not have monitoring stations directly upstream and downstream thus limiting the ability to allow for evaluation of the performance of individual facilities.

Alternatively, to assess the overall performance of the Stormwater Management System, analysis of water-course health was applied to the three subwatershed areas: D'Aubigny Creek, Grand River and Fairchild Creek.

Through 2025, the City along with LGL Limited worked to develop a Stormwater Monitoring Plan with the goal of improving the current monitoring programs to address ECA requirements more acutely and implement a monitoring framework that can be leveraged to take decisive action to improve water quality in the City of Brantford. This will be a collaborative process that will integrate feedback and concerns from a variety of stakeholders and community members, including the MECP.

4.3 Analysis of Overall Performance

Analysis of overall performance can be confirmed through the Stormwater Monitoring Program, visual inspections and formal Condition Assessments of Stormwater Management Infrastructure. The City completes inspections and formal Condition Assessments of Stormwater Management Infrastructure on a routine basis as identified in the Stormwater Operation and Maintenance (O&M) Manual.

Although the Stormwater Sampling Program completed by the City does not have any direct inlet/outlet sampling locations relative to any of the stormwater infrastructure identified within the ECA, there are robust and detailed data available to assess the health of local watercourses and highlight specific stormwater events of concern for further investigation in the subsequent sections of this report. There are no major issues with the operation of the system; all stormwater infrastructure is working as designed or plans have been established to improve their condition, based on the condition assessments and water quality analysis within this report.

4.4 Analysis of Water Quality in Watershed

Water samples are analyzed at the City's laboratory or an external third-party lab for routine water chemistry parameters and evaluated according to provincial or federal water quality objectives or guidelines. In addition, dissolved oxygen, conductivity, pH and temperature are collected in the field at each sampling site using a handheld data sonde. The analysis of water quality in the watershed included comparing the 2025 monitoring year to the previous 5 years of background trending data to determine if the 2025 monitoring year demonstrated different characteristics relative to the historical baselines and to contextualize historical watershed health indicators.

Water quality in watercourses within the City of Brantford is highly variable depending on the subwatershed. Many of the PWQO and CCME water quality guideline exceedances are likely independent of the performance of SWMPs and/or OGS units. Given the design intent of SWMF, their treatment capacity, health of local watercourses and the monitoring program completed by the City, the analysis focuses on the following water quality criteria:

- total suspended solids;
- chlorides;
- phosphorus;
- Nitrate / nitrite;
    - Added as a parameters in 2025, no data analysis provided due insufficient data for meaningful trending.
- conductivity;
- dissolved oxygen; and
- pH.

The water quality criteria above may not be directly indicative of the functional capacity of SWM infrastructure, however highlighting areas of potential concern will enable the City to improve water quality using holistic strategies that consider on-line SWMF's.

Stormwater management infrastructure is generally designed to control and remove total suspended solids (TSS), though it also can lower total phosphorus concentrations and have a buffering/dilution effect on chloride and pH.

This report is intended to address the performance of stormwater infrastructure (stormwater ponds, OGS units, conveyance systems) within ECA No. 063-S701 Issue No. 3 (ECA, MECP 2024) through analysis of response variables typically associated with freshwater watercourse health (chloride, pH, TSS, TP, DO and conductivity). The monitoring locations utilized by the City of Brantford do not allow for specific evaluation of the performance of SWM ponds and OGS units individually, so analysis of watercourse health was applied to three subwatershed areas: D'Aubigny Creek, Grand River and Mohawk Lake and Fairchild Creek. Water quality in watercourses within the City of Brantford is highly variable depending on the subwatershed. Many of the P.W.Q.O. and C.C.M.E. water quality guideline exceedances are likely independent of the performance of stormwater management ponds and/or OGS units.

4.4.1 Total Suspended Solids

The main purpose of Stormwater Management Facilities is to capture and retain suspended solids. Therefore, TSS concentrations represent the primary water quality indicator for the performance of stormwater management infrastructure.

Suspended solids within D'Aubigny Creek were at or below 30 mg/L during baseline conditions throughout samples completed in 2025, reflecting a very low-turbidity watercourse. There were some sediment-loading events observed during rain event samples but none that exceeded the CCME 25 mg/L threshold compared to baseline (2020-2024). One sample at D'Aubigny Natural did exceed the CCME limit in the spring, that may be indicative of poor stormwater infrastructure performance or due to construction activities. An additional station upstream of D'Aubigny Natural was established in 2025 as development continues to progress within the watershed. Levels will continue to be monitored to establish background trends under both baseline and rain event conditions.

The subcatchment draining directly to the Grand River did exceed the CCME 25 mg/L threshold but only during rainfall events with the highest being 93 mg/L. During baseline conditions the average TSS concentration was 7 mg/L with the exception of Galileo Blvd in the spring, but the spike was not noticed at the downstream East Ward Creek location.

In the Fairchild Creek subwatershed: Summerhayes @ Powerline, F-07, McMillan Road, and Johnson Road all observed rainfall events causing rises in TSS concentrations of over 25 mg/L. Additionally King George Road Creek had an elevated baseline concentrations in the fall at 48 mg/L and County Road 18 had elevated spring baseline conditions at 56.5 mg/L.

Some trends seen in the storm event data show that rainfall can produce large increase of TSS, which is normal in an urbanized city. No major trends in sediment loading were identified that would require immediate remediation or urgent project maintenance work.

4.4.2 Chlorides

Chlorides in urban waterways are predominately caused by the application of road salts, and are not readily filtered by soil or plants. Naturally high chloride levels in stormwater can also result from a variety of sources, including natural weathering of soils and rocks, atmospheric deposition. Stormwater management facilities, specifically wet ponds, can offer some buffering of peak chloride concentrations in runoff during the colder months through dilution within the volume of the pond, but this is not the design intent of the facilities. Stormwater ponds can also retain relatively high chloride concentrations into warmer months, causing higher chloride loading during months where road salts are not actively applied to the contributing catchment areas (Lam et al. 2020). The best way to limit chlorides from entering watercourses is to limit their use as much as possible or use an alternative solution to winter road conditions such as sand, where possible. Measures to reducing the use of road salts and educating the public to reduce their use of deicing salts should be applied throughout the City. Overall performance of the Stormwater Management System, analysis of watercourse health was applied to the three subwatershed areas: D'Aubigny Creek, Grand River and Fairchild Creek.

Chloride concentrations in D'Aubigny Creek were relatively low (<78.6 mg/L) at the natural/upstream sample station throughout the year, and the downstream location only exceeded the CCME long term value (120 mg/L) for the protection of aquatic life during the winter baseline (124 mg/L) and fall rain event (320.3) in 2020-2024 average. The 2025 results are much lower than previous year's monitoring with fall baseline reduced to 66.1 mg/L. New locations such Blackburn and Shellard Lane did see some elevated chloride levels, but will continue to be monitored to establish background trends under both baseline and wet weather conditions. Despite the elevated readings, chloride concentrations decreased and were within CCME short-term and long-term exposure guidelines at the outlet to the Grand River. These new locations are showing a concerning trend, especially as development to the southeast of D'Aubigny Creek continues to be built out and new stormwater infrastructure comes online within the subcatchment. D'Aubigny Creek represents a coldwater tributary to the Grand River, providing valuable habitat to biota that are limited to these coldwater areas of the watershed.

In the subcatchment, draining directly to the Grand River, high chloride concentrations were observed throughout the study area in both baseflow and rain event samples. Average chloride at the majority of monitoring stations and seasons exceeded the 120 mg/L long-term value for the protection of aquatic life. GRA-09 exceeded the CCME short-term threshold of 640 mg/L for the 2025 spring and summer baseline samples. This is consistent with the 2020-2024 sample trends for GRA-09 which indicated that chlorides exceeded the CCME short-term threshold of 640 mg/L for all seasons. However, there was a chloride reduction in the spring rainfall sample and during the fall baseflow and rainfall periods which may indicate a dilution effect during high flows in spring/fall.

Like the Grand River subcatchment, the Fairchild Creek watershed consistently demonstrated average chloride concentrations exceeding the CCME long term guideline (120 mg/L) in 2025, with some exceptions being all seasons at King George Road Creek, summer at Governors Road, and all season McMillian Road. Average chloride concentrations often exceeded the CCME short term guideline (640 mg/L) at many monitoring stations in the winter, likely from the application of road de-icing salts. The range of chloride concentrations in 2025 were between 32 mg/L (McMillan Road in Winter baseline conditions) and 4600 mg/L (F-42 Henry at Garden in baseflow fall conditions). The lowest chloride concentrations occurred, predictably, in the northern headwaters of Fairchild Creek, areas with the lowest urbanization and development in their upstream catchment area. These values are not atypical for a medium-sized urbanized City in southern Ontario, but efforts should continue to limit the use and application of road salts.

4.4.3 pH

pH values outside of the PWQO for the protection of aquatic life (6.5 – 8.5) can reduce habitat quality and cause biological impairments to freshwater biota. There is little effect that stormwater management infrastructure can have on pH, aside from a buffering effect of potentially acidic or alkaline inflows into the ponds – like the interaction between chloride concentrations and stormwater management ponds. All values of pH measured (2020 – 2024 averages and 2025 averages) within each of the subcatchments were within the PWQO (6.5 – 8.5).

4.4.4 Total Phosphorus

Although it is not always an explicit design intent, stormwater management ponds may reduce total phosphorus concentrations in water as it moves through the facility.Stormwater management strategies that utilize treatment-train approaches and maximize vegetation in the facilities (in-facility wetland cells, bioretention) can increase the efficacy of phosphorus retention within the facility. Phosphorus is the limiting nutrient to primary productivity in southern Ontario, and excess phosphorus can result in eutrophication, hypoxic conditions and potentially algae blooms in slower moving watercourses or ponds.

Most sampling locations within the City's monitoring program demonstrated hyper-eutrophic concentrations of phosphorus in the 2020 – 2024 averages as well as during the 2025 monitoring period. Future stormwater management infrastructure development and rehabilitation projects should focus on designs that have capacity to filter and fix phosphorus from stormwater to help address the hyper-eutrophic concentrations of phosphorus observed in the City.

4.4.5 Dissolved Oxygen

Water temperature can have an adverse effect on water quality and the water's ability to hold dissolved oxygen. As water warms, it has a reduced ability to retain oxygen. Stormwater management ponds can have a significant impact on water temperature, as the wet ponds are typically fully exposed to the sun and the water leaving the pond is historically skimmed from the top of the pond, though more modern stormwater management designs have integrated bottom-draw outlets and cooling trenches to combat the thermal impacts of stormwater management ponds.

Dissolved oxygen concentrations throughout each subwatershed were consistent with historical averages as well as the historical thermal regimes of the watersheds, where data were available (GRCA 2016).

D'Aubigny Creek continues to demonstrate a coldwater thermal regime, while the Grand River and Fairchild Creek watersheds demonstrate a thermal regime that can consistently support a warmwater fishery. Some reaches of the Grand River and Fairchild Creek subcatchments demonstrate DO concentrations required to support coldwater fish.

4.4.6 Conductivity

Conductivity is a measure of the inorganic dissolved solids in water and can be used as a proxy measurement to determine the overall loading of dissolved ionic elements in water. Typical ions that contribute to conductivity levels are chloride, nitrate, sulfate, and phosphate anions, as well as sodium, magnesium, calcium, iron, and aluminum cations.

Conductivity ranged from 237 – 880 µS/cm in D'Aubigny Creek, 53 – 3437 µS/cm in the Grand River, and 86 – 8790 µS/cm in the Fairchild Creek watershed in 2025.

5.0 Interpretation of Environmental Trends

LGL Limited was retained by the City to complete data analysis and interpretation of environmental trends based on previous stormwater monitoring information and data for the previous five (5) years (2020-2024), and specific analysis of the 2025 monitoring period in response to requirements of ECA No. 063-S701. and high-level trends and recommendations have been integrated within this report.

City data was used to examine trends in chloride, total suspended solids, pH, phosphorus, conductivity and dissolved oxygen, where applicable. City monitoring locations focused on capturing rain and stream conditions near stormwater management infrastructure, with a watershed approach that involved monitoring confluence points along the watershed. Data was sorted by receiving watercourse to contextualize historical watershed health indicators. GRCA data was also accessed and used to examine trends in precipitation and air temperature in the Grand River.

GM BluePlan Engineering (GMBP) and partner AMG Environmental were retained by the City to conduct storm-water system monitoring for up to five years (July 2022 – July 2027). In 2025, the City updated the Stormwater Management (SWM) Model with rain gauge and flow monitoring data with the primary objective to fill system performance gaps, which were identified in the City's Stormwater Master Plan.

6.0 Calibrations & Maintenance of Monitoring Equipment

This section provides a summary of calibrations and maintenance performed on all stormwater monitoring equipment used in the Environmental Services Lab. The City has a formal instrumentation calibration and maintenance program performed on all laboratory equipment to track the performance and accuracy of all instrumentation. Accuracy verification and calibration of monitoring devices are completed annually by a Third-Party Certified Contractor. Table 2 provides a summary of monitoring equipment and the calibration results.

Table 2: Laboratory Equipment Calibration and Maintenance Schedule

Analyzer	Equipment Description	Date Calibrated	Results	Note
YSI ProQuatro (24K101714/25-01)	Multimeter used for field analysis.	Dec 9, 2025	Passed	New device purchased June 2025
YSI ProQuatro (24K105023/24-01)	Multimeter used for field analysis.	Dec 24, 2025	Passed	New device purchased December 2024, device came calibrated

7.0 Inspections, Maintenance and Repairs

The following section provides an overview of some of the inspection, major maintenance activities and capital upgrades carried out on the stormwater Management system for the reporting year.

7.1 Inspections

Inspections are critical for detecting and addressing issues promptly within the Stormwater Management System, preventing environmental contamination and ensuring regulatory compliance. The City maintains routine inspection programs to identify potential issues early, maintain integrity and performance of the system while minimizing risks to public health and the environment.

Table 3: Summary of Major Inspection Activities

Type of Activity	Inspection Frequency	Number Completed	Description
Storm CCTV Inspections	7-10 years	~ 38.6 km	• Completed under the CCTV Sewer Inspection Program, includes maintenance holes. • Storm sewers are flushed prior to CCTV. • Deficiencies identified from inspections will be prioritized and addressed by City or a Contractor.
Brick Manhole Inspections	1 per year	16	• Visual inspection.
Stormwater Management Pond Inspections	3 times per year	51	• Visual inspection.
Stormwater Outfall Inspections	1 per year	273	• Visual inspection.
Catchbasin Inspections	5-7 years	322	• CCTV / Zoom Camera inspection.
OGS Inspections	3 times per year	69	• Visual inspection and sediment measurements to determine cleanout frequency.
Storm Inlet Inspections	2 times per year	982	• Visual inspection.
GRCA Dike Inspection	1 per year	2	• Visual inspection.
Sluice gate inspections	1 per year	520	• Visual inspection.

7.2 Maintenance and Repairs

The City uses preventative maintenance software to manage work orders for all scheduled and unscheduled maintenance activities. Scheduled maintenance work orders are derived from manufacturer operation and maintenance manuals, supplemented by Staff expertise. The work order system efficiently records non-routine and unplanned maintenance activities. Operations Staff document the actions taken, and then subsequent follow-up work is planned and executed to ensure comprehensive maintenance coverage.

Table 4 shows a summary of major maintenance and repair activities completed for the Stormwater Management System. Appendix A includes a table summarizing capital projects completed, on-going, and future for the reporting period.

Table 4: Summary of Major Maintenance and Repair Activities

Type of Activity	Inspection Frequency	Number Completed	Description
Storm Sewer Relining	As required	~0.524 km	• Repairs part of road reconstruction projects.
Ditch Slope Reinstatement	As required	~4.345 km	• Repairs based on condition assessments.
Maintenance Hole Repairs and Replacements	As required	4	• Includes new frame and cover installations, spray lining, parging to stop roots, fill voids and reduce infiltration.
Storm Mainline Repairs	As required	19	• Completed based on CCTV Inspection Program.
OGS Cleanouts	1 per year	11	• Cleanout frequency based on sediment design capacity.
Catchbasin Cleanouts	5 to 7 years	2049	• Inspections completed after cleanout • Includes ROW and off-set catch basin cleaning.
Catchbasin Repairs and Replacements	As required	131	• Excavations, repairs, lead pipe repairs, and replacements.
Storm Sewer Flushing / Cleaning	As required	38.6 km	• Flushing completed under the CCTV Inspection Program.
SWMP Cleanouts and Repairs	10 years	4	• Sediment removal and cleanout along with repairing/rehabilitating deficiencies identified.
Creek Maintenance	As required	671	• Tree and garbage removal.
Culvert Replacements	As required	4	• Repairs based on condition assessments.

8.0 Complaints & Responses

The City of Brantford receives customer complaints through the City's Customer Service Call Centre, or sometimes complaints are directed to individual Departments. During the reporting period, a total of 349 complaints were received in regards to both the storm sewer and sanitary collection systems. Table 5 provides a summary of complaints received during the reporting period and steps taken to address the complaints.

Table 5: Summary of Complaints and Actions Taken

Type of Compliant(s)	Complaints	Actions Taken
Stoppage/Back-ups	170	• All complaints were investigated and addressed by City Staff. • Some incidents were identified as private plumbing issues (no issues identified on the City side), but the City performed the work to clear the stoppage/backup. • Some incidents identified issues on the City side, which resulted in maintenance/repairs.
Odour Complaints	12	• All complaints were investigated and addressed by City Staff. • Some incidents were identified as private plumbing issues (no issues identified on the City side). • Some incidents identified stoppages/back-up issues, which resulted in maintenance/repairs.
Catchbasin Complaints	10	• All complaints were investigated and addressed by City Staff.
Drainage System Complaints	157	• All complaints were investigated and addressed by City Staff. • Types of complaints include: flooding, catch basin and maintenance hole repairs/maintenance in ROW, fallen trees, garbage, creek/stream complaints related to the drainage system.
Total	349	• Total for both the stormwater collection system and sanitary collection systems.

9.0 Spill(s) or Abnormal Discharge Event(s)

9.1 Spills and Abnormal Discharges

AAll incoming spill incidents were managed by the Environmental Services Department. Efforts to contain such spills were typically executed using absorbent materials and booms with the impact on the environment frequently reported to be minimal or non-existent.

Industrial firewater spills were handled by installing booms and employing vacuum trucks to manage and remove/divert the firewater, resulting in minor or no reported environmental impacts were observed. The MECP's Spills Action Center (SAC) and/or MECP Environmental Officers assigned were regularly kept informed, as required. For the 2025 reporting period compared to 2024, there appears to be an increase in reported spill incidents; however, this is attributable to the realignment of the City of Brantford's spill reporting criteria with the Ministry's requirements under O. Reg. 675/98. A complete summary of these spill incidents can be found in Table 6..

Table 6: Summary of Spills and Abnormal Discharge Events

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
1	01-04-2025	Private CB which outlets to open drain #03F454OF that eventually discharges to Fairchild Creek.	• Gasoline leak in a private parking lot entered CB to storm system.	Unknown	Unknown	• Absorbent granular applied to ground spill. • Booms placed at receiving stream outfall. • 2 CBs were cleaned out. • SAC was notified.
2.	01-10-2025	Stormwater manage-ment pond #10F001DP which eventually discharges to a tributary of Fairchild Creek.	• Confirmed residential sanitary to storm cross connection.	Unknown	Unknown	• Smoke testing confirmed cross connection. • Cross connection was rectified 4/25/2025 • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
3.	01-21-2025	Contained on site. No impact to the environment.	• Rubber fire monitored for stormwater impacts.	Unknown	Unknown	• Fire water became frozen on site. Frozen fire water was removed and brought to landfill. • Precautionary booms were placed. • SAC was notified.
4.	01-29-2025	Outfall #03F590OF/ Open drain that eventually discharges to Fairchild Creek	• Cooking oil spilled to a private catch basin and entered the receiving drainage creek.	Unknown	Unknown	• Spill containment measures installed at outfall and subsequent monitoring areas throughout the creek. • Some material was immobilized in frozen creek. • Third party cleanup company was contracted to monitor and clean the site. • SAC was notified.
5.	01-31-2025	Outfall #06M222OF/ Mohawk Canal which eventually discharges to the Grand River.	• Material was discovered at a storm outfall during a rain event.	Unknown	Unknown	• Booms were installed, containing the material at the outfall. • SAC was notified.
6.	04-08-2025	Stormwater management pond #10F003DP which eventually discharges to a tributary of Fairchild Creek.	• Sanitary to storm cross connection was discovered.	Unknown	Unknown	• Smoke testing confirmed cross connection. • Cross connection was rectified 03/03/2025. • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
7.	04-25-2025	Private drains. Non-issue. No impact to the environment.	• Report of oil dumped into drains.	Unknown	Unknown	• Potential spill reported to the City by SAC, stating garage employees were dumping oil in drains. • Garage was inspected and no oil disposal issues were noted. Oil waste drums in good condition. Interceptor in good condition. Spill kits available. • SAC was updated.
8.	05-14-2025	Private drains. No impact to the environment.	• Ice rink melt water containing paint/clay material (Jet Ice) entering private CB.	Unknown	Unknown	• Ice rink was being removed and melted in lot on a sand pad. Clay material (Jet Ice) is used to colour the rink. Material was seen entering a CB. • Rink staff reinforced a sand berm to contain the melt. • Road CBs were checked, no material observed. • Affected private CBs were cleaned out. • Once ice melted, sand pad was removed. • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
9.	05-25-2025	Private drains. Non-issue. No impact to the environment.	• Report of food waste washed into drains.	Unknown	Unknown	• Potential spill reported to the City by SAC, stating restaurant employees were washing food waste into CBs. • Restaurant was inspected and it was found that a new employee emptied steam table water onto the ground (lacked proper training). No food waste was observed. • SAC was updated.
10.	05-28-2025	Private CB to a drainage ditch that eventually discharges to Fairchild Creek.	• Tire fire water entering a private CB.	Unknown	Unknown	• Precautionary booms placed at outfall. • Haybale swale and filter cloth captured solid material and rubber crumb. Swale was cleaned and replaced. • Private CBs were cleaned. • SAC was notified.
11.	06-04-2025	Contained on site in a private parking lot. No impact to the environment.	• Private sanitary MAH overflowing to a nearby CB	Unknown	Unknown	• Sanitary grease blockage was cleared. • Private CBs were cleaned out. No material seen at the road. • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
12.	06-04-2025	Private CB that outlets to private stormwater pond #03F003DP, which discharges to a drainage ditch and eventually enters Fairchild Creek.	• Cooking waste oil being dumped into a private CB.	Unknown	Unknown	• Oil seen impacting private stormwater pond. • Several layers of booms placed throughout pond, containing and absorbing the material. No material spotted upstream. • Inspections of all restaurants at rest stop took place. • Waste oil disposal area was cleaned and moved away from any CBs. • SAC was notified.
13.	6-11-2025	Contained to roadway. No impact to the environment.	• Bus coolant leaked on roadway.	Unknown	Unknown	• Reported to SAC by a resident. • Road spill was contained. Absorbent granular was applied and removed.
14.	6-15-2025	CB #18G049 which eventually outlets to the Grand River	• Bus coolant leaked on roadway and into a nearby CB.	Unknown	Unknown	• Absorbent granular was applied and removed. • CB was cleaned out. • SAC was notified.
15.	06-19-2025	Outfall #03F001OF Open Drain that eventually discharges to Fairchild Creek	• Industrial facility stormwater runoff found to be above stormwater by-law limits.	Unknown	Unknown	• Industry notified SAC • Industry completed water sampling upstream and downstream. • In process of improving treatment process.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
16.	06-22-2025	Contained to fueling station. No impact to the environment.	• Diesel pooling below a fuel pump.	Unknown	Unknown	• Spill was reported to the City by SAC. • Pump was shut down. • Absorbent granular was applied and removed. Material did not enter a CB or the environment.
17.	06-24-2025	CB #26G-CB6337 which eventually discharges to the Grand River.	• Hydrocarbon spilled on the roadway and entered a CB.	Unknown	Unknown	• Absorbent granular was applied and removed. • CB was cleaned and material was removed. • SAC was notified.
18.	07-04-2025	Stormwater management pond #34G005DP which eventually discharges to the Grand River.	• Report of cooking oil dumped into a CB.	Unknown	Unknown	• CB was checked and no material was observed. • Trace amounts of oil seen at outfall. Booms were placed as a precaution. • Educational flyers were distributed in neighbourhood. • SAC was notified.
19.	07/08/2025	CB #32G-CB4042 which outlets to a drainage ditch at outfall #352G259OF	• Automotive oil leaking onto roadway and into a CB.	Unknown	Unknown	• Absorbent granular was applied and removed. • CB was cleaned out. • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
20.	07/11/2025	Private CB which eventually discharges to Fairchild Creek	• Cooking oil observed in a CB.	Unknown	Unknown	• CB was cleaned out by company. • Oil did not reach storm sewer on the road. • SAC was notified.
23.	08/01/2025	Private CB to a drainage ditch/creek that eventually discharges to Fairchild Creek.	• Tire fire water entering a private CB and receiving drainage creek.	Unknown	Unknown	• Two rows of booms placed at outfall and in drainage creek. • Vac truck deployed to skim creek as fire water entered. • Private CBs were cleaned. • No evidence of fire water downstream. • SAC was notified.
24.	08/06/2025	CB #03F-CB15043 which outlets to drainage creek #03F327OF and eventually discharges to Fairchild Creek.	• Bus coolant leaked on roadway and into a nearby CB.	Unknown	Unknown	• Absorbent granular was applied and removed. • CB was cleaned out. • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
25.	09/02/0205	Private drains. Non-issue. No impact to the environment.	• Report of paint dumped into drains.	Unknown	Unknown	• Potential spill reported to the City by SAC, stating autobody shop employees were pouring paint into storm drains. • Auto shop was inspected and no evidence of improper paint disposal was noted. Owner showed proper procedures are in place for paint disposal and pick up and had properly sealed and vented paint rooms with no drains. • SAC was updated.
26.	10/02/2025	CB # 09G-CB8587 to main storm line MAH #09G086 which eventually discharges to the Grand River.	• Commercial truck's hydraulic line blew and entered CB.	Unknown	Unknown	• Absorbent granular was applied to roadway and cleaned up. • Vac truck deployed to flush CB and storm line, capturing material downstream in a storm MAH. • SAC was notified.
27.	10-14-2025	Private lot.	• Improper septic discharge on private property.	Unknown	Unknown	• Building inspector and property standards department were called on site to assess. Case was closed. • SAC was notified.

Number	Date(s)	Location/ Receiver	Description of Spill / Event	Estimated Duration (Hr)	Estimated Volume (L)	Actions Taken
28.	11/24/2025	CB #21G-CB13513 which eventually discharges to the Grand River.	• Cross connection from residential sanitary to storm line.	Unknown	Unknown	• CCTV confirmed cross connection. • Cross connection was rectified on 12/02/2025 • SAC was notified.
29.	12/24/2025	Groundwater overflow.	• Groundwater dewatering system overflow.	Unknown	Unknown	• Dewatering pumps had been tampered with. • Pumps were restarted and system functions were restored. • SAC was notified.

Table 7: Efforts Made to Reduce Spills or Abnormal Discharge Events

Activity	Description	Assessment of Effectiveness
Sewer Use By-law Program	• Regulates the discharge of sewage entering the City's Collection Systems. • Education and outreach program designed to inform dischargers about the City of Brantford's storm-water system and what they can do to help reduce impacts to the environment. • Monitor, control and reduce the impact of spills.	• Successfully contributed to the GRCA Children's Water Festival. 4th grade classes from schools in Brantford, Brant and Six Nations were educated on the different storm water and sanitary systems within Brantford. • 39 Industrial Inspections, 2 Automotive Shop Inspections and 21 Restaurant Inspections successfully completed in 2025. All issues were immediately addressed and future inspection timelines based on inspection results. • Total of 7 active Compliance Agreements, 0 new Compliance Agreements and 1 Compliance Agreement Amendment was created in 2025 to help bring industry discharge to within bylaw limits.
Stormwater Monitoring Program	• Routine monitoring of stormwater at various locations in the City's drainage network, including | baseline and wet-weather sampling. • Results are used as baseline benchmark data.	• 356 samples taken in 2025, providing valuable background stormwater quality trending data which allowed staff to identify areas of concern for investigation activities.
I&I Source Investigation and Remediation Program	• Quantifying I&I and planning for the remediationand long-term performance of the collection system. • Includes CCTV inspections of private laterals in targeted areas. • Smoke testing and dye testing, as required.	• 29 sanitary flow monitoring locations in the sanitary collection system. • 33 stormwater flow monitoring locations in the stormwater collection. • Remedial actions on-going.
CCTV Sewer Inspection Program	• Employs the use of proactive closed-circuit television (CCTV) inspections to identify Cross Connections / Illegal Connections. • Reducing I&I by identifying sanitary sewers in poor condition requiring rehabilitation.	• Program effectively identifies sanitary lateral cross connected to the storm sewer system for remediation.

Activity	Description	Assessment of Effectiveness
Private Sewer Lateral Replacement Grant Program	• Annual Program. • The Private Sewer Lateral Replacement Grant Program assists residents with the cost of replacing old sanitary sewer laterals on private property, or the disconnection of weeping tile systems from sanitary.	• Successfully relined 31.5km of storm sewers, increasing the performance and extending the life of the storm sewer network.
Sewer Lateral Rehabilitation and Repairs Program	• Annual Program. • The Sewer Lateral Rehabilitation and Repairs Program covers the costs for replacing sanitary laterals (City side) identified in poor condition by the CCTV Inspection Program.	• Unable to assess effectiveness since no CSO's or emergency situations requiring the Overflow Tanks has occurred.
Sewermain Relining Program	• Relining sewers identified during CCTV in need of repair. • Reducing I&I to improve the sewer collection system	• Successfully relines sewers, increasing the performance and extending the life of the storm sewer network.
ROW Reconstruction Capital Projects	• Capital projects include the replacement of sanitary and storm sewers in the ROW and laterals to property line.	• Improve performance of the existing collection system by increasing capacity, extending service life, and reducing I&I.
WWPS Capital Upgrades	• Identified WWPS upgrades include construction of new Emergency Sanitary Overflow Storage Tanks to allow for diversion of sewage in an emergency event – eliminating the potential for CSO.	• Unable to assess effectiveness since no CSO's or emergency situations requiring the Overflow Tanks has occurred.
WWPS Contingency Plans	• The City is currently in the progress of completing Contingency Plans for WWPS – 3 Plans complete thus far. • Outcome of assignment is delivery of a practical plan for maintaining station flows thereby mitigating risk when planned or unplanned station outages and disruptions occur.	• Unable to assess effectiveness, Contingency Plan has not been required.

10.0 Summary of Pre-Authorized Alterations to the System

During the reporting period there were no Director Notifications required.

Table 8 provides a summary of Stormwater Management System Alterations approved during the reporting period and alterations classified as Significant Drinking Water Threats. Some alterations may be approved in one year, but construction may not be completed until the following reporting year.

Table 8: Summary of Stormwater Management System Alterations

Alteration Type	No. of Alterations	No. of Alterations that Pose Significant Drinking Water Threat
Pre-Authorized Separate Sewers, Ditches, Culverts	5	0
Pre-Authorized Stormwater Management Facilities	4	0
Pre-Authorized Third Pipe Collection System	0	0
Previously Approved Works	0	0
Schedule C Works	0	0

10.1 Alterations that Pose Significant Drinking Water Threats

For the reporting period, one project was identified under the Stormwater Management System ECA as Significant Drinking Water Threats.

Further details regarding projects identified as Significant Drinking Water Threats can be found in the Annual Significant Drinking Water Threat Assessment Report for Proposed Alterations prepared prior to October 21st each year.

10.2 Major/Significant Alterations

For the reporting period, the major/significant alterations completed to the Stormwater Management System ECA included:

- Arrowdale Park Project located at 282 Stanly Street. The project includes pre-authorized alterations to the Municipal Stormwater Management System; construction of storm sewers, bioswales, and two stormwater management dry ponds to water quality and water quantity control.

11.0 Other Relevant Documents

11.1 Stormwater Master Plan

The City of Brantford completed a Master Servicing Plan (MSP) Update to 2051 in November 2021.

The objective of the MSP is to provide a comprehensive plan that incorporates all facets of the management, expansion and funding of the water, wastewater and stormwater systems for the entire City to the year 2051. This document reviewed in detail plans to 2051 and more broad implications beyond 2051.

11.2 10-Year Capital Project Forecast – 2023

The City of Brantford maintains a 10-year capital forecast which incorporates upcoming projects for the period of 2023 – 2032. Within this capital forecast are projects that will assist in eliminating infrastructure that has reached the end of its lifecycle and upgrade compromised materials to the latest design standards.

9 includes a summary of capital programs and upgrades for the Stormwater Management System. A full detailed overview of the City's 10-Year Capital Forecast can be found on the City's website.

12.0 References

1. 2025 Annual Significant Drinking Water Threat Assessment Report for Proposed Alterations, written by Source Water Protection Department

2. 2025 Calibration Reports

3. Cartegraph Work Orders and Service Requests

4. Customer Relationship Management (CRM) System Requests

5. City of Brantford. 2024. Water Services and reports. https://www.brantford.ca/en/living-here/water-services-and-reports.aspx [brantford.ca]

6. GRCA. 2006. Exceptional Waters resource management plan: Paris to Brantford. https://www.grandriver.ca/our-watershed/fisheries-management/exceptional-waters/ [grandriver.ca]

7. GRCA. 2016. Water Quality in the Grand River: A Summary of Current Conditions (2000-2004) and Long Term Trends.

8. GRCA. 2021. Update on water quality in the Grand River. https://www.grandriver.ca/media/2fnduksp/va-gm-01-21-04-water-quality-update.pdf [grandriver.ca]

9. Stormwater Management Operation and Maintenance (O&M) Manual

10. Lam, W. Y., D. Lembcke, and C. Oswald. 2020. Quantifying chloride retention and release in urban stormwater management ponds using a mass balance approach. Hydrol. Process. 34: 4459–4472. doi:10.1002/hyp.13893

Detailed summary reports that present information regarding maintenance, inspection, monitoring data, etc. are available upon request by contacting the Environmental Services Department.

CITY OF BRANTFORD