

Corporation of the City of Quinte West

Stormwater Collection System

2023 Annual Performance Report



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Public Works and Environmental Services

Water/Wastewater Division

2023 Annual Performance Report

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Executive Summary

The Municipal Stormwater Management (SWM) System serving the City of Quinte West drainage area, is a separate system for stormwater (i.e. not designed to convey sanitary sewage, combined sewage) within the Lower Trent River watershed. The Municipal SWM System consists of storm sewers, culverts, ditches, Stormwater Management Facilities (SWMF) and outlets.

The City of Quinte West is responsible for over thirty (30) SWMF, with several more to be assumed in the next few years. Below is a table of the City's SWMF, and type, if applicable.

Stormwater Facility	Location	Description	Year Of Construction or ECA Issuance
Zion Road	Trenton	dry pond	1993
Ireland Drive / Bleecker Ave Subdivision	Trenton	Wet Pond	1994
White Oak Court	Trenton	Dry Pond	1994
Senators Woods	Trenton	Constructed Wetland. Does not have a forebay. Inlet flows controlled by Weir	1995
Canadian Tire	Trenton	Wet Pond	1995
Scott Subdivision	Trenton	Dry Pond	1996
Scott Subdivision	Trenton	Dry Pond	1996
Montrose Road	Trenton	dry pond	1997



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Crestview Lane	Trenton	Wet Pond	1999
Forest Ridge Subdivision	Frankford	Wet Pond. Outlets between 224 and 236 Riverside Parkway	2002
Brett Park	Trenton	Wet Pond	2005
Applecrest Subdivision	Trenton	Stormceptor 750 dia.	2006
Lester Road / Scardino	Trenton	Wet pond inlet ditches and outlet structure	2007
Tremur Lane Subdivision	Trenton	Infiltration / Spreader Berm	2007
Antonia Heights	Frankford	Wet Pond	2008
Montrose Ditch	Trenton	Enhanced Grass Swale	2008
Appledene Subdivision	Trenton	Constructed Wetland	2009
Pine Marsh Lane	Trenton	Downstream Defender 1800 dia. / 1200 dia.	2009
Bayswater	Trenton	Dug pond - swishback, level spreader swale between yards	prior to 2010
Victoria Avenue	Trenton	Dry Pond	prior to 2010
Freedom Crescent	Trenton	Wet Pond	2011
Brookshire Meadows North Pond	Trenton	Wet Pond	2012
North Murray Street DND Creek Pond # 1	Trenton	Wet Pond	2012
North Huff Avenue	Trenton	wet pond	2012/13



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Rosewood Subdivision	Frankford	Pond Glenwood St. Outlet to N Trent Street; 2 Oil/ Grit separators and dry pond	2013
2nd Dug Hill Road Pond	Trenton	Wet Pond	2015
Applegrove Acres Ph 1 & 2	Trenton	Wet Pond / Stormceptor	2015
Orchard Lane Phase 1 and 2	Trenton	Wet Pond	2015
Stonecrest Estates	Trenton	Wet Pond	2015
PW Operations Building	Trenton	Stormceptor 600 dia. and infiltration detention area by the parking lot with orifice/restrictor plate	2017
2nd Dug Hill Road - Marsh	Trenton	Marsh - constructed wetland	2018
Orchard Lane Phase 3 and 4	Trenton	Wet Pond	2019

This annual report has been prepared according to the requirements in Schedule E of the Quinte West Stormwater Collection System CLI ECA. The annual report should include:

- *Includes a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the Authorized System and any Adverse Effects on the Natural Environment;*
- *Includes a summary and interpretation of environmental trends based on all monitoring information and data for the previous five (5) years;*
- *Includes a summary of any operating problems encountered and corrective actions taken;*



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- *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System;*
- *Includes a summary of the calibration and maintenance carried out on all monitoring equipment;*
- *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints;*
- *Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat;*
- *Includes a summary of all spills or abnormal discharge events;*
- *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System; and*
- *Includes a summary of the status of actions for the previous reporting year.*



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Summary and Interpretation of Monitoring Data

At this time, the City is waiting for the Ministry of the Environment and Climate Change (MECP) Stormwater Guidance Document to develop a comprehensive sampling program for its SWM infrastructure.

Summary of Interpretation of Environmental Trends

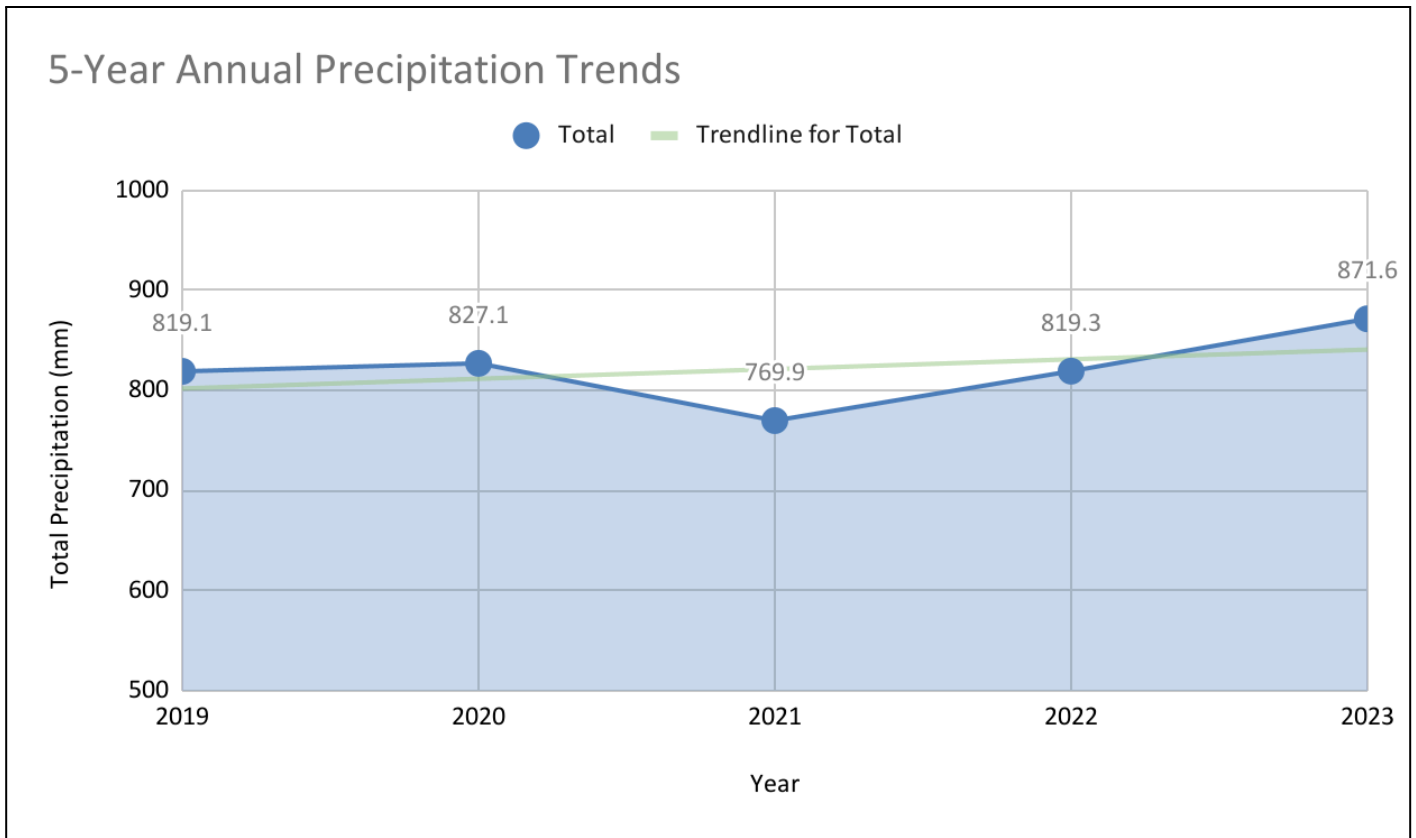
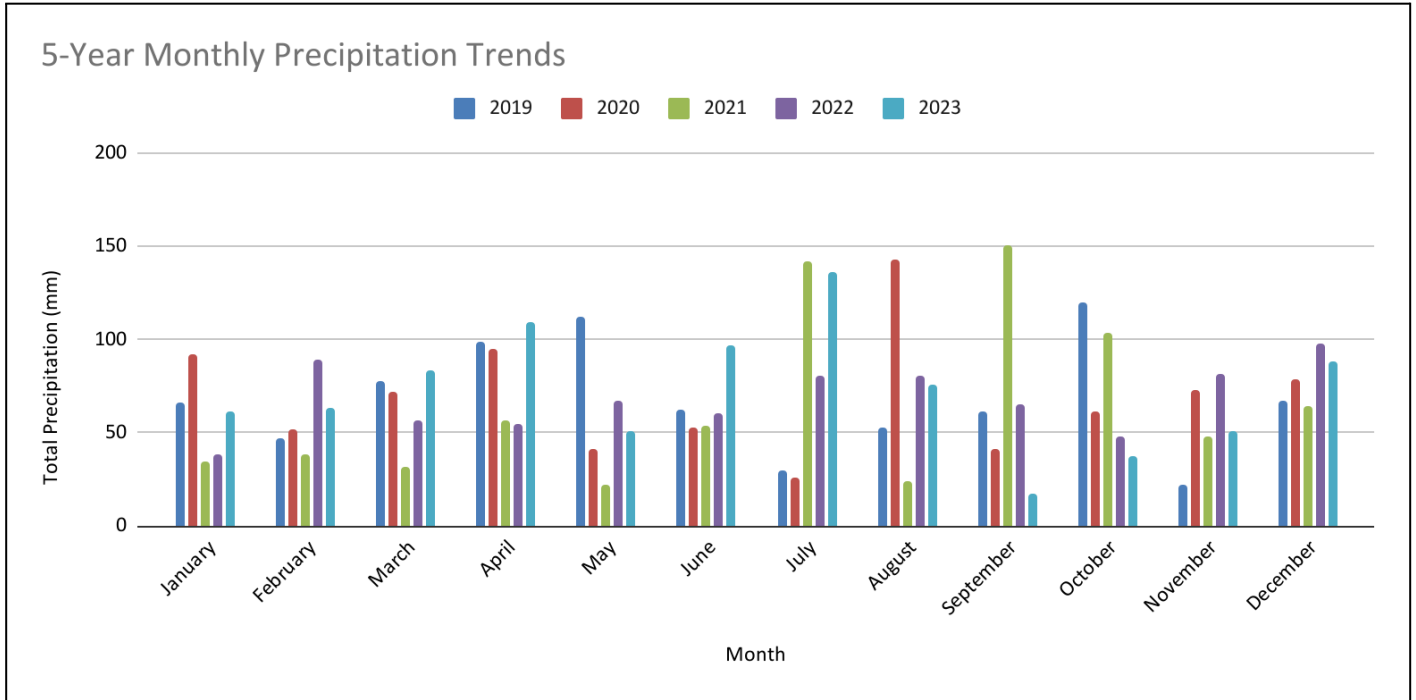
Below is a summary of weather data collected from the Belleville, ON Monitoring Station. This data was collected from Belleville, due to the lack of reliable and consistent data from the monitoring stations located in Trenton, ON over the previous 5-year period. As outlined in the Environment and Climate Change Canada's (ECCC) *Climate Trends and Variations Bulletin - Annual 2023*, that as precipitation monitoring continues to evolve and transition from manual observations to automatic precipitation gauges, it is anticipated that data collection and trends will become more reliable.

As demonstrated in the figures below, there doesn't appear to be a consistent correlation between the month and the amount of precipitation received. Over the 5-year period the month of max precipitation varies, however each year did experience the month with the most amount of precipitation in the second half of the year (between July-December). Of note, the 5-year trend for total amount of precipitation year-over-year has seen a gradual increase.



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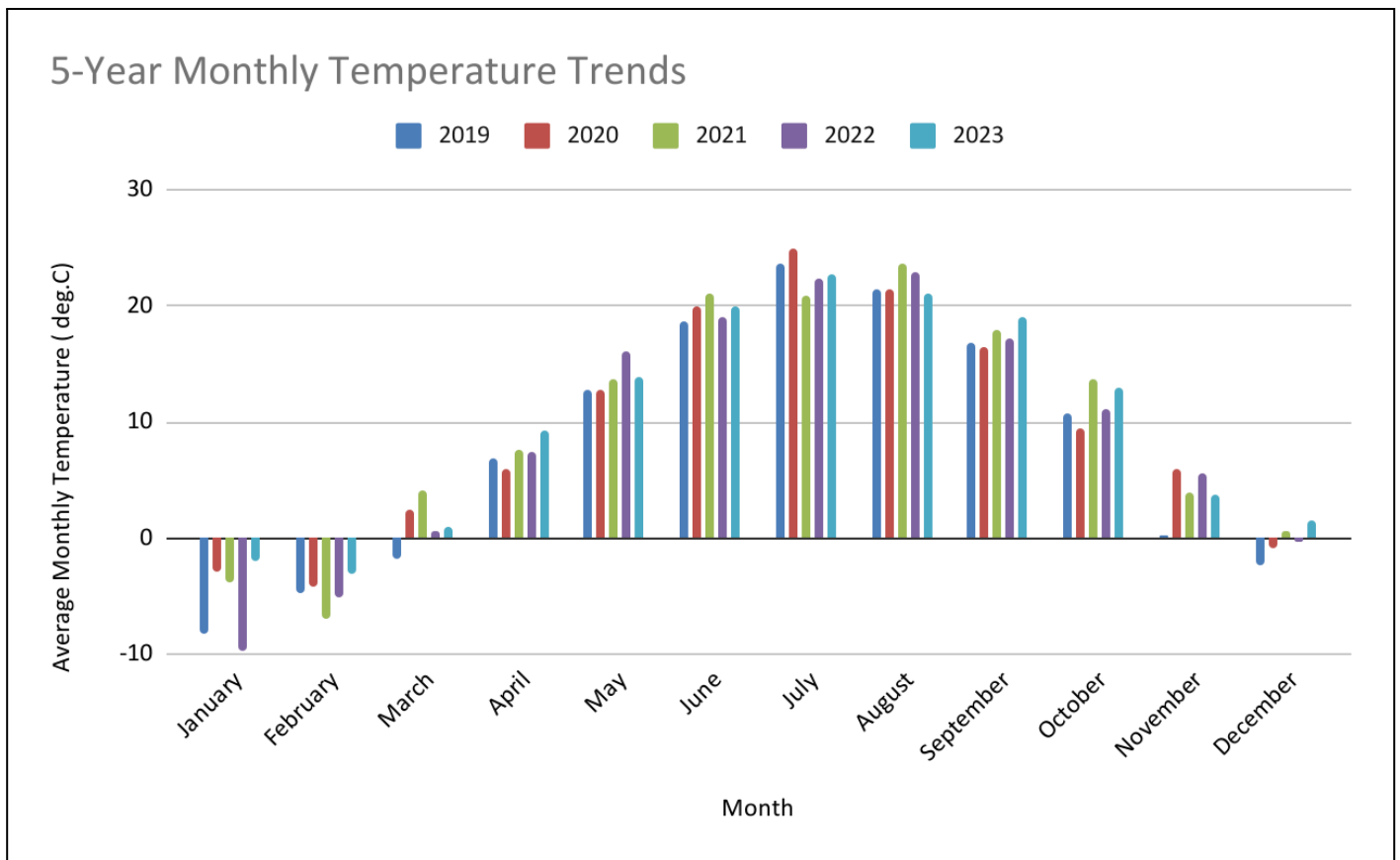




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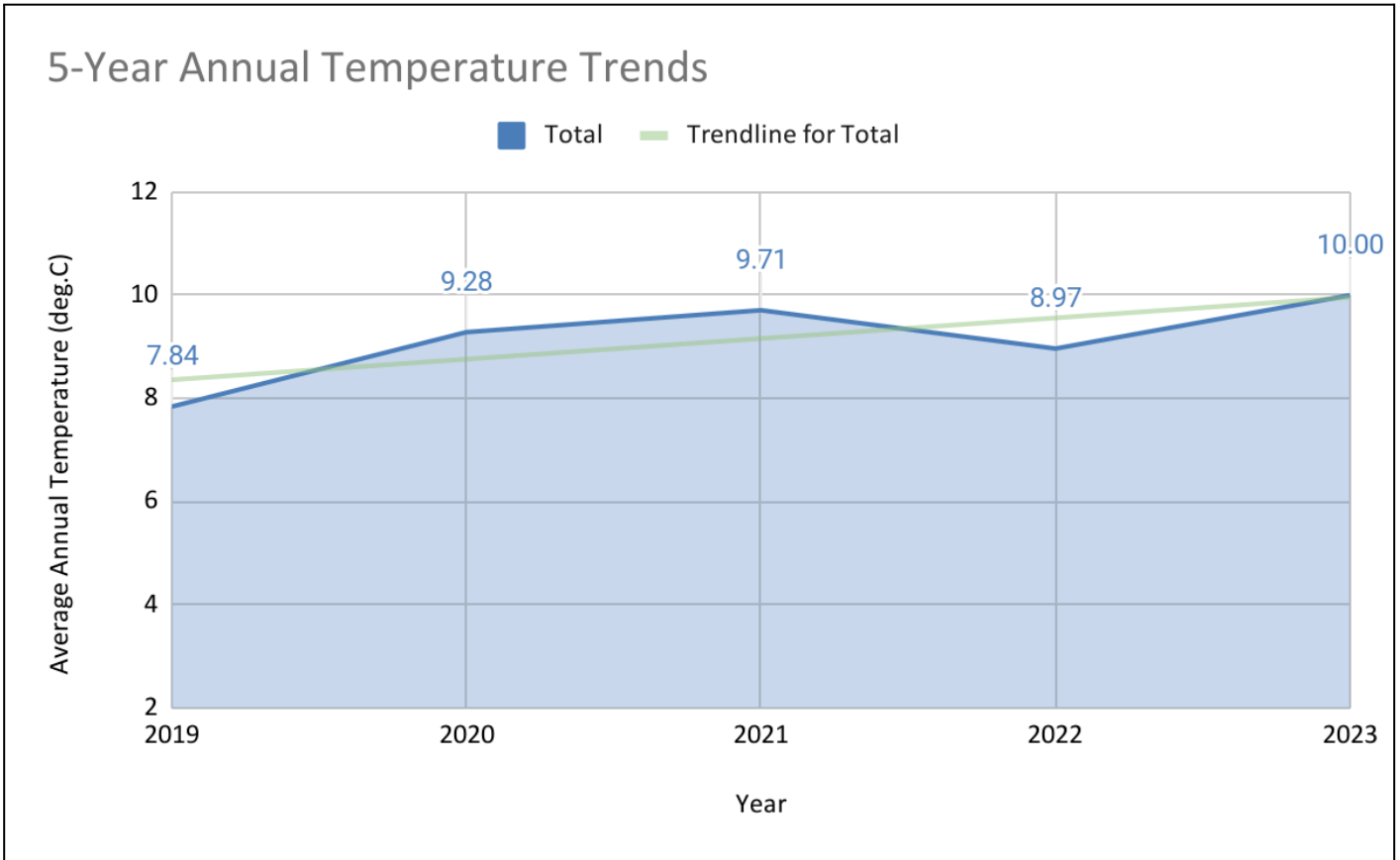
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As shown in the temperature data collected below, the correlation between temperature and month are fairly consistent across the 5-year period. As expected, the trends tend to follow the seasonal temperature expectations for each month, with the greatest temperatures tending to occur during the summer, while the cooler temperatures generally occur in the winter period. Of particular note, the average temperature over the 5-year period is showing a gradual increase, consistent with data presented in the ECCC's *Climate Trends and Variations Bulletin - Annual 2023*.





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Summary of Operating Problems throughout Monitoring Period

Generally the Stormwater Collection System operated as intended throughout the monitoring period.



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Summary of Maintenance performed throughout Reporting Period

With the implementation of the City's Stormwater Collection CLI ECA in June of 2022, the City has taken steps to strengthen an active preventative maintenance program. SWMF are maintained by Public Works staff on a regular basis to ensure ponds do not become overgrown, safety equipment is in place, etc.

The following is a summary of repair and maintenance activities completed during the reporting period:

- Flushing & vacuuming various culverts
- Flushing various storm sewers
- CCTV various storm sewers
- Cleanouts of various catch basin
- Culvert installations
- Film Street catch basin and storm pipe installation
- Storm sewer repair Francis St
- Ditching on Bayswater Rd & Fraser Rd
- Stormceptor Cleanouts
- Storm sewer flushing and repair on Queen St - William St

Flow Monitoring Equipment Calibration and Maintenance

The City does not currently have any flow monitoring equipment in place in the Stormwater Collection System. As the Ministry's Stormwater Guidance Document is released and the City continues to develop its Stormwater Management program this is something the City will consider in the future.

Summary of Complaints Received throughout the Reporting Period

The City encourages public engagement via social media campaigns, newspaper ads, and on the Quinte West website. The City welcomes customer feedback through the use of our website customer service reporting tool, as well as a direct phone extension to the Public Works department.



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Below is a summary of customer-initiated inquiries that were received during the reporting period, grouped by service area, and nature of call.

Service Area	Category	Total Number of Inquiries
Bayside	Ditching/ Ditch Fill In	12
Bayside	Culverts/ Culvert Installation	9
Bayside	Storm Sewer Maintenance	1
Batawa	Ditching/ Ditch Fill In	1
Batawa	Culverts/ Culvert Installation	1
Frankford	Ditching/ Ditch Fill In	6
Frankford	Culverts/ Culvert Installation	2
Frankford	Storm Sewer Maintenance	2
Frankford	Drainage Issues	2
Sidney	Ditching/ Ditch Fill In	7
Sidney	Culverts/ Culvert Installation	4
Sidney	Drainage Issues	2
Stirling	Ditching/ Ditch Fill In	2
Stirling	Culverts/ Culvert Installation	2
Trenton	Ditching/ Ditch Fill In	12
Trenton	Culverts/ Culvert Installation	11
Trenton	Storm Sewer Maintenance	4
Trenton	Drainage Issues	8



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Summary of all Alterations to the Authorized System

During the Reporting Period the following Forms were submitted as Alterations to the Authorized System. Of note, not all projects submitted during the Reporting Period (listed below) have been completed at the time of this report.

Form	Project Name	Submitted By
Form SW1	Prince Edward Estates	Developer
Form SW1	Windover Street	Developer
Form SW2	Windover Street	Developer
Form SW1	Trailside Crescent	Developer
Form SW2	Trailside Crescent	Developer
Form SW2	2nd Dug Hill Rd	City
Form SW1	Carrying Place Industrial Park	City
Form SW2	Carrying Place Industrial Park	City

See [Appendix A](#) for the Significant Drinking Water Threat (SDWT) Assessment Report for Proposed Alterations to the Sanitary Collection System and/or to the Stormwater Collection System.

Summary of Spills or Abnormal Discharge Events throughout the Monitoring Period

There were no Spill(s) or Abnormal Discharge Events to report for the monitoring period.



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Summary of Actions Taken to Improve the Authorized System

In addition to the City's maintenance efforts outlined in section, [Summary of Maintenance performed throughout Reporting Period](#), the City also allocates funds to Stormwater Maintenance as part of its Capital Program. The Capital Program, in conjunction with the City's Asset Management Program uses lifecycle factors and levels of service to prioritize which underground infrastructure requires replacement.

Below is a summary of expenditures that occurred throughout the reporting period, followed by estimated budgetary requirements for 2024.

2023 Expenditures

- Flush and camera storm sewers ~ \$28,000
- Culvert maintenance ~ \$15,000
- Catch basin maintenance ~ \$117,000
- Ditching ~ \$54,000
- Stormceptor Cleaning ~ \$13,000
- Storm sewer repairs ~ \$51,000
- Stormwater pond outlet alteration and rechannelization, 2nd Dug Hill Rd ~ \$450,000
- Install SWMF Carrying Place Industrial Park ~ \$490,000

2024 Expenditures

At the time of this report the City is working with a third-party Engineering Firm to complete comprehensive SWMF Assessments. This will help determine the next steps for the City's SWMF maintenance program, as well as budget for additional maintenance in future years, as required. For 2024, the City has budgeted approximately \$82,500 as part of the Operations budget for Engineering and facility maintenance.

Proactive Efforts & Next Steps

In 2019 the City contracted a third-party Engineering Firm to construct a calibrated stormwater collection system hydraulic model of the City of Quinte West's Stormwater Collection System. The intent of this calibrated hydraulic model was to assess the current capacity of the system and identify available capacity for growth.



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With the implementation of the City's Stormwater Collection System CLI ECA in September of 2022, the City now has the ability to utilize the calibrated hydraulic model to ensure available capacity before approving any Alterations to the Authorized System. The City's Engineering Standards establish appropriate design alternatives that do not include connections to the Sanitary Collection System.

As outlined in the section [2024 Expenditures](#), the City is working with an Engineering firm to determine next steps in the SWMF preventative maintenance program, and proactively assess potential monitoring schedules. When the MECP introduces the Stormwater Guidance Document, the City will be prepared to establish its monitoring plan accordingly, in a timely manner.

Status of Actions from the Previous Reporting Year

This is the first Annual Report prepared under the City of Quinte West's Stormwater Collection System CLI ECA.



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Appendix A: Significant Drinking Water Threat (SDWT) Assessment Report for Proposed Alterations to the Sanitary Collection System and/or to the Stormwater Collection System



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Significant Drinking Water Threat (SDWT) Assessment Report for Proposed Alterations to the Sanitary Collection System and/or to the Stormwater Collection System

1. Introduction

This Assessment Report has been prepared in accordance with the City of Quinte West's Stormwater Collection System Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) 163-S701, and the Sanitary Collection System CLI-ECA 163-W601, Schedule E section 8.0 and section 7.0, respectively. Under the Stormwater Collection System and Sanitary Collection System CLI-ECA's the City must ensure that any Alteration to the Authorized System(s) is 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 (SPP). As such, this report outlines the circumstances under which any proposed alterations could pose a significant drinking water threat and outline the criteria used to determine how significant drinking water threats are assessed.

The *Reporting Period* for this Assessment Report is October 1, 2022 to October 1, 2023.

2. Circumstances Posing a SDWT and Related Policy

The activities prescribed to be drinking water threats under the Clean Water Act (CWA), 2006 are those considered to be man-made. These activities, as listed in the Act, are provided below. Activities 1-18 and 21-22 are potential threats to water quality, and activities 19 and 20 are potential threats to water quantity;

1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the Environmental Protection Act.
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.
3. The application of agricultural source material to land.
4. The storage of agricultural source material.
5. The management of agricultural source material.
6. The application of non-agricultural source material to land.
7. The handling and storage of non-agricultural source material.
8. The application of commercial fertilizer to land.
9. The handling and storage of commercial fertilizer.
10. The application of pesticide to land.
11. The handling and storage of pesticide.



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12. The application of road salt.
13. The handling and storage of road salt.
14. The storage of snow.
15. The handling and storage of fuel.
16. The handling and storage of a dense non-aqueous phase liquid.
17. The handling and storage of an organic solvent.
18. The management of runoff that contains chemicals used in the de-icing of aircraft.
19. An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.
20. An activity that reduces the recharge of an aquifer.
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard.
22. The establishment and operation of a liquid hydrocarbon pipeline. O. Reg. 385/08, s. 3; O. Reg. 206/18, s.1.

Each prescribed drinking water threat has a set of circumstances that determine whether a particular instance of the activity is a significant, moderate, or low drinking water threat in each type of vulnerable area. These circumstances reflect various aspects of the activity. For some activities, there are separate sets of circumstances that determine if the activity is a chemical threat or a pathogen threat. Chemical threats are the aspects of an activity that can result in chemical contamination of a drinking water source, and include a wide variety of substances. A pathogen threat is a micro-organism that causes disease, and often comes from human or animal waste. Some activities are both chemical and pathogen threats. The details and definitions of each prescribed threat is contained in the 2021 Technical Rules under the CWA.

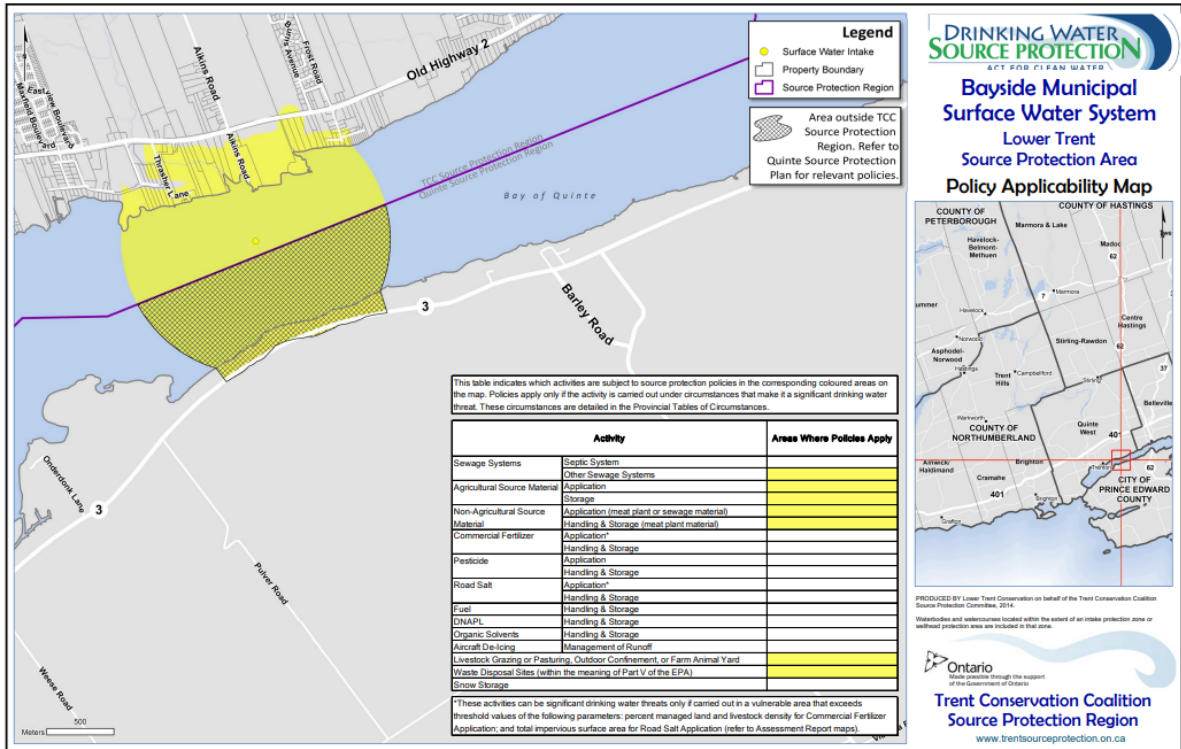
The City of Quinte West falls under the Lower Trent Source Protection Area (SPA) which, along with four other SPA's, is governed by the Trent Source Protection Plan. The Trent SPP outlines in greater detail the delineation and scoring of vulnerable areas within the Lower Trent SPA. The vulnerable areas delineated around surface water intakes are called intake protection zones (IPZ), and those delineated around groundwater wells are called wellhead protection areas (WHPA), both types occur within the Lower Trent SPA. These areas are further subdivided based on factors described in the Trent SPP. Please refer to the Policy Applicability Maps below for each drinking water system in the Lower Trent SPA.



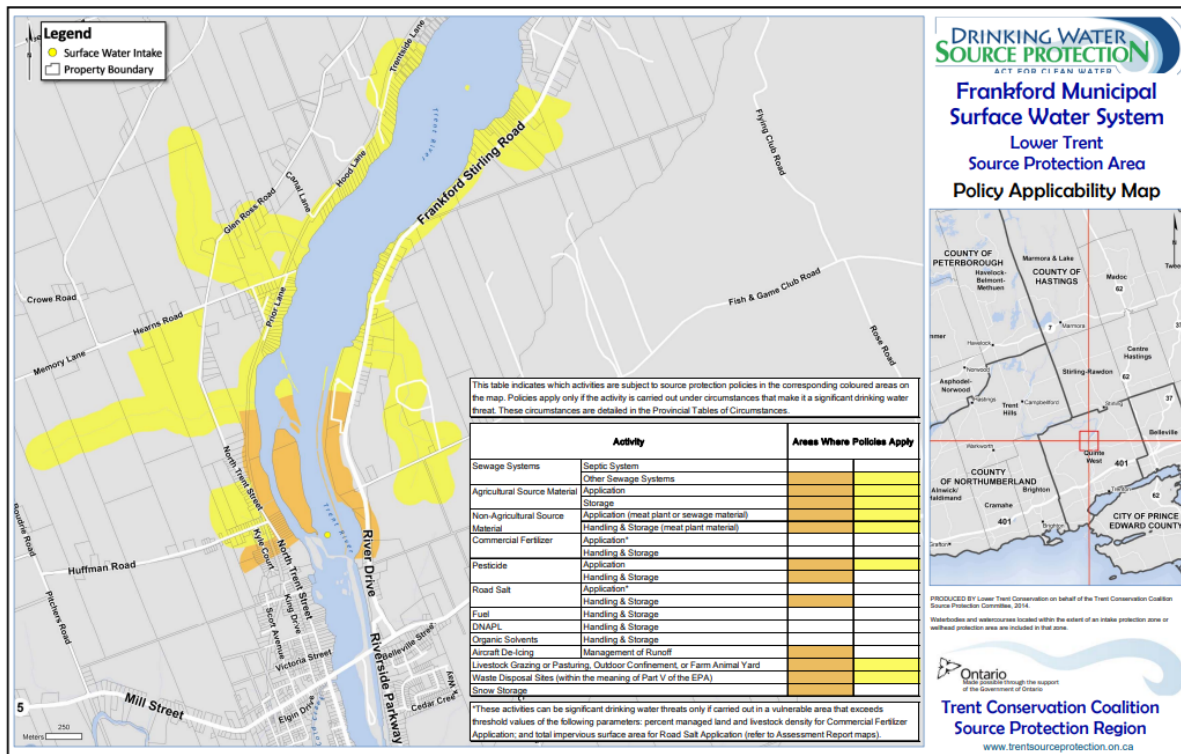
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Policy Applicability Map



Policy Applicability Map



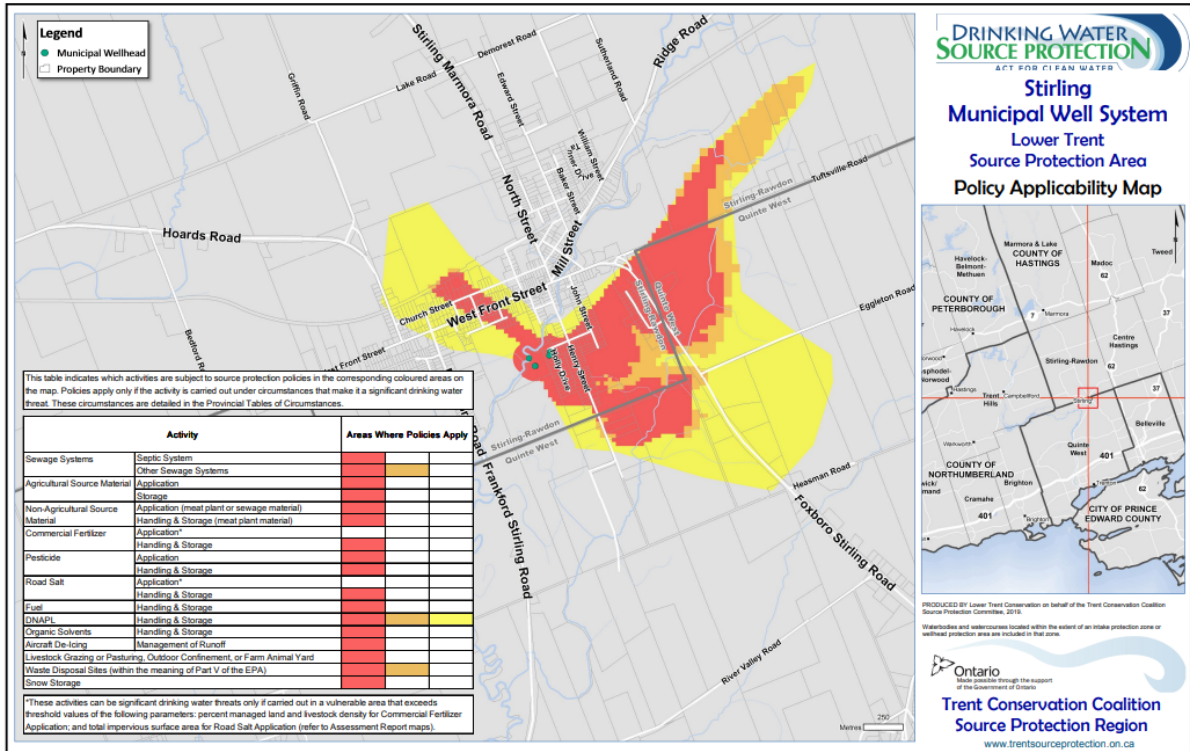
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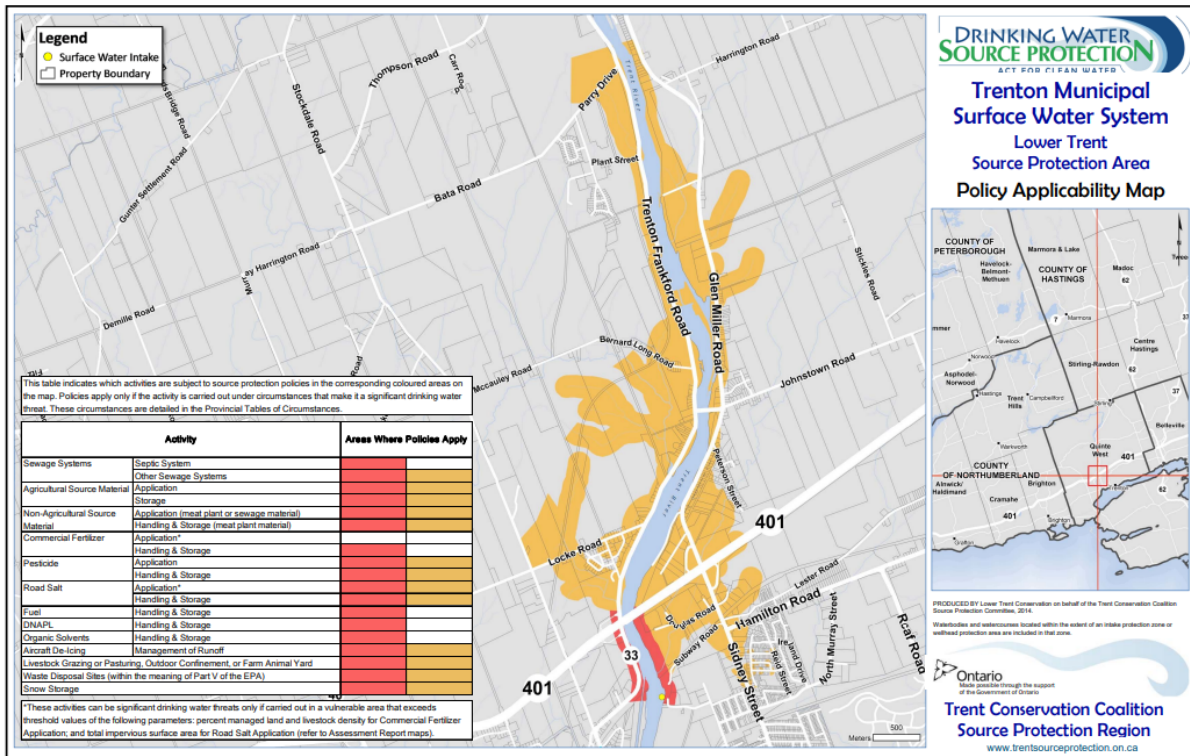
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Policy Applicability Map

Trent Assessment Report Map Reference: 5-28



Policy Applicability Map

Trent Assessment Report Map Reference: 4-14



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Under the Clean Water Act, 2006, “The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage is an activity prescribed to be a drinking water threat”. Given the variety of activities associated with sewage systems this drinking water threat is divided into several subcategories. Table 1 below is taken from *Chapter 4: Policies*, in the Trent SPP and outlines the Threat Subcategory along with applicable policies.

Table 1: Summary of Sewage System Threats

Threat Subcategory Sewage System or Sewage Works:	Applicable Policies ¹	Applicable Area ²					
		IPZ & WHPA-E			WHPA A-D		
Septic System	S-1 to S-5, S-9, S-10	10	-	-	-	10	-
Septic System Holding Tank	S-1 to S-5, S-9, S-10	10	-	-	-	10	-
Sanitary Sewers and Related Pipes	S-6, S-7, S-9, S-10	10	-	-	-	10	-
Combined Sewer Discharge from a Stormwater Outlet to Surface Water	S-2, S-3, S-9, S-10	10	9	8	-	-	-
Industrial Effluent Discharge	S-2, S-3, S-9, S-10	10	9	8	-	-	-
Storage of Sewage	S-2, S-3, S-9, S-10	10	9	-	10	8	-
Sewage Treatment Plant Bypass Discharge to Surface Water	S-2, S-3, S-9, S-10	10	9	8	-	-	-
Sewage Treatment Plant Effluent Discharges (Includes Lagoons)	S-2, S-3, S-9, S-10	10	9	8	-	-	-
Discharge of Untreated Stormwater from a Stormwater Retention Pond	S-3, S-8, S-9, S-10	10	9	8	10	-	-

Examining each threat and applicable policy is described in further detail in the Trent SPP. In order to determine whether a specific activity and/ or set of circumstances would be considered a SDWT the Policy Applicability Maps in conjunction with the 2021 Technical Rules, and Policy text would be utilized.

¹ General policies may also apply for these activities

² Indicates the minimum vulnerability score that would result in a significant threat in at least one threat circumstance



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3. Assessing Proposed Alterations

As required in Schedule E of both aforementioned CLI-ECA's, this section describes the process for assessing any Proposed Alteration(s) to identify drinking water threats as defined by the CWA.

1. When a proposed development is received by the City's Planning Department, they assess the location using our internal GIS mapping tool with the Lower Trent SPP Applicable Policy mapping filter as a layer.
2. If the proposed development falls within a vulnerable area the Planning Department flags the submission for the Risk Management Official.
3. Using the Applicable Policy Mapping, the Trent SPP, in consultation with the MECP Technical Rules, the Risk Management Official (RMO) determines whether or not the activity and circumstances are a SDWT.
4. As required, the RMO consults with the Developer and/ or Planning Department.

For Capital Projects, or projects initiated from within the City, the Department initiating the project is responsible for verifying whether the location falls within a vulnerable area, and flagging to the RMO, as required. Steps 3-4 listed above are completed.

4. List of Proposed Alterations

This section outlines the Proposed Alterations received during the *Reporting Period* that were assessed for SDWT. Any components, equipment, or Sewage Works identified as a SDWT will remain in this section of the report for the operational life of the Sewage Works.

4.1 Proposed Sanitary Alterations

Submission Date	Description of Project	Location	Developer-Lead/ Municipal-Lead	Identified as a SDWT	Approval Issue Date
<i>There were no SDWT identified during this reporting period.</i>					

4.2 Proposed Stormwater Alterations

Submission Date	Description of Project	Location	Developer-Lead/ Municipal-Lead	Identified as a SDWT	Approval Issue Date
<i>There were no SDWT identified during this reporting period.</i>					



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5. Design Considerations to Mitigate Risk

This section is intended to provide a summary of design considerations and other measures that have been put into place to mitigate risks resulting from the construction or operation of the components, equipment or sewage works identified as a SDWT in Section 4.0. There were no SDWT identified during the *Reporting Period*, therefore no mitigation activities or measures were required.

6. Conclusion

This Assessment Report has been prepared in accordance with the City of Quinte West’s Stormwater Collection System CLI-ECA, and the Sanitary Collection System CLI-ECA, Schedule E section 8.0 and section 7.0, respectively. Under the Stormwater Collection System and Sanitary Collection System CLI-ECA’s the City must ensure that any Alteration to the Authorized System(s) is 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 (SPP). During the *Reporting Period* of October 1, 2022 to October 1, 2023 the City has identified no SDWT from the Proposed Alterations submitted in accordance with the aforementioned CLI-ECA’s.

7. References

1. Appendices - including Policy Applicability Maps (Updated February 2, 2022), https://trentsourceprotection.on.ca/images/SPPs/2022-02-02-Trent_Approved_SPP_Appendices.pdf
2. Source Water Protection Information Portal, <https://swpip.ca/>
3. Trent Approved Source Protection Plan (Updated February 2, 2022), <https://trentsourceprotection.on.ca/>
4. 2021 technical rules under the Clean Water Act, (December 03, 2021), <https://www.ontario.ca/page/2021-technical-rules-under-clean-water-act>