



2025

Annual Summary Report

Water Distribution System

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CITY OF ST. CATHARINES

WATER DISTRIBUTION SYSTEM
2025 ANNUAL SUMMARY REPORT

March 2026

Waterworks # 260003279
Licence # 023-101

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Purpose

Water is essential for daily life, supporting households, businesses, industries, and municipal services such as fire protection and recreational activities. The Safe Drinking Water Act (SDWA) mandates that municipal councils receive an annual report detailing compliance with regulatory requirements, any operational failures, and corrective actions taken.

The SDWA mandate includes the following municipal responsibilities:

1. Recognize the people of Ontario are entitled to expect their drinking water to be safe.
2. Provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of water systems and drinking water testing.

Unless otherwise noted, this report covers the period from January 1 to December 31, 2025.

Waterworks Description

The St. Catharines water distribution system is classified as a Class II, large residential system by the Ministry of Environment, Conservation and Parks (MECP). The distribution system obtains potable water from the Niagara Region's DeCew Water Treatment Plant, which draws surface water from Lake Erie via the Welland Canal. The City's water system is generally located within the urban boundary and is subdivided into three pressure zones. The City's waterworks consists of:

- 💧 605 kilometres of watermains.
- 💧 Approximately 3,580 hydrants.
- 💧 Over 5,600 valves.

The Decew Water Treatment Plant is a conventional surface water treatment plant which utilizes a multi-step treatment process, including screening, flocculation, sedimentation, filtration, and disinfection (using sodium hypochlorite and ultraviolet light).

Municipal Drinking Water Licensing Program

Municipalities must be licensed to operate their drinking water systems, with licenses renewed every five years. The City's last renewal was in September 2024.

There are four components to the license that are applicable to St. Catharines:

1. Drinking Water Works Permit - Allows for the establishment and alteration of the system, such as replacing and installing new watermains.
2. The Drinking Water Quality Management System (DWQMS) – A systematic approach ensuring safe water supply.
3. System Accreditation –The City undergoes annual audits and a three-year external verification audit.
4. Financial Plan – Ensures long-term financial sustainability, required for license renewal.

The Drinking Water Quality Management System Policy

The City of St. Catharines is committed to:

- Ensuring a consistent supply of safe, high-quality drinking water.
- Maintaining and continuously improving its Quality Management System; and
- Meeting or surpassing applicable legislation and regulations.

Actions Taken to Comply with the Safe Drinking Water Act

The Ontario *Safe Drinking Water Act* provides for the protection of human health and the prevention of drinking water health hazards through the control and regulation of drinking water systems and drinking water testing services. Ontario has a multi-barrier drinking water safety net, a framework designed to protect drinking water from the source to the tap. To meet regulatory requirements the City:

- Conducts monthly microbiological and chlorine residual testing.
- Performs quarterly sampling for disinfection by-products (THMs and HAAs).
- Uses Ontario Water Wastewater Certification Office (OWWCO) certified Water Quality Analysts and Water Distribution Operators. These certifications must be renewed every three years and have mandatory, MECP-approved training requirements.
- Uses accredited laboratories, which are audited by the Canadian Association for Laboratories Accreditation (CALA) and accredited by the Standards Council of Canada (SCC).
- Ensures all sample results are available to the public. Annual reports are available at City Hall and on the City's website, www.stcatharines.ca.
- Reports any exceedances to the MECP, Regional Public Health Department, and the Decew Water Treatment Plant.
- Undergoes an annual MECP compliance inspection.
- Maintain full DWQMS accreditation, including annual audits conducted by the third-party accreditation body - NSF International Strategic Registrations.

Water Quality Test Results

Summary of Results

In 2025, the City conducted 8,092 water quality tests. **Table 1** summarizes the number of analyses and percentage meeting MECP Standards. Also included is the percentage of samples meeting the MECP Standards in St. Catharines and the Provincial Average.

Table 1: Analyses and percentage of sample results meeting MECP Standards

Parameter	Number of Samples	Compliance
Microbiological - E. Coli	1,564	100%
Microbiological - Total Coliforms	1,564	99.9%
Microbiological - Background	1,564	100%
Microbiological - Heterotrophic	548	100%
Chemical - Trihalomethanes	12	100%
Chemical - Haloacetic Acids	12	100%
Chemical - Chlorine Residual	2,818	100%
Chemical – Lead (distribution system)	10	100%
St. Catharines – Average		99.9%
Provincial - Average		99.9%

Summary of Adverse Water Quality Incidents

An Adverse Water Quality Incident (AWQI) occurs when a test result does not meet the MECP Standards. It does not mean the drinking water supply is unsafe, it simply indicates on that one occasion, a drinking water quality standard was exceeded. There were two AWQI's in 2025.

After each AWQI, a series of actions are required to ensure the safety of the water and compliance with provincial legislation. The City's Standard Operating Procedures provide clear and detailed instruction for follow up actions. This involves flushing hydrants located in the area of the adverse incident, taking additional water samples from the original location and locations around the adverse incident. It also involves notifying the MECP's Niagara office, the Spills Action Centre (SAC) and the Public Health Department both verbally and in writing.

Appendix A summarizes the Adverse Water Quality Incidents which occurred, and the corrective actions taken to resolve those incidents.

Lead Exceedances

As part of the Community Wide Lead Testing Program, the City will take samples from within private residences. The results are property-specific, and not indicative of the quality of the water throughout the distribution system. When sampling for lead, the results represent the water sampled from private plumbing within that residence. Potential lead sources include older lead water service lines, usually built prior to the 1950's; internal plumbing, used mainly in the early 1900's; and older brass or bronze fittings and fixtures. When a lead exceedance occurs, both the Public Health Department and the MECP are notified. The affected resident is also immediately notified and a package containing the results and informational fact sheets detailing what options are available to residents are provided. The City promotes the Community Wide Lead Testing Program; however, all the testing performed through the

program is completed on a request basis. There were three lead exceedances found on private property in 2025.

Replacing Lead Water Services

The City replaces public-side lead service lines when they’re encountered during watermain replacement projects; when an exceedance is found through the Community Wide Lead Testing Program; or if a resident first replaces their private-side service. In 2025, 51.6 metres of lead service piping was removed, bringing the total to 559 metres replaced since 2015. Lead lines are replaced with either copper or plastic service lines.

Operational Activities

Water System Disruptions

Disruptions to the water distribution system typically are due to unplanned maintenance required in the system. In addition to watermain break repairs, this can include any repairs to service lines, valves, and hydrants. Many of these repairs require the water to be shut-off resulting in a disruption of water service to customers. **Table 2** summarizes water disruptions in 2024 and 2025 respectively.

The Province’s Watermain Disinfection Procedure outlines the requirements for responding and repairing watermain breaks. It includes a sampling procedure for post watermain break repairs; and requirements for classifying each break and documentation of each break.

Table 2: Number of service disruptions for 2024 and 2025

Number of:	2024	2025
Watermain break repairs	74	148
Other repairs*	53	53
Other**	1	10
Affected properties***	2,475	4,097

*Includes repairs to hydrants, valves and water services
 ** Includes unplanned service disruptions in a Construction zone
 *** the number of properties without water due to an unscheduled disruption (i.e., water shut off during the repair).

New Watermain Commissioning

When a new watermain is installed, the City is required to sample for microbiological parameters and chlorine residual. In 2025, there were 360 samples taken to test new watermains before being put into service. If any bacteria are present, the new watermains are flushed, rechlorinated and sampled again until no bacterial contamination is found before being put into service. All the watermains must also meet the required standard for chlorine residual.

Infrastructure Maintenance and Renewal Costs

In the 2024-2026 budget cycle, approximately \$15.2 million was budgeted in 2025 for watermain capital projects. The total cost of repairs in 2025 including watermain breaks; service repairs and upgrades; hydrant repairs and replacements; and valve repairs and replacements were approximately \$1,264,000.

Water Flows

Table 3 lists the monthly water flows from the Decew Water Treatment Plant to the City of St. Catharines (source: Regional Municipality of Niagara).

Table 3: Monthly water flows for 2024 and 2025

Month	Quantity (MegaLitres)	
	2024	2025
January	1,263	1,328
February	1,170	1,223
March	1,104	1,265
April	1,058	1,125
May	1,323	1,238
June	1,251	1,410
July	1,454	1,497
August	1,411	1,681
September	1,240	1,415
October	1,225	1,293
November	1,295	1,172
December	1,196	1,157
Total	14,992	15,804
Monthly Average	1,249	1,317
Daily Average	40	42

Note: 1 MegaLitre (ML) = 1,000,000 Litres

Additional information about the Decew Water Treatment Plant is available at:

www.niagararegion.ca.

Drinking Water Quality Management System

A Drinking Water Quality Management System (DWQMS) is in place for the City's Water Distribution System. The DWQMS implements a systematic "continuous improvement" approach to planning, operations, corrective actions and management review to allow an organization to demonstrate sound system performance. The success of a DWQMS depends on the commitment from all levels and functions of an organization including operational staff and top management. The DWQMS is documented through the Operational Plan. The Operational Plan is regularly reviewed and updated.

In addition, internal audits take place, and a yearly risk assessment is conducted and/or reviewed. The risk assessment was designed to meet the DWQMS standard and includes climate change hazards. Integrating climate hazards into existing workplans can help address

these risks as well as provide context compared to other known risks (e.g. aging infrastructure). The higher risks to the drinking water system include staff shortages (e.g. pandemic, strike, lockout, lack of available staff etc.), supply issues from the Region of Niagara Decew Water Treatment Plant (loss of supply or contamination of the water supply), contamination of the distribution system (backflow, watermain breaks) and lead water services.

Investing and Planning in the Future

Residents trust the City for safe, clean, and reliable drinking water every time they turn on their tap. St. Catharines is proud to deliver on those expectations. The City is committed to long-term investments in its water infrastructure to improve quality, reliability, and resilience while reducing maintenance costs.

Additional Information

This report ensures transparency and compliance with Ontario's Safe Drinking Water Act.

Please note that every reasonable effort is made to ensure the accuracy of this report. This report is published with 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 version of the report for the most up-to-date information.

Definitions

Backflow – the unwanted reversal of flow potentially introducing contaminations into the potable water supply.

Chlorine Residual - the amount of chlorine available for disinfection.

Escherichia coli (E. coli) – a sub-group of Coliform bacteria, often associated with fecal pollution.

Lead – present as a result of corrosion of lead solder, lead containing brass fittings or lead water service pipes.

Total Coliforms – the group of bacteria most commonly used as an indicator of water quality.

Disinfection By-Products - Trihalomethanes (THMs), Haloacetic Acids (HAAs) – Chemicals formed when chlorine reacts with organic matter in water.

Appendix A: Adverse Water Quality Incidents - 2025 Summary

Date	Location	Parameter	Result	Corrective Action
February 19, 2025	325 Ontario Street	Total Coliform	1 cfu/100mL	Flushed area, resampled, Resolved February 24, 2025.
June 5, 2025	44 Facer Street	Total Coliform	2 cfu/100mL	Flushed area, resampled, Resolved June 10, 2025.