




Hamilton

INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	September 30, 2024
SUBJECT/REPORT NO:	Surface Water Quality Program 2023 Annual Update (PW24060) (City Wide)
WARD(S) AFFECTED:	City Wide
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COUNCIL DIRECTION

N/A

INFORMATION

Report PW24060 provides an update to the Public Works Committee on the progress and successes of the Surface Water Quality Program for 2023.

On July 14, 2021, Public Works Committee received the Enhanced Inspection and Monitoring - Hamilton Water and Wastewater Report (PW21019). Within PW21019, Hamilton Water committed to provide an annual Surface Water Quality Report outlining the status of the Program, as well as other general highlights.

The goal of the Surface Water Quality Program is to build a baseline understanding of surface water conditions over time, develop open communication and transparency with the community and City of Hamilton (City) partners, and respond to and investigate any water quality anomalies that might be the result of infrastructure malfunctions or standard operating conditions. The Surface Water Quality Program will also help guide

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OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

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refinements to standard operating conditions and identify potential areas of concern that may contribute to reduced surface water quality across Hamilton's watersheds.

Council has received previous updates on the Surface Water Quality Program through the following reports:

- Enhanced Inspection and Monitoring – Hamilton Water and Wastewater (PW21019)
- Surface Water Quality Program 2021 Annual Update (PW22058)
- Surface Water Quality Program 2022 Annual Update (PW23040)

In 2023, questions were received regarding how the Surface Water Quality Program aligns with other existing programs such as the Hamilton Harbour Remedial Action Plan and the City's Watershed Action Plan. Staff provided responses during the June 28, 2023, General Issues Committee meeting 23-021 via Items 5.1 a, b, c and through the City of Hamilton Watershed Action Plan Update (PW19008(u)). The data collected through the Surface Water Quality Program supports the Watershed Management Section of Hamilton Water and other City Divisions, triggering inspections, follow-up analysis and further studies, and any necessary repairs of City infrastructure or modification of City programs to mitigate contaminant sources and improve water quality over time.

In 2023, the City continued monthly surface water sampling at Phase I locations. Sampling was discontinued at ten Hamilton Harbour sample locations due to weather and safety concerns and resources were reallocated to 17 new locations throughout the City's watersheds. Internal discussions highlighted key differences that set the Hamilton Harbour sample locations apart from other Phase I sample locations, including:

- The presence of public and private stormwater discharges with potential interfering influences.
- Sampling directly within the receiving waterbody making pollutant sources hard to identify.
- Known water quality differences at specific depths.
- The designation as an Area of Concern by the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health.
- Existing Hamilton Harbour data availability from provincial and federal agencies.

The location amendments were communicated to partners on October 13, 2023 with positive responses received. The Phase I Amendment document is attached as Appendix "A" to Report PW24060.

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In addition to the above, the 2022 - 2023 Surface Water Quality Program and Partner water quality data and trends were reviewed with Hamilton Water senior leadership. The bi-annual and semi-annual data reviews are attached as Appendix "B" and Appendix "C" to Report PW24060.

Key water quality parameters sampled from January 1, 2022 to December 31, 2023, are summarized in table form and attached as Appendix "D" to Report PW24060.

In 2023, Hamilton Harbour Remedial Action Plan Partners along with Hamilton Water's Watershed Management Section, retained an independent consultant to produce a Hamilton Tributary Hot Spot Analysis report. The scope of work included a statistical analysis of the City's surface water data and other Partner data. This report, "Analysis of 2021-2023 Hamilton Tributary Monitoring Data: Identification of Potential Watershed Critical Source Areas and Comparison of Monitoring Program Findings" by Duncan Boyd, is attached as Appendix "E" to Report PW24060. Recommendations from the report are being actioned with the Surface Water Quality Program continuing to monitor the identified locations for improvement.

In early 2024, the City experienced a significant cybersecurity incident that impacted City services. Surface Water Quality Program monthly sampling was temporarily reduced as a result of limited laboratory resources. Monthly sampling has since fully resumed. However, the Surface Water Quality Program website and data sharing capabilities are still impacted by the cybersecurity incident.

The Program continues to monitor and sample the 40 Phase I surface water locations (as amended) monthly throughout the City, and to update City Departments, Divisions, and external partners as necessary. A semi-annual data review was conducted on April 25th, 2024 which is attached as Appendix "C" to Report PW24060. The next semi-annual data review is scheduled for late 2024.

2023 Surface Water Quality Program outcomes include:

- Necessity to continue monthly sampling to continue building a baseline of surface water quality throughout the City's watersheds.
- Data trends presenting areas of interest that support In-Pipe and other infrastructure inspection programs.
- Data gaps observed have highlighted the demand for new sample locations.
- The need to improve the efficiency of data trending techniques.
- The demand of data sharing and transparency between internal and external programs.

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2024-25 Surface Water Quality Program highlights include:

- Continuation of sampling throughout the City's watersheds, focusing on representative surface water data collection.
- Annual review of the operational components of the Program Framework
- Continuing the transition from Phase I to Phase II with a potential to increase sample locations and frequency.
- Collaboration with internal and external parties to enhance communication among individuals and groups involved with water quality and the watershed approach.
- Identifying areas of improvement and enhancements for 2025 and beyond.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PW24060 – Amendments to the City's Phase I Sample Locations

Appendix "B" to Report PW24060 – Bi-Annual Water Quality Data Review (January & July 2023)

Appendix "C" to Report PW24060 – Semi-Annual Data Review: City of Hamilton's Surface Water Quality Program (April 25, 2024)

Appendix "D" to Report PW24060 - SWQP Key Water Quality Parameters (2022 – 2023)

Appendix "E" to Report PW24060 – Analysis of 2021-2023 Hamilton Tributary Monitoring Data: Identification of Potential Watershed Critical Source Areas and Comparison of Monitoring Program Findings (June 30, 2024)