City of Hamilton
Report for Information

To:	Chair and Members Public Works Committee
Date:	May 20, 2025
Report No:	PW25023
Subject/Title:	Annual Watermain Break Report
Ward(s) Affected:	City Wide

Recommendations

1) That Report PW25023 respecting the Annual Watermain Break Report **BE RECEIVED** for information.

Key Facts

- 165 watermain breaks occurred in 2024, with $2.06M in estimated total repair costs.
- 4.4 kilometres of watermains were rehabilitated in 2024, costing $7.2M.
- 2.9 kilometres of watermains were replaced in 2024, costing $2M.

Financial Considerations

Not Applicable

Background

On January 23, 2019, Council directed staff through City Council Minutes 19-002 "to provide the Public Works Committee with an annual report on watermain breaks, the total number, cause, and cost of each break, as well as the distance of watermains relined with total cost and overall report on sustainability."

Analysis

Total Number, Causes, and Cost of Watermain Breaks:

The City had a total of 165 watermain breaks in 2024, with total repair costs of approximately $2.06M. This amount includes:

- Excavation, repair, and temporary restoration costs: $0.99M
- Permanent restoration costs: $1.07M

Permanent restoration costs vary depending on factors such as excavation size, location, and surface infrastructure (e.g., sidewalks, curbs, roads, and landscaping). A detailed breakdown of watermain breaks by ward is provided in Appendix “A” to Report PW25023.

Due to a cybersecurity incident, work completed by Public Works after February 25, 2024, including costs for parts, labour, vehicle expenses, and outstanding permanent restorations, is based on the Department’s best estimates.

In 2024, the percentage of watermain breaks by failure mode was:

- Corrosion - 39%
- Ground movement - 57%
- Displaced pipe joints - 3%
- Contractor-related damage and repairs - 1%

Corrosion-related breaks result from soil conditions, while breaks due to ground movement and displaced pipe joints are often linked to pressure changes caused by freeze/thaw cycles. A summary of the costs of watermain breaks by failure mode is provided in Appendix “B” to Report PW25023.

From 2020 to 2024, the City experienced an average of 222 watermain breaks per year. The reduction in breaks is attributed to milder winter temperatures and the success of the Proactive Leak Detection Program. A historical summary of watermain breaks by failure modes between 2020 and 2024 is provided in Appendix “C” to Report PW25023.

Distance and Cost of Watermain Rehabilitation and Replacement:

Public Works tracks the length and cost of watermain rehabilitation (relining) and replacement.

In 2024, the City:

- Rehabilitated 4.4 km of watermains, costing $7.2M
- Replaced 2.9 km of watermains, costing $2M

Since 2020, the City has:

- Rehabilitated 20.8 km of watermains, costing $29.9M
- Replaced 17.4 km of watermains, costing $26.5M

A five-year summary of rehabilitation and replacement activities is provided in Appendix

"D" to Report PW25023.

From 2025 to 2034, the City plans to invest $336.8M in watermain rehabilitation and replacement projects. A summary of approved projects, as part of the 10-year Water, Wastewater, and Stormwater Rate Budget, is provided in Appendix "E" to report PW25023.

Watermain Age:

The City maintains a total of 2,139 km of watermains, including:

- 189 km of transmission watermains (450mm in diameter or larger)
- 1,950 km of distribution watermains (400mm in diameter or smaller)

Transmission watermains transport large volumes of water, supplying reservoirs, towers, and distribution watermains. Distribution watermains provide potable water to serviced properties.

Currently, 34% of transmission and 18% of distribution watermains are over 75 years old. A summary of the watermain age distribution is provided in Appendix "F" to Report PW25023.

Alternatives

Not Applicable

Relationship to Council Strategic Priorities

The information provided in this report supports the Strategic Priorities identified by Council in the following areas:

3. Responsiveness & Transparency
   3.1. Build a high-performing public service - by informing Council on work completed in 2024 to maintain watermains, supporting future investment decisions.

Previous Reports Submitted

2023 Annual Watermain Break Report (City Wide) (PW24013) dated April 29, 2024
2022 Annual Watermain Break Report (City Wide) (PW23015) dated March 20, 2023
2021 Annual Watermain Break Report (City Wide) (PW22031) dated May 16, 2022
2020 Annual Watermain Break Report (City Wide) (PW21011) dated March 22, 2021

Consultation

The following team was consulted and provided input for this report:

Infrastructure Renewal, Engineering Services, Public Works

Appendices and Schedules Attached

Appendix A: 2024 Watermain Breaks by Ward, Including Costs

Appendix B: 2024 Watermain Break Costs by Failure Mode

Appendix C: Watermain Breaks by Year and Mode of Failure

Appendix D: 5-Year Summary of Watermain Replacements and Relining

Appendix E: Approved in Principle, Watermain Replacement and Relining Projects in the10-Year Water, Wastewater and Storm Rate Budget

Appendix F: Transmission and Distribution Watermain Inventory by Age

Prepared by:	Janice Takahashi, Project Manager, Water Distribution, Public Works, Hamilton Water
Submitted and recommended by:	Shane McCauley, Director Water & Wastewater Operations Public Works, Hamilton Water