



The Regional Municipality of Durham Report

From: Commissioner of Works
Report: #2025-INFO-81
Date: October 31, 2025

Subject:

Update Regarding Significant Rain Event on July 16, 2024, including Regional Municipality of Durham and City of Oshawa Response

Recommendation:

Receive for information.

Report:

1. Purpose

1.1 The purpose of this report is to provide an update to Regional Municipality of Durham (Region) Council regarding the significant rain event that occurred on July 16, 2024, in the south area of the City of Oshawa (Oshawa) and subsequent Regional staff response.

2. Background

2.1 On July 16, 2024, many areas of southern Ontario experienced a significant rain event due to a series of strong thunderstorms. In south Oshawa, 37.9 millimetres (mm) of rain was recorded between 7 a.m. and 1 p.m., with 34.2 mm falling between 10 a.m. and 1 p.m.

2.2 The Region received calls related to basement flooding from over 60 Oshawa residents. The majority of these calls were concentrated in an area of south Oshawa, mapped in the attached Figure 1: Drainage Area for the Madawaska Sanitary Sewage Pumping Station (SSPS) (Attachment #1).

- 2.3 The storm sewer system for this area has an inverted siphon at Quetico Avenue and Wecker Drive. Inverted siphons require regular maintenance, which includes flushing and cleaning, to ensure proper operation. The storm sewer system for this storm catchment area is owned and operated by the City.
- 2.4 During the significant rain event on July 16, 2024, substantial ponding in low lying areas immediately upstream of the inverted siphon caused rainwater to enter the sanitary sewer system through maintenance hole lids. This in turn appeared to have overwhelmed the sanitary sewer system within a localized section of the catchment area.
- 2.5 The City's inverted siphon was installed when the subdivision was built in 1969. According to City staff, the siphon was constructed due to a conflict with an existing watermain.
- 2.6 Following basement flooding events in 1979 to a localized section of the catchment area, the Region installed a series of relief sewers in 1980. Basement flooding to the same localized area has since been limited to the events of 2006 and 2024.
- 2.7 The drainage area for the Madawaska SSPS has been fully developed since 1987 with no change to sanitary sewer system demand since that time.

3. Regional Municipality of Durham and City of Oshawa Response

- 3.1 Regional staff have reviewed flood related calls from residents and conducted a review of the sanitary and storm sewer systems in the area as outlined below:
 - a. Staff performed on-site review of the areas of concern to confirm certain aspects of the road, sanitary and storm sewer infrastructure.
 - b. Staff compiled and mapped resident complaint information in our Geographic Information System (GIS).
 - c. Staff completed overland flow accumulation simulation mapping to identify potential areas of focus.
 - d. Staff reviewed the sanitary sewer design and operation in the area and concluded that the sanitary sewer system is operating as intended.

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- e. Regional staff have met with City staff to share information and coordinate efforts.
- 3.2 City staff have reviewed this report, #2025-INFO-81, and are undertaking their own review of the operation and maintenance of the storm sewer system in this area, which includes any opportunities for improvement.
 - 3.3 As a result of the above analyses, Regional staff developed a scope of work for a field study to determine if there are any deficiencies or cross connections in the sanitary sewer system that warrant repair or further investigation. The field study consists of inspections and smoke testing of the entire study area, including 8.1 kilometres (km) of sanitary sewer and 117 maintenance holes. This field study was meant to help identify any additional opportunities for improvement within the sanitary sewer system related to possible abnormal rainwater inflow or infiltration.
 - 3.4 The field study scope of work was incorporated into a request for quotation document and issued to bidders on December 9, 2024. Three compliant bids were received, and the assignment was awarded to Civica Infrastructure Water Management Solutions (Civica) on January 24, 2025.
 - 3.5 Civica completed the field work in April 2025 and provided the Region with the field study report in August 2025. No direct inflow sources, such as roof drains, catch basins, or other stormwater cross-connections, were identified.
 - 3.6 Based on observed conditions in the sanitary sewers, the action items resulting from the field study for the Region include:
 - a. Eight maintenance holes will be repaired / rehabilitated to address sources of groundwater ingress.
 - b. Four maintenance holes will be flushed to remove any debris.
 - c. Regional staff will be procuring and installing new water-tight maintenance hole covers on seven sanitary sewer maintenance holes to reduce rainfall inflow rates in low lying areas that are prone to ponding. Four of these maintenance holes previously had watertight covers installed but now require maintenance/replacement to maintain their effectiveness.

4. Relationship to Strategic Plan

4.1 This report aligns with/addresses the following Strategic Direction(s) and Pathway(s) in Durham Region's 2025-2035 Strategic Plan:

- a. Connected and Vibrant Communities
 - C1. Align Regional infrastructure and asset management with projected growth, climate impacts, and community needs.
- b. Environmental Sustainability and Climate Action
 - E3. Prepare for and respond to severe weather impacts.
- c. Strong Relationships
 - S3. Collaborate across local area municipalities, with agencies, non-profits, and community partners to deliver co-ordinated and efficient services.
 - S5. Ensure accountable and transparent decision-making to serve community needs, while responsibly managing available resources.

4.2 This report aligns with/addresses the following Foundation in Durham Region's 2025-2035 Strategic Plan:

- a. Processes: Continuously improving processes to ensure we are responsive to community needs.

5. Conclusion

5.1 The significant rain event on July 16, 2024, caused substantial ponding in low lying areas immediately upstream of an inverted siphon and caused rainwater to enter the sanitary sewer system through maintenance hole lids which in turn appeared to have overwhelmed the sanitary sewer system.

5.2 The Regional Municipality of Durham has completed a field study to investigate opportunities for improvement to reduce possible inflow or infiltration during significant rain events. Action items have been identified, and staff will coordinate this work for completion in 2025 and 2026.

- 5.3 City of Oshawa staff are conducting their own review of the operation and maintenance of the storm sewer system in this area, which includes any opportunities for improvement. The Regional Municipality of Durham is committed to supporting these efforts with flow monitoring in the sanitary sewer system and reporting results with the City of Oshawa.
- 5.4 Regional Municipality of Durham and City of Oshawa staff will continue to coordinate efforts to mitigate impacts as a result of significant rain events.
- 5.5 For additional information, contact: Joe Green, Manager, Infrastructure Analytics, at 905-668-4113 extension 3649, or Nathaniel Andres, Manager, Water and Wastewater Infrastructure Planning, at 905-668-4113 extension 3170.

6. **Attachments**

Attachment #1: Figure 1: Drainage Area for Madawaska SSPS

Respectfully submitted,

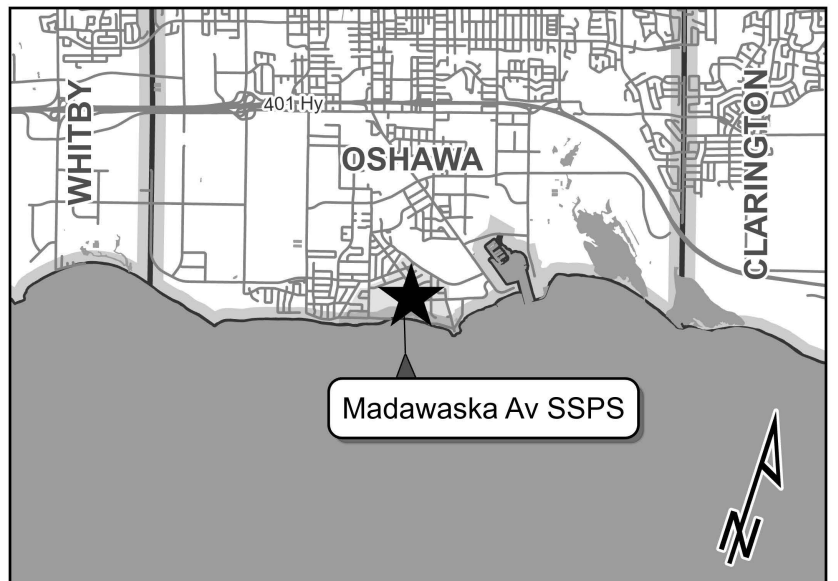
Original signed by:

Ramesh Jagannathan, MBA, M.Eng., P.Eng., PTOE
Commissioner of Works



**FIGURE 1:
DRAINAGE AREA FOR
MADAWASKA SANITARY
SEWAGE PUMPING
STATION (SSPS)**

 Smoke Testing Area



**THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT**

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Map Date: October 28, 2025