

THE CORPORATION OF THE TOWN OF GEORGINA

REPORT NO. OI-2024-0009

**FOR THE CONSIDERATION OF
COUNCIL**

July 10, 2024

SUBJECT: INFLOW AND INFILTRATION REDUCTION UPDATE

1. RECOMMENDATION:

- 1. That Council receives Report No. OI-2024-0009 prepared by the Asset Management Division, Operations & Infrastructure Department, dated July 10, 2024 regarding the Town of Georgina's Inflow and Infiltration Study for information; and,**
- 2. That Council direct staff to bring the necessary business case(s) through the 2025 budget process to progress towards achieving York Region's I/I reduction target by 2026.**

2. PURPOSE:

To keep Council informed of the progress in meeting the Inflow and Infiltration targets within the Town of Georgina wastewater collection system.

3. BACKGROUND:

The Town of Georgina (the Town) owns and operates the wastewater collection system which conveys sewage from Town residences, institutions and businesses to York Region's conveyance and treatment network for ultimate management.

In 2011, the Region implemented an Inflow and Infiltration (I/I) Reduction Strategy in response to the Ministry of the Environment, Conservation and Parks (MECP) conditions for the Southeast Collector Sanitary Sewer Individual Environmental Assessment approval (SEC IEA). The Conditions of Approval require the Region and its local municipal partners to decrease 40 Mega Litres per Day (MLD) of inflow and infiltration in the Region's wastewater system by 2031.

Inflow and infiltration are terms used to describe unwanted water that enters a wastewater collection system. Inflow describes water that enters the system from direct sources such as improper storm water connections, private connections (downspouts and foundation drains) and surface water. Infiltration describes groundwater that enters the system through defects in pipes (cracks or failed joints), manholes or service connections.

In 2021, the Region and its local municipal partners developed a target I/I Framework for local municipalities to reduce I/I within their systems to help achieve the Region's overall goal. Based on this framework, and flow monitoring undertaken by the Region, the Town's allocated target for I/I reduction is 0.27 MLD by 2026.

In March 2023, the Town released a Request for Proposal (RFP) seeking bid submissions from qualified vendors to complete an inflow and infiltration study using closed circuit television video (CCTV) and smoke testing on wastewater catchment areas with the highest potential for I/I reduction, in order to identify and quantify inflow and infiltration in the Town's wastewater collection system.

Civica Infrastructure Inc. represented the highest scoring eligible respondent to the RFP, and as such, a Purchase Order (PO) was issued to Civica Infrastructure Inc. to complete the work.

4. ANALYSIS:

The Inflow and Infiltration (I/I) study examined the existing conditions of the Town's sanitary collection system to identify and provide recommendations for I/I reduction to meet the Town's allocated target for 0.27 MLD by 2026. The investigation methodologies undertaken by Civica Infrastructure Inc. are outlined below:

Part 1 – Desktop Analysis:

A desktop analysis was conducted to identify areas that indicated potential I/I sources within the sanitary system. The information and the analysis were used to develop a general plan to prioritize the field investigations.

Part 2 – Field Investigation:

The methodologies implemented for field investigations included sewer flushing, CCTV inspections, smoke testing and lot inspection. CCTV inspection was conducted to identify I/I sources within the sanitary sewer mains and manholes. Smoke testing was conducted to identify sources of inflow that could directly connect to the wastewater system.

Part 3 – Program Development and Recommendations:

With the findings from the desktop analysis and field investigations, a risk-based remediation and maintenance strategy, and a long-term investigation, and monitoring plan were developed.

Investigation Results:

Approximately 22.5 km of sanitary sewer was inspected through CCTV and approximately 18.7 km of sanitary sewer was smoke tested. A potential total reduction of 0.0509 MLD (or 0.00226 MLD per KM inspected) was identified through the recommended improvements, representing 19% of the Town's objective (0.27 MLD).

In addition to the dedicated I/I study above, the Town continues to deliver upon its Core AMP condition assessment program, which includes a Sanitary Sewer and Manhole Condition Assessment (WWCA). This program assesses the condition and relative risk of ~20 KM (or 10%) of our wastewater collection system each year. As an extension of that program, staff had the potential I/I reduction based upon the asset repair and replacement recommendations quantified. The initial term of the program identified a potential reduction of 0.102 MLD (or 0.0051 MLD per KM inspected). This represents 38% of the Town’s objective (0.27MLD).

Collectively, the above measures will achieve 57% of the objective, as outlined in Figure 1. Based upon the current average rate of I/I reduction per KM inspected, the Town will need to inspect and quantify an additional 32km of the gravity sewer wastewater collection network. Fortunately, the Town’s sanitary sewer and manhole condition assessment program is an annual initiative identified in the Town’s 10-year capital plan and is well-underway. The second term of three is being delivered in 2024 representing another 20km of linear infrastructure inspected. If the projected rate of potential I/I reduction per KM stays consistent, the Town will have identified all areas of I/I reduction by the end of 2025.

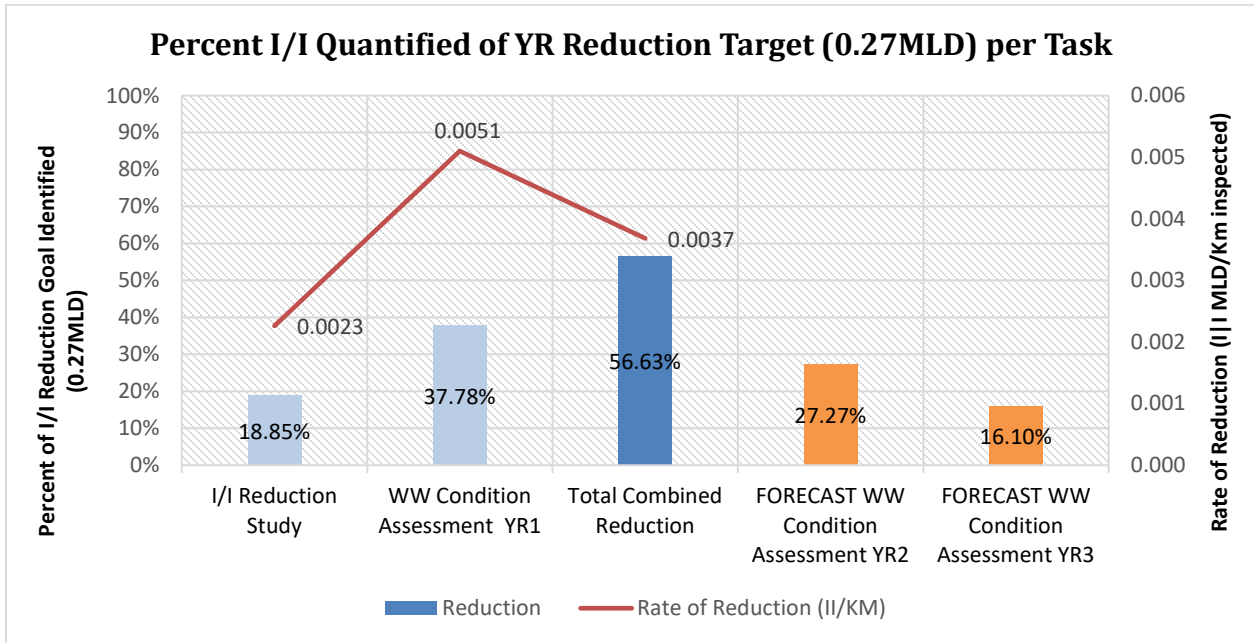


Figure 1: Percent Quantified of I/I Reduction Target (0.27MLD) per Task

The improvements necessary to reduce inflow and infiltration to the sanitary system will be recommended on an annual basis, beginning in 2025, combining the locations and treatments/rehabilitations from the first 3 study areas (I/I study, WWCA 2023 and WWCA 2024). Treatments identified from the 2025 condition assessment work will be delivered in 2026, which aligns with the targeted year of completion.

5. RELATIONSHIP TO STRATEGIC PLAN:

Delivering service excellence

Proactively manage infrastructure and assets to ensure service continuity

6. FINANCIAL AND BUDGETARY IMPACT:

Not applicable to this report, however, future capital needs will be identified through the annual budget process.

7. PUBLIC CONSULTATION AND NOTICE REQUIREMENTS:

Not applicable to this report.

8. CONCLUSION:

The Inflow and Infiltration study and the sanitary sewer and manhole condition assessment identified the combined potential reduction of 0.1529 MLD), which represents approximately 57% of the Town's I/I reduction target (0.27MLD). The Town aims to deliver 100% of the target potential reduction by the end of 2025. The first of two phases of rehabilitation on areas of infiltration will begin in 2025.

APPROVALS

Prepared By:	Camille Zeng, Asset Management Specialist
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Recommended By:	Michael Vos, Director, Operations and Infrastructure
Approved By:	Ryan Cronsberry, Chief Administrative Officer

Attachments:

Attachment 1: Final I/I report – program development and recommendations