

## Report to Civic Works Committee

**To:** Chair and Members  
Civic Works Committee

**From:** Kelly Scherr, P.Eng., MBA, FEC  
Deputy City Manager, Environment and Infrastructure

**Subject:** Sewage Overflows and Bypasses into the Thames River –  
Sanitary Cross Connections

**Date:** September 21, 2021

## Recommendation

That, on the recommendation of the Deputy City Manager, Environment and Infrastructure, the following report on Sewage Overflows and Bypasses into the Thames River – Sanitary Cross Connections, **BE RECEIVED** for information.

## Executive Summary

### Purpose

The purpose of this report is to provide Council with an overview of sanitary cross connections. Sanitary cross connections cause overflows of wastewater and contravene the City's Waste Discharge and Drainage By-law's and have the potential to adversely impact the natural environment.

### Context

Household wastewater comes from toilets, sinks, showers, washing machines and other drains and is directed through a pipe to the sewer collection system to be ultimately treated at a wastewater treatment plant. A sanitary cross connection exists when a pipe or the home's internal plumbing is mistakenly tied into the stormwater system releasing sewage into the natural environment. Sanitary cross connections are rare in the City and are most often associated with residential properties. A sanitary cross connection is often the result of a plumbing or construction error and are typically discovered unexpectedly. Municipalities across North America continue to address the issues associated with sanitary cross connections and London is not immune to the challenges they present.

## Linkage to the Corporate Strategic Plan

This recommendation supports the following 2019-2023 Strategic Plan areas of focus:

1. Building a Sustainable City:
  - London's infrastructure is built, maintained, and operated to meet the long-term needs of our community
  - Protect and enhance waterways, wetlands, and natural areas

## Analysis

### 1.0 Background Information

#### 1.1 Previous Reports Related to this Matter

September 26, 2017 – Civic Works Committee – Domestic Action Plan (DAP): London – Proposal Update

April 17, 2018 – Civic Works Committee – London Pollution Prevention and Control Plan Final Master Plan

September 24, 2019 – Civic Works Committee – Wastewater Treatment Operations Environmental Assessment – Master Plan Study Initiation

April 20, 2021 – Civic Works Committee – Sewage Overflows and Bypasses Into the Thames River

## **2.0 Discussion and Considerations**

### **2.1 Sanitary Lateral Cross Connections**

#### **2.1.1 What is a Sanitary Lateral Cross Connection?**

A sanitary cross connection is an illegal connection to a municipal storm sewer that conveys wastewater from a building, most commonly a residential home. They are often discovered unexpectedly through the City's Close Circuit Television (CCTV) program. Another indicator of a sanitary cross connection is the discovery of wastewater material at a municipal storm sewer outlet.

A properly configured property is illustrated by the diagram provided in Appendix 'A'.

#### **2.1.2 Sanitary Cross Connection Types**

There are two primary types of sanitary cross connections:

- Partial Sanitary Cross Connection – one or more, but not all plumbing fixtures within a dwelling are contributing wastewater flows to a municipal storm sewer.
- Complete Sanitary Cross Connection – all plumbing fixtures within the dwelling are contributing wastewater flows to a municipal storm sewer.

The type of sanitary cross connection can be determined through dye testing of each plumbing fixture within a dwelling such as a sink, toilet, or shower. A complete cross connection may be confirmed outside the dwelling provided that suitable access is available.

Correcting a partial sanitary cross connection may be accomplished through the reconfiguration of existing plumbing inside a dwelling, ensuring that wastewater flows from all internal fixtures are conveyed to a municipal sanitary sewer.

Sometimes a complete sanitary cross connection can be corrected outside the dwelling and within the City's road allowance by intercepting and confirming the existing sanitary private drain connection (PDC) and redirecting wastewater flows through it and into the municipal sanitary sewer servicing the street.

#### **2.1.3 Survey of Several Ontario Municipalities**

As previously mentioned, sanitary cross connections are not unique to the City of London. To gain a better understanding for what municipalities are doing to address

sanitary cross connections, City staff conducted a survey of other municipalities. The following are key take-aways based on these discussions:

- Municipalities struggle with residents who are reluctant to allow the City to confirm a suspected sanitary cross connection on their property through a simple dye testing process;
- None of the municipalities contacted have gone to the extreme of conducting a dye test under a search warrant through provisions of the Provincial Offences Act;
- Municipalities struggle to persuade residents to correct a sanitary cross connection when one is confirmed despite their understanding of the negative and continuous impact on the natural environment;
- Of the municipalities surveyed, none have successfully implemented a grant program to address sewer cross connections;
- Of the municipalities surveyed, all are correcting “complete” sanitary cross connections within the municipal right-of-way (where feasible), at no cost to property owners;
- Municipalities are sharing information regarding known sanitary cross connections with the Ministry of the Environment, Conservation and Parks (MECP); and
- At least two of the municipalities surveyed are publicly reporting the number of existing sanitary cross connections.

Sanitary lateral cross connections are a problem that is not unique to the City of London. They represent a sewer system overflow, with significant environmental impacts, and are problematic for municipalities to resolve with property owners.

#### 2.1.4 London’s Sanitary Lateral Cross Connections

Through annual maintenance and capital programs, and sometimes citizen observations, City staff continue to confirm and document sanitary and storm cross connections. Cross connections involving sanitary sources leading to the City’s storm sewer system are of particular focus due to their negative and continuous impacts to the natural environment. Cross connections involving storm sources leading to the City’s sanitary sewer system also raise concerns as they contribute undesirable flows during significant wet weather events.

Confirmed sanitary cross connections are based on evidence of sanitary waste in existing storm sewers and outlets through visual observation, sampling and/or sewer camera/video (CCTV) inspection. Upon the permission of the property owner, a dye testing process is generally conducted to confirm the specific plumbing fixtures contributing to the illegal discharge. At the conclusion of the dye testing, the cross connection can be properly classified as either “partial” or “complete”.

The City maintains a list of properties that have confirmed/suspected storm or sanitary cross connections. In 2011, the City initiated an extensive campaign, reaching out to property owners with either confirmed or suspected sanitary cross connections. Due to the challenges and complexities associated with property owner cooperation, the campaign was only marginally successful.

As at July, 2021 the City has a total of 37 confirmed/suspected sanitary cross connections on record, representing approximately 0.03% of the total number of private drain connections in the City of London. Of this total, 23 are confirmed. Seventeen of the confirmed locations are considered ‘complete’ and 6 are identified as ‘partial’. Fourteen suspected cross connections require the property owner’s permission to enter their home to conduct a dye test.

Finally, of the 37 confirmed/suspected sanitary cross connections, 35 are single residential homes and 2 are identified as commercial.

The City of London strives to correct confirmed sanitary cross connections on a proactive basis and has realized some recent successes this year where City staff have worked in partnership with the property owners.

In 2011, a Disconnection of Sewer Cross Connection Loan Program was established, providing financial assistance to property owners who are often confronted with considerable expenses to rectify a sanitary cross connection. The structure of this loan program is similar to the City's Lead Water Service Replacement Program. Despite the financial assistance available to the property owners, the City has realized poor uptake to date.

## **2.2 Strategy to Address London's Sanitary Lateral Cross Connections**

The following strategy is proposed in attempt to accelerate the elimination of cross-connections:

1. Notify the London office of the Ministry of the Environment, Conservation and Parks (MECP), to make them aware of the number of confirmed sanitary lateral cross connections in the hope of highlighting the severity of this issue with the Province.
2. Reach out again to the 37 identified property owners regarding their sanitary lateral cross connections to:
  - gain the cooperation of property owners to allow City staff to undertake dye testing of the building/property;
  - encourage property owners to rectify confirmed sanitary cross connections on their property; and
  - introduce/remind property owners of the City's Disconnection of Sewer Cross Connection Loan Program.
3. Undertake at the City's expense the disconnection of any cross-connection that can be completed within the right-of-way.

The City will continue to work cooperatively with the MECP, property owners, and licensed plumbers/drainage contractors to reach an appropriate solution specific to each property to resolve sanitary cross connection. Documentation of these confirmed/suspected locations and future locations will be appropriately tracked to demonstrate the City's due diligence.

## **3.0 Financial Impact/Considerations**

The current estimate to rectify the cross-connections within the municipal right-of-way is \$300,000. Funding is currently available in the Council approved Water and Wastewater & Treatment multi-year budget that can be applied to correcting cross-connections.

## **Conclusion**

Municipalities across North America continue to deal with the challenges of sanitary cross-connections and the City of London is not immune to this complex issue. Sanitary cross connections are illegal and negatively impact the natural environment. Despite the host of challenges associated with this chronic issue, the City of London continues to be proactive in resolving each case while working in partnership with private property owners to gain their cooperation in an effort to protect and maintain a healthy natural environment.

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**CC:** K. Oudekerk, S. Chambers, M. McKillop

Appendix 'A' Diagram of Building Sewer and Private Drain Connection (PDC) Details

Appendix 'A'  
Diagram of Building Sewer and Private Drain  
Connection (PDC) Details

