



THE CORPORATION OF THE TOWN OF AMHERSTBURG
OFFICE OF ENGINEERING & INFRASTRUCTURE SERVICES

MISSION STATEMENT: Committed to delivering cost-effective and efficient services for the residents of the Town of Amherstburg with a view to improve and enhance their quality of life.

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Author's Phone: 519 736-3664 ext. 2320	Date to Council: October 23, 2023
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To: Mayor and Members of Town Council

Subject: August 23 and 24, 2023 Rain Event

1. RECOMMENDATION:

It is recommended that:

1. The report from the Director of Infrastructure Services regarding the August 23 and 24, 2023 Rain Event **BE RECEIVED for information.**

2. BACKGROUND:

On August 23 and 24, 2023, an extraordinary rainfall event of extreme intensity and duration occurred in the area.

Using data gathered from the Town's rain gauges and data from other local municipalities, it was observed that some areas of Town experienced between 75mm to 150mm of rainfall.

The Town's storm water and wastewater systems were both fully functional at all times before, during, and after the storm. However, due to power outages, which are outside of the Town's control, some storm drainage systems in the south part of Town experienced interruptions which resulted in area flooding.

At the September 11, 2023 Council meeting the following motion was passed:

"Council TO DIRECT Administration to provide Council with a complete report, regarding the recent flooding issues in Amherstburg and Administration's recommendations related to flooding control, including the possibility of any necessary upgrades to our sewage treatment plant and/or pumping stations, and

the possible installation of any generator(s), if required. We are requesting this report prior to the 2024 budget deliberations.”

3. DISCUSSION:

It is difficult to determine the exact cause of flooding as not all homes within the flooding areas were subject to basement flooding or the same underlying cause.

However, the Town is continually working at updating and maintaining its sewer system to try to mitigate the risk. The following outlines some of the work performed on the system to date.

- **1970s & 1980s** - Sewer separation works and installation of storm sewer outlets to river. Storm water outlets constructed on Rankin, Park, Richmond and Alma. Storm sewer installations on Fort, Sandwich, Gore, King, George, Brock, Murray, Balaclava.
- **Late 1980s/ Early 1990s** - Sewer Needs & Rehabilitation Study completed by MacLaren Engineering. A Downspout Disconnection By-Law 2190 was approved by Council. A Downspout Disconnection Committee was established with the goal of eliminating all downspouts to combined sewers.
- **Late 1990s** - Sewer repairs on Texas Rd to reduce inflow and infiltration.
- **Early 2000s** - Creation of sanitary sewer systems in Amherst Point, Bar Point and Lake Erie Country Club. Construction of McLeod and Big Creek Wastewater Treatment Plants.
- **2006** - Relining of the Dalhousie Street trunk sewer to reduce Inflow & Infiltration.
- **2006 - 2009** - Sewer separation on St. Arnaud, Bertrand, Balaclava, Laird, Alma, Park, King, Seymour, Ramsay, Bathurst, Kempt, Laird, Elm, Maple, North, Dalhousie, Wolfe, Gore and Murray to eliminate all combined sewers in the Town.
- **2012** – Smoke testing of Kingsbridge North, Kingsbridge South, Fox Glen, Canard Estates, Gardiner, Big Creek and Amherst Point subdivisions. Smoke testing of Front Rd North between Texas and Kingsbridge. Repairs made per findings of the smoke testing.
- **2013** - Upgrade and expansion of the Amherstburg Wastewater Treatment Plant.
- **2014** – Inflow and Infiltration study of Kingsbridge South subdivision and Texas road sanitary sewer.
- **2015** – Town committed funding to an ERCA study on updating current IDF curves and the creation of a regional stormwater management guideline.
- **2015** – Engineering study of the sanitary system in the McGregor area. This included flow monitoring and monitoring of levels of the Sucker Creek and River Canard and using them as a comparison to the sanitary sewer levels.

- **2015** – Acoustic sanitary sewer inspection of Pacific, Atlantic, Baltic, Ventnor, St. Charles, Heaton, Sullivan and Gibb streets.
- **2015** – Installation of rain catchers in low lying sanitary sewer manholes in the McGregor area.
- **2016** – Inflow and Infiltration Engineering Study begins for the Amherstburg, Edgewater and Boblo sanitary sewage area.
- **2016** - Upgrade of the main Sanitary Pump Station #1 in the Amherstburg wastewater area.
- **2016** - Electrostatic testing of all our sewers on the McGregor system. This testing involved filling the sewers with water and sending electric charges through the water into the system. Any cracks or other anomalies in the pipe are highlighted by the electric current. This testing did not reveal any obvious sources of infiltration.
- **2016** - Functional analysis of the Pump Station #9 in McGregor. Investigating better utilization of bypass system. Working with Ministry of the Environment.
- **2017** - Council approved a voluntary Basement Flooding Protection Subsidy Program for existing residential homes in the areas serviced by the Amherstburg Wastewater Treatment Facilities. The Town subsidizes the following items:
 - Downspout Disconnection: provide a downspout disconnection service to residents on the Amherstburg wastewater collection system free of charge.
 - Foundation Drain Disconnection: provide a financial subsidy to residents on the Amherstburg wastewater collection system to disconnect foundation drains from the sanitary sewer, up to 50% of cost, to a maximum of \$1000.
 - Backwater Valve Installation: provide a financial subsidy to residents on the Amherstburg wastewater collection system to install backwater valve device on the internal sanitary plumbing system in existing homes, up to 100% of cost, to a maximum of \$1000.
 - Sump Pump Overflow: provide a financial subsidy to residents on the Amherstburg wastewater collection system to install a sump pump overflow to discharge outside to the surface (applies to existing sump pumps only), up to 100% of cost, to a maximum of \$300.
- **2017** – McGregor Lagoon Cell #2 desludging - \$430,000
- **2018** - Fog and dye testing of entire Town sanitary system to help locate breaks, defects and potentially inappropriate connections in the sewer system. - \$600,000
- **2019** – Edgewater Forcemain Project included wet weather flow management improvements which helps mitigate the risk of flooding. This is achieved by the conversion one of the Edgewater lagoon cells to a temporary wet weather storage cell.

- **2020** – Council approved a mandatory downspout disconnection in the McGregor and Kingsbridge areas.
- **2022** - Council endorsed the Inflow and Infiltration Program to systematically reduce storm water at the Town’s sewage treatment facilities.
- **2023** – Council approved a Bylaw limiting new homes or homes undergoing sufficient renovations to a single downspout connection to the sewer which limits the amount of water entering the system and therefore reduce the strain during a storm.
- **2023** – Working with developer in McGregor to ensure that the Stormwater Management system of Phase 2 of the development not only meets standards but improves the level of service for storm water management in Phase 1.

Inflow and Infiltration (I&I)

Inflow and Infiltration (I&I) are extraneous flows that inadvertently enter the sanitary collection system. Infiltration is typically described as any extra water that enters sanitary sewer pipes from the surrounding soil. Infiltration water can enter the sewer pipes through leaky pipe joints, cracks in pipes, leaky manholes and other similar type defects. Inflow is typically described as any extra water flowing into the sanitary collection system from above ground sources and is usually a result of rainfall activity and can enter the sanitary system by sheet flow of water over leaky manhole covers and uncovered cleanouts or through private property rain downspouts, cellar, yard, area or foundation drains illegally connected to the sanitary sewer system.

Based on observations made to date, in studies carried out by the Town and on data observations from monitors that the Town has placed in the Towns sanitary sewers, the pattern of wet weather flow has revealed that the majority of inflow into the sanitary sewer system is occurring via private properties. The Town continues to investigate concerns on the Town’s infrastructure and makes any repairs as necessary but the majority of concerns are arising from the private side.

Municipal Drains

A Municipal Drain is a drainage system which is governed under the auspices of the Drainage Act. The Ministry of Agriculture, Food and Rural Affairs, along with the Agricultural Drainage Infrastructure Program Policies, govern Municipal Drains. The Council of the Town of Amherstburg administers the repair/maintenance and/or improvements of all Municipal Drains within its boundary through procedures under the Drainage Act and ultimately assesses the costs to all affected landowners and agencies who are using the Municipal Drain in the ratios set out in the adopted engineers’ report that is appended to the Municipal By-Law.

As an affected owner and user of the system, a resident has the right to petition Town Council to improve the drain by submitting a “Request for Improvement”. Town Council will appoint an Engineer to examine, and provide the community of landowners with an updated report recommending which improvements should be made.

The Town's Drainage Superintendent sees that the recommended works are constructed and that the Town recovers the cost of the project by all of the affected landowners (including the Town if applicable).

There are currently over 200 Municipal Drains (290km) in the Town of Amherstburg that are governed under the auspices of the Drainage Act. Of the over 200 municipal drains, the Town also has 9 watershed areas that are not able to drain efficiently by gravity and where a pumping system was obtained under the Act. Of the nine municipal drain pumping stations, only one (Willow Beach) has back up power.

Per the Drainage Act, any landowner on a municipal drain can petition for back up power with a "Request for Improvement". This would be similar to any request for improvement made by a landowner on any of the over 200 Municipal Drains in Town. Cost for these improvements would be assessed according to the Drainage Act. Council can choose to fund any or all works associated with a Municipal Drain, however, this could be seen as inequitable by many residents who have had to fund improvements made to municipal drains in their respective areas with no assistance from the Town.

It should also be noted that the Town has 21 sanitary pumping stations. Of those, only 8 have backup power generators. Any upgrades to these pump stations to include backup power would be fully funded from the Wastewater rates. It is not uncommon for sanitary systems to be without backup power. However, consideration should be made to provide backup generators whenever possible.

4. RISK ANALYSIS:

While past and proposed future infrastructure improvements by the Town are significant, they alone will not guarantee that a basement flooding event will not occur. The effects of climate change will likely have further negative impacts on municipal sewage systems. Recognizing the turmoil that the community is experiencing with these types of rain events, the Town has taken further precautionary measures to aid residents within Amherstburg. With that said, these additional measures in no way implicate the Town in any negligible acts with respect to residential basement flooding.

Measures that a property owner can and should take to reduce the risk of flooding will help to further mitigate future flooding. This includes any improvements to their homes through the Basement Flooding Subsidy Program and improvements requested through the Municipal Drainage Act process. The Town has a large number of municipal drains and adherence to the Drainage Act will ensure that work is completed in a fair, equitable and fiscally responsible manner.

5. FINANCIAL MATTERS:

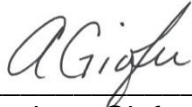
The 2023 Operating Budget contains approved funding for Inflow and Infiltration work and for assessments to the Town related to Municipal Drainage projects.

6. **CONSULTATIONS:**

N/A

7. **CONCLUSION:**

This report is provided to Council for information purposes.



Antonietta Giofu
Director of Infrastructure Services

Report Approval Details

Document Title:	August 23rd and 24th Rain Event.docx
Attachments:	
Final Approval Date:	Oct 11, 2023

This report and all of its attachments were approved and signed as outlined below:



Tracy Prince



Valerie Critchley



Kevin Fox