




INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 8, 2020
SUBJECT/REPORT NO:	Annual Wastewater Treatment Bypass Report - 2019 (PW20025) (City Wide)
WARD(S) AFFECTED:	City Wide
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SIGNATURE:	

COUNCIL DIRECTION

On January 23, 2019 Council directed staff to provide the Public Works Committee with an annual report on discharges to the natural environment from the Dundas and Woodward Wastewater Treatment Plants (WWTPs).

INFORMATION

This report details the bypass frequency and volume for the Woodward and Dundas Wastewater Treatment Plants for 2018 / 2019 and provides the 5-year average for each. This report also provides similar data from Ontario municipalities that publicly report WWTP bypass information.

Annual Report on Wastewater Treatment Plant Discharges:

The following information pertains to WWTP bypass events at the City of Hamilton's (City) two (2) WWTPs. The Woodward WWTP is located at 700 Woodward Avenue, Hamilton and discharges into the Red Hill Creek. The Dundas WWTP is located at 135 King Street East, Dundas and discharges to the Desjardins Canal. Both discharge locations are connected to Hamilton Harbour and are integral for the City to reach its goal of delisting the Harbour.

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

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The City of Hamilton has a large complex wastewater collection network consisting of both separated sewer systems and combined sewers. Combined sewers are found in older areas of the City and carry a combination of stormwater and wastewater in the same pipe. During periods of heavy rainfall, snowmelt, or elevated lake levels the combined sewers are inundated with large volumes of stormwater that can exceed the capacity of the pipes. This results in combined sewer overflows (CSOs) and can overwhelm the WWTPs resulting in a temporary bypass. WWTP operators monitor incoming flows and make operational adjustments to the treatment processes as required. To protect the plant from infrastructure damage, prevent flooding, and maintain compliance with the WWTP Environmental Compliance Approval (ECA) the WWTP operator will initiate a bypass event.

At the Woodward WWTP a bypass can occur at various stages in the wastewater treatment process. Since the completion of infrastructure upgrades in 2012 almost all bypass events have been classified as a secondary bypass. A secondary bypass means that the wastewater has been partially treated including the removal of large solids, grit and floatable material, and chemicals have been added to assist with phosphorus removal. Between May 15 and October 15 each year, secondary bypasses also receive chlorine disinfection followed by chlorine removal prior to discharge to the natural environment.

All bypasses are promptly reported to the Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre and to Public Health Services as required by the regulations.

In 2019 all bypass events at the WWTP were the result of wet weather that generated flows in excess of the WWTP's treatment capacity. It is important to note that flows from the Dundas WWTP are carefully controlled and flows exceeding the plant capacity are directed to the Woodward WWTP. There have been no costs associated with the clean-up of a WWTP bypass to date.

The 2019 data is presented in the following table:

Bypass Location	# of Bypass Events			Total Bypass Volume (ML)		
	5 Year Average (2015 - 2019)	2018	2019	5 Year Average (2015 - 2019)	2018	2019
Dundas WWTP	0	0	0	0	0	0
Woodward WWTP	17.8	17	34	1,771	1,868	3,067

Table 1 - Woodward and Dundas WWTP Bypass Frequency and Volume Comparison
(Million Litres - ML)

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There was a significant increase in bypass frequency and volume in 2019 at the Woodward WWTP when compared to 2018 and the 5-year average. This increase was largely due to high lake levels that impacted the WWTP between May and September.

As identified in Information Update HW.19.07, in 2019, significant snowmelt and rainfall events occurred in Hamilton resulting in high water levels in Lake Ontario and Hamilton Harbour. On June 4, 2019, the water levels in Lake Ontario peaked at 76.01 metres, approximately 1.32 metres above historical averages and nearly 0.15 metres above the 2017 record elevation. The elevated lake levels allowed Harbour water to enter the wastewater collection system which resulted in increased dry weather flow (base flow) to the Woodward WWTP. Ultimately the impact of the high lake levels was that smaller wet weather events resulted in WWTP bypasses, whereas a bypass may not have occurred had base flows at the plant been normal.

In addition, in 2019 temporary capacity restrictions were imposed at the Woodward WWTP resulting from the Woodward Upgrades Program construction. While these restrictions do not affect the rated dry weather capacity it does impact the capacity at which the WWTP can operate during wet weather events. These temporary capacity restrictions will be in place until construction is complete in 2022.

Finally, Council verbally requested at the January 13, 2020 Public Works Committee meeting, that available WWTP bypass volumes for comparable municipalities be presented along with the bypass data for the Hamilton WWTPs. The table below provides the requested data with information from other Ontario municipalities that publicly report WWTP bypasses.

Municipality	Total Bypass Volume (ML)	
	2018	2019
Kingston (3 WWTPs)	70	15
London (3 WWTPs)	na ¹	16
Sudbury (1 WWTP)	na ¹	338
Niagara Region (11 WWTPs)	2778	2178
Hamilton (2 WWTPs)	1868	3067
Toronto (2 WWTPs)	2093	4383

Table 2 - WWTP Bypass Volume Comparison for Hamilton and Other Municipalities (Million Litres - ML) (¹Data is not available)

APPENDICES AND SCHEDULES ATTACHED

Not Applicable