



Hamilton

Wastewater Treatment Plant Bypass and Combined Sewer Overflow Reporting

November 4, 2019

Agenda

- 1) Combined Sewer Overflows (CSOs) & Associated Investments
- 2) Wastewater Treatment Plant (WWTP) Bypasses
- 3) 2019 WWTP Bypass Reporting Process
- 4) 2020 WWTP & CSO Reporting Web Portal
- 5) PW19091 Recommendations

Combined Sewer System

- 574 km of Combined Sewers
- 214 Regulators
- 9 CSO Tanks (314 Million Litres of Storage)
- 3 Real Time Control Facilities
- 27 CSO Locations (13 Remotely Monitored)



Combined Sewer System Overview

Sewer Systems

Separate



COMBINED SEWER OVERFLOW LOCATIONS

Legend

- Monitored CSO Location
- No Instrumentation Present
- Road
- Waterbody

0 0.5 1 2 5 Kilometre

Produced by Water Information Systems - Hamilton Water (Oct. 2019)

CSO Monitoring Challenges



Historical CSO Investments

Greenhill CSO Tank #1
(1988)

Bayfront Park CSO Tank
(1993)

Eastwood CSO Tank
(1997)

Royal/Stroud CSO Tank
(2007)

McMaster CSO Tank
(2010)

Woodward WWTP Primary
Clarifier Upgrades
(2013)

James St. CSO Tank
(1993)

Main/King CSO Tank
(1997)

Greenhill CSO Tank #2
(2003)

Redhill Super Pipe
(2007)

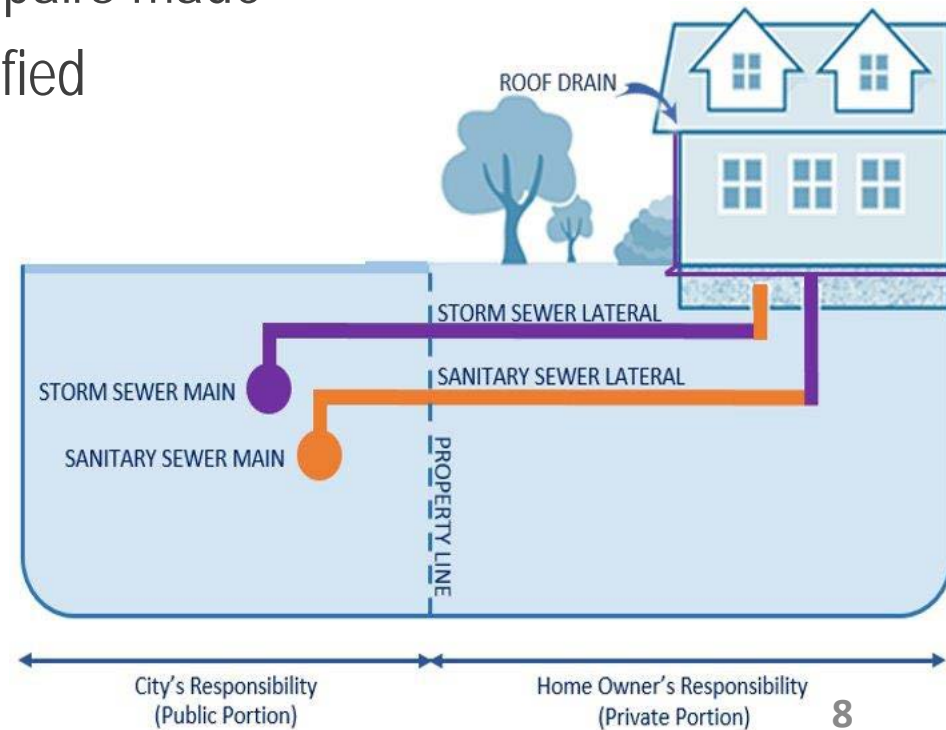
Real Time Control Phase
(2012)

Total Investment: \$184M

Ongoing CSO Investments

Sewer Lateral Cross Connection Control Program

- 382 Complete Cross Connections identified
- 367 Complete Cross Connection repairs made
- 47 Partial Cross Connections identified
- 260km of storm sewer surveyed
- 590 sewer lateral dye tests
- Capital Investment of \$2.7M



Ongoing CSO Investments

Flushables and Floatables

- Flushables Outreach Campaign: \$209K
- Floatables Research Study: \$75K



Ongoing CSO Investments

Woodward Upgrades Program

- Main Pumping Station/Electrical Upgrades/Tertiary Treatment: \$340M



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Ongoing CSO Investments

Real Time Control Phase 2

- Capital Investment: \$12.2M



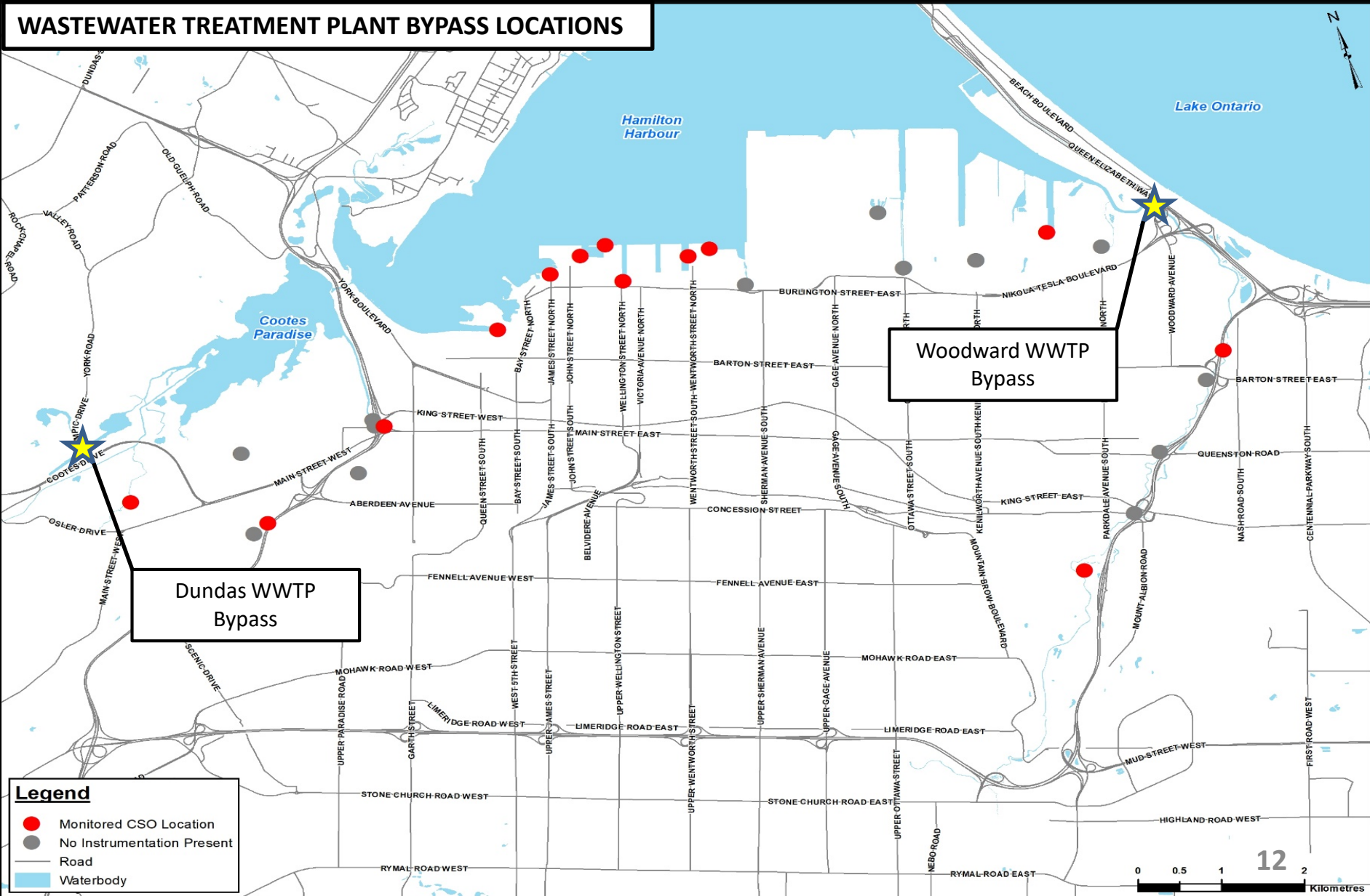
Flooding & Drainage Master Services Study:

- Will identify options for sewer separation



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WASTEWATER TREATMENT PLANT BYPASS LOCATIONS



Produced by Water Information Systems - Hamilton Water (Oct. 2019)

WWTP Bypasses

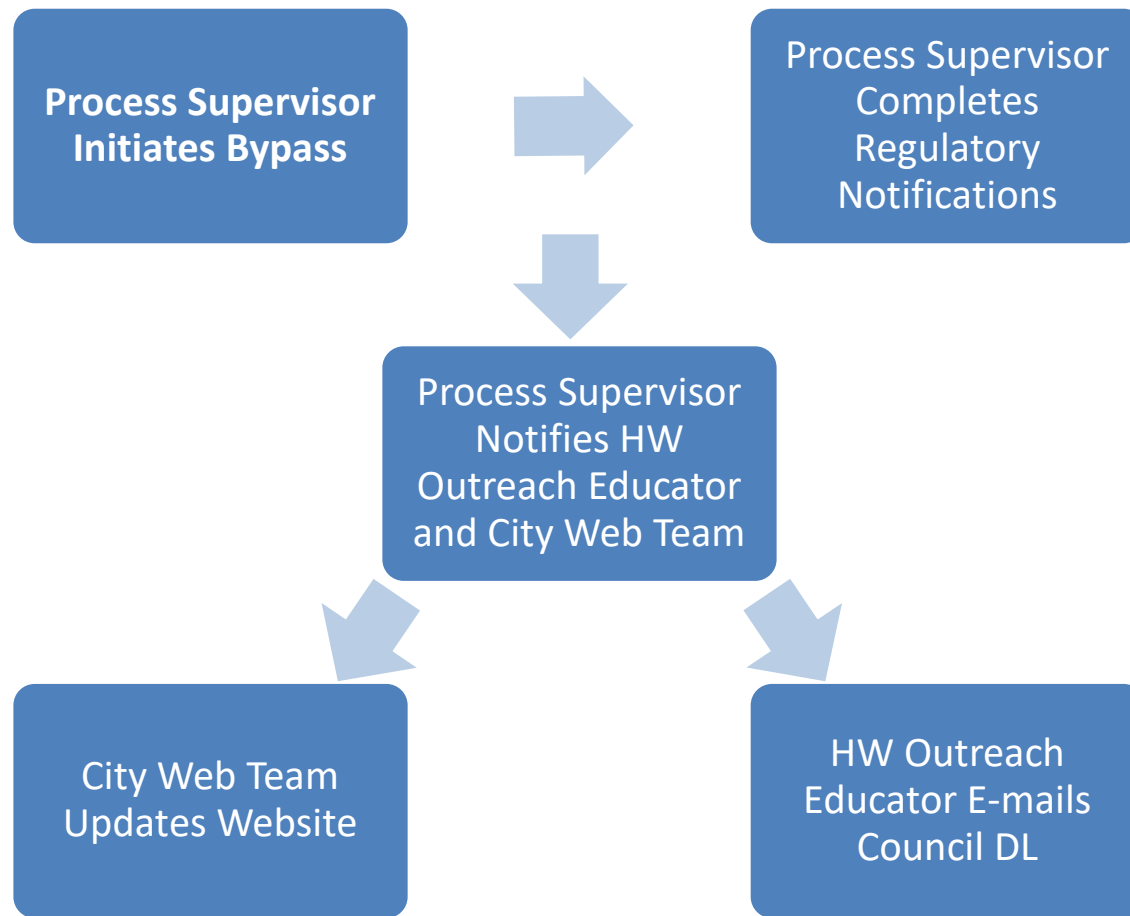
WWTP Bypass Summary:

Bypass Location	# of Bypass Events		Total Bypass Volume (ML)	
	5 Year Average (2014 - 2018)	2018	5 Year Average (2014 - 2018)	2018
Dundas WWTP	0	0	0	0
Woodward WWTP	14.6	17	1436	1868

Notes:

1. Operators Can Divert Flow from the Dundas WWTP to Prevent Bypasses
2. Bypasses Disinfected Annually Between May 15 – October 15

2019 WWTP Bypass Reporting



<http://www.hamilton.ca/wastewaterbypass>

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Wastewater Treatment Plant Bypass Initiated

Woodward Wastewater Treatment Plant Bypass **initiated June 7, 2019 at 10 am.**

Wastewater Treatment Plant Bypass Events

A wastewater treatment bypass event could occur when:

- The volume of storm water (rain and melt water) and wastewater reaching the wastewater treatment plant exceeds the capacity of the plant.
- When elevated lake levels cause lake water to back-feed into the wastewater collection system.
- To facilitate vital maintenance repairs at the treatment plant

Wastewater Treatment Plant Operations staff monitor incoming flows and plant levels and make operational adjustments to the treatment processes as required. Operations staff will initiate a bypass event to protect the plant from infrastructure damage and to prevent basement and/or surface flooding.

Although a bypass event will send partially treated wastewater into Hamilton Harbour, this does not have any impact on the quality of the City's drinking water.

Wastewater Treatment Plants Bypass Log

Date & Time	Wastewater Treatment Plant	Bypass Location	Duration
June 7, 2019 at 10 am	Woodward WWTP	Plant Bypass	Ongoing

Why Wastewater Bypass Events Occur



Wastewater Treatment Plant Bypass

Home > Home, Property and Development > Water & Sewer > Wastewater Treatment Plant Bypass

No Active Wastewater Treatment Plant Bypass

Wastewater Treatment Plants operating as expected.

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Wastewater Treatment Plants Bypass Log

Date & Time	Wastewater Treatment Plant	Bypass Location	Duration
June 7, 2019 at 10 am	Woodward WWTP	Plant Bypass	9 hours

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Why Wastewater Bypass Events Occur

2020 WWTP Bypass & CSO Reporting

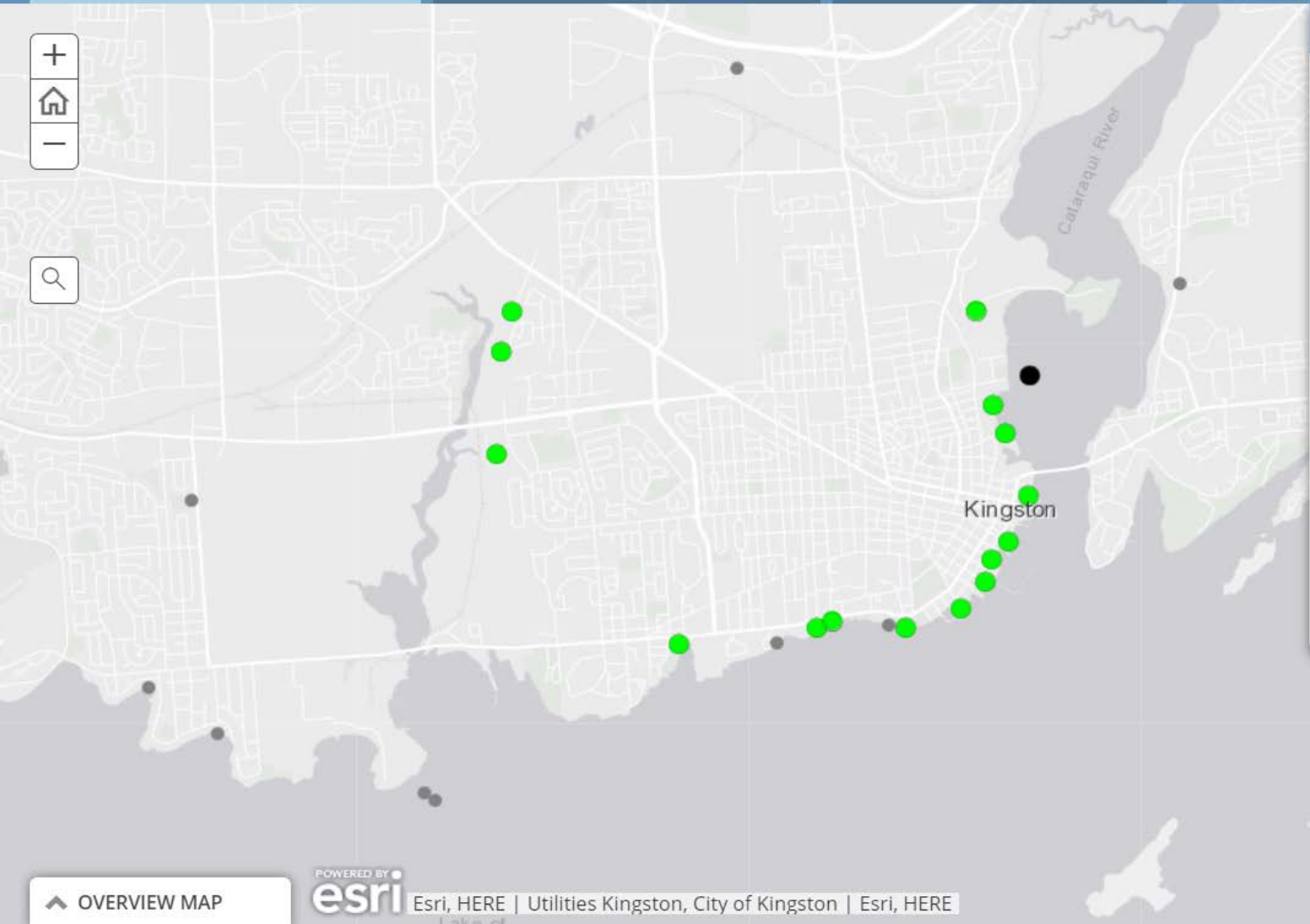
- Enhanced Web Portal for Real Time Reporting of WWTP Bypasses and CSOs
- Similar to the Sewer Overflow Webpage used by the City of Kingston:
<https://utilitieskingston.com/Wastewater/SewerOverflow/Map>
- Repository of Historic WWTP Bypass and CSO Data
- Launch Planned in Q2 2020

Know Before You Go

Sanitary Overflow Event Monitoring

Sewer Overflow Reduction Projects

Combined Sewer Service Area



LEGEND

Sanitary Overflow Event Monitoring

Discharge Point



Sewer is currently overflowing



An overflow event occurred in the last 48 hours



No overflow has occurred in 48 hours



Monitor temporarily out of service



No live data available

OVERVIEW MAP



Esri, HERE | Utilities Kingston, City of Kingston | Esri, HERE

PW19091 Recommendations

- (a) That staff be directed to conduct a formal engineering study to analyse the unmonitored combined sewer overflow locations and assess the feasibility and budget estimates for monitoring installations, and that staff report back to a future meeting of the Public Works Committee with the results of the study;
- (b) That staff be directed to report back to a future meeting of the Public Works Committee presenting an advanced external facing webpage that will provide information and answer questions about wastewater treatment plant bypasses and combined sewer overflows; and
- (c) That the matter respecting Timely Notice of Any Notifications of Discharges of Untreated or Partially Treated Sewerage into Hamilton Harbour from Local Municipal Sewerage Treatment Plants be removed from the Public Works Committee Outstanding Business List.



QUESTIONS?