



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	June 17, 2020
SUBJECT/REPORT NO:	Wastewater Treatment Plant Bypass and Combined Sewer Overflow Reporting (PW19091(a)) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Deborah Goudreau (905) 546-2424 Ext. 4606
SUBMITTED BY:	Nick Winters Director, Water & Wastewater Operations Public Works Department
SIGNATURE:	

RECOMMENDATION(S)

- (a) That staff be directed to implement the New Real Time Public Notice Protocol for Wastewater Treatment Plant Bypass and Combined Sewer Overflow Reporting; and,
- (b) That the interim report requirement of recommendation (a) and all of recommendation (b) of Public Works Committee Outstanding Business List Item AAM, respecting Wastewater Treatment Plant Bypass and Combined Sewer Overflow Reporting, be considered complete and removed.

EXECUTIVE SUMMARY

At the November 13, 2019 Council meeting, Public Works Report PW19091 was approved directing staff to: Conduct a formal engineering study (Engineering Study), to analyse the unmonitored combined sewer overflow locations and assess the feasibility and budget estimates for monitoring installations; and 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.

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

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This report provides an update on the Engineering Study and presents the New Real Time Public Notice Protocol (New Protocol), for Wastewater Treatment Plant Bypass (WWTP) and Combined Sewer Overflow (CSO) Reporting. The New Protocol includes a live CSO and WWTP Bypass Monitoring Map, an enhanced web page, provisions for pre-storm media releases, provisions for the use of social media, and the installation of new CSO outfall signage. Pending Council approval, the New Protocol will launch with full functionality on June 25, 2020.

Alternatives for Consideration - see page 8

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: There are costs associated with the Engineering Study to analyse the unmonitored CSO locations to assess the feasibility for monitoring installations at these locations and to develop budget estimates for the work. \$150K was approved in the 2020 Water, Wastewater and Storm Water Rate Budget for this assignment.

There will be costs associated with implementing recommendations made under the Engineering Study for monitoring installations. Detailed budget estimates will be developed as part of that study, but at a high-level staff estimate that the initial capital costs could be upwards of \$8 million depending upon the number of locations that require monitoring. In addition, there will be costs associated with ongoing maintenance and inspection of any new monitoring installations. These costs have not been included in any current or future Water, Wastewater and Storm Water Rate Budget projections to-date.

Implementing the New Real Time Public Notification Protocol for Wastewater Treatment Plant Bypasses and Combined Sewer Overflows will create efficiencies and result in savings in overtime costs. The new CSO Outfall signage will be produced and installed at an approximate cost of \$60K which is available from the approved 2020 Water, Wastewater and Storm Water Rate Budget.

Staffing: There are no staffing implications.

Legal: There are no legal implications.

HISTORICAL BACKGROUND

Council approved the Wastewater Treatment Plant Bypass and Combined Sewer Overflow Reporting (PW19091) on November 13, 2019 with the following 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 the Public Works Committee no later than June 1, 2020 with an interim Information Report and no later than December 31, 2020 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;
- (c) That the enhanced public notification protocol for bypasses at the wastewater treatment plant or at combined sewer overflow locations include a media release; and,
- (d) That federal and provincial funding be requested to assist in funding monitoring installations at thirteen unmonitored combined sewer overflow locations in the City of Hamilton.

This report and the accompanying presentation are responsive to recommendations (a), (b) and (c) from Report PW19091. Recommendation (d) will be explored further after the completion of the engineering study to analyse the unmonitored combined sewer overflow locations and the identification of any resulting capital projects. Updates are provided below for the four (4) initiatives resulting from recommendations (a), (b) and (c).

1) Engineering Study for Unmonitored Combined Sewer Overflow Locations

This project is currently in progress and staff are working with a consultant to finalize the study. Although minor delays may be anticipated related to any in-person site investigation due to coordination of COVID-19 safety measures, in general the project is on time with an anticipated kick-off by the end of June and expected completion by Fall 2020.

2) Advanced External Facing Webpage

In November 2019, the City of Hamilton (City), Monitoring Wastewater Bypasses webpage was created (www.hamilton.ca/wastewatermonitoring) to provide information and answers to common wastewater treatment plant (WWTP) bypass questions from residents. The webpage also includes a WWTP Bypass Log that is updated manually when a WWTP bypass occurs and includes bypass event specifics such as date, type, duration and volume.

In January 2020, the Monitoring Wastewater Bypasses webpage was expanded to include overflow information from Combined Sewer Overflow (CSO) Tanks. A CSO Tank Overflow Log was added to the page and is updated manually when a CSO Tank overflow event takes place. The webpage was then renamed to Monitoring Wastewater Overflows and Bypasses.

Since the launch of this webpage in November 2019, the page has approximately 5,000 page views (note that this number excludes views from City IP).

In addition to the creation of the wastewater monitoring webpage, the City's existing sewer system webpage (<https://www.hamilton.ca/home-property-and-development/water-sewer/sewer-system>) was enhanced to include additional information about combined sewers and CSO Tanks. The use of visuals simplified the vast underground infrastructure and made it easier for the community to see and understand. Social media was used to promote the availability of the combined sewer videos to the community.

3) Enhanced Public Notification Protocol

The Enhanced Public Notification Protocol (Protocol) was established in November 2019 using manual processes (requiring actions by City staff) to provide public notification about the occurrence of WWTP bypasses. The protocol was then revised in January 2020 to include public notification about the occurrence of overflows from CSO Tanks. These manual activities were implemented as an interim measure while staff continued to develop and implement an automated Real Time Public Notice Protocol (Initiative 4).

Following the Protocol's manual processes, the following communications are released during a WWTP Bypass or CSO Tank Overflow event:

- Media release once a WWTP bypass and/or CSO tank overflow occurs;
- Webpage banner once a WWTP bypass and/or CSO tank overflow occurs;
- Webpage banner once the WWTP bypass and/or CSO tank overflow stops which remains online for 48 hours;

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- Webpage Bypass and Overflow Event Log updates;
- Council and Mayor Direct emails; and,
- Community Partner Direct emails

Staff are responsible for manually completing the protocol during storm events. The current process requires actions from staff in multiple areas including; HW's Plant Operations (PO) and Customer Service and Community Outreach (CSCO) sections, the Corporate Call Centre, Corporate Communications and the Web Team. HW's CSCO section is responsible to monitor, review, respond, action, update, complete and verify to ensure that all staff have completed their respective requirements to ensure completion. Timeliness, accuracy and human error have been the largest challenges with the interim Protocol. The New Real Time Public Notice Protocol has been designed to address these challenges.

4) New Real Time Public Notice Protocol

Pending Council approval, the New Real Time Public Notice Protocol (New Protocol) will be launched on June 25, 2020 and will replace the interim Enhanced Public Notification Protocol. The New Protocol includes the following four (4) components:

- a. Live CSO and WWTP Bypass Monitoring Map (Live Map), screenshots are included as Appendix "A" to Report PW19091(a).
 - The Live Map is powered through a real-time data transfer from the Woodward WWTP SCADA system. The data transfer refreshes every 15 minutes to provide up to date information for each outfall location directly from the automated controls (for those outfalls equipped with monitoring equipment). Thus, providing automated, uninterrupted information to the public 24 hours a day, seven (7) days a week, 365 days a year.
 - Using the ESRI ArcGIS mapping and analytics platform, the SCADA data becomes visual in a Live Map. ESRI ArcGIS is a reliable tool, widely used across the City for mapping requirements.
 - The map is similar to the online Sewer Overflow Map maintained by Utilities Kingston which is considered an Ontario municipal best practice.
 - The map includes a total of 32 outfall locations, of which 17 locations have monitoring equipment with live data available and 15 locations that are currently unmonitored.
 - A series of five (5) map icon types exist to identify overflow conditions. The icons change based on the current SCADA data available.

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Map Icon	Icon Description
	No overflow has occurred in 48 hours
	Sewer currently overflowing
	An overflow event has occurred in the last 48 hours
	Monitor equipment is temporarily out of service
	No live data available

- Each data point on the map can be selected to expand to show information relevant to that site, including the Location Name, Discharge Receiving Water, Status of Overflow and Last Updated Date/Time Stamp.

b. Enhanced Webpage

- As of June 25, 2020, the updated Monitoring Wastewater Overflows and Bypasses webpage that includes the Live Map embedded into the body of the webpage will be made public and available to the community.
- The webpage will continue to have the WWTP Bypass Log to track any bypass event information and the CSO Tank Overflow Log is being expanded to include data from all monitored CSO Outfall locations. The historical logs will be updated on a weekly basis when the storm events have completed, and discharge volumes have been calculated.

c. Pre-Storm Media Release

- To encourage the community to prepare for potential storm impacts, a media release will be issued before any significant storm. The content and recommendations will vary depending on the severity of the forecasted storm.
- Within the media release there will be directions to visit the Monitoring Wastewater Overflows and Bypasses webpage to see if there are any active overflows during or after the storm event.

d. Social Media

Social media will be used by the City to assist with the promotion of the Live Map including:

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- Promotion of the Live Map during and directly after storm events.
- Reminders to the community, and especially those that frequent the waterfront, that they can check the status of each outfall anytime, day or night, using the Live Map.

e. New CSO Outfall Signage

- New signage at all 32 CSO outfall locations is being installed before July 2020.
- The new signage is enhanced and includes the Outfall Location Name, Public Health Awareness Reminders, Link to the Monitoring Wastewater Overflows and Bypasses webpage for the Live Map and City contact information.
- The new signage has location specific Public Health warnings that are clearly identified and include visual icons.
- An example of location specific signage is included as Appendix “B” to Report PW19091(a).

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

CSO discharges and WWTP bypasses are reported (monthly and annually), to Provincial and Federal regulatory authorities as required by existing Environmental Compliance Approvals and the Wastewater System Effluent Regulations.

The implementation of public reporting regarding WWTP bypasses and CSO discharges also addresses sections of the 2019 Woodward WWTP Environmental Compliance Approval document and related recommendations from the Provincial Government’s Made in Ontario Environmental Plan.

RELEVANT CONSULTATION

Hamilton Water staff have been working closely with the City Manager’s Office (Corporate Communications), Corporate Services (Information Technology), Public Health Services, and the Customer Contact Centre regarding the New Real Time Public Notice Protocol, the Live Combined Sewer Overflow & Wastewater Bypass Monitoring Map, and the New CSO Outfall Signage.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Recommendation (a) has been made to authorize staff to replace the current manual Public Notification Protocol for Wastewater Treatment Plant Bypasses and Overflows from Combined Sewer Overflow Tanks (Current Protocol), with the New Real Time Public Notification Protocol (New Protocol). Implementing the New Protocol will create

efficiencies and result in savings in overtime costs, while eliminating concerns that exist with the Current Protocol respecting timeliness, accuracy and human error.

Recommendation (b) clarifies that this interim report satisfies half of the requirements of recommendation (a) of Public Works Committee Outstanding Business List (OBL) Item AAM. Staff will report back to the Public Works Committee on the remaining half of recommendation (a) of OBL Item AAM, respecting the results of the Engineering Study to analyse the unmonitored combined sewer overflow locations and assess the feasibility and budget estimates for monitoring installations, no later than December 31, 2020.

ALTERNATIVES FOR CONSIDERATION

Committee could elect to keep the manually driven wastewater treatment plant bypass and overflow process. However, this process is labour intensive, subject to human error and does not provide the same level of visibility to our customers so staff do not recommend this option.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Community Engagement and Participation

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Healthy and Safe Communities

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance

Hamiltonians have a high level of trust and confidence in their City government.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” - Visual of Live Combined Sewer Overflow & Wastewater Bypass Monitoring Map Functionality.

Appendix “B” - Examples of Location Specific Signage for CSO Outfall Locations.