




CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	September 8, 2023
SUBJECT/REPORT NO:	Burlington Street Sewage Spill Update (PW22088(b)) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Shane McCauley (905) 546-2424 Ext. 1020
SUBMITTED BY:	Nick Winters Director, Hamilton Water Public Works Department
SIGNATURE:	

RECOMMENDATION

- (a) That the Hamilton Water Divisional staff complement be increased by 12 permanent full-time equivalents; and that the 12 additional full-time equivalents be used to resource the new sewer sampling program, the enhanced sewer inspection program and to mitigate other risks to the wastewater program as outlined in Report PW22088(b), funding through the 2023 Hamilton Water Divisional gapping; and,
- (b) That future operating costs as outlined in Report PW22088(b) be referred to the 2024 Rate budget.

EXECUTIVE SUMMARY

As required by [Provincial Officer's Order # 1-142403769](#) attached as Appendix "A" to report PW22088(b) issued by the Ministry of Environment Conservation and Parks (the Ministry), Hamilton Water engaged two consultants to evaluate and make recommendations for developing a new sewer sampling program, to assess the feasibility of completing a detailed in-pipe inspection of the City of Hamilton's (City) sewer system, and to assess and identify enhancements to the City's sewer inspection programs. Based on the recommendations from these two assignments Hamilton Water

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is recommending the addition of 12 new permanent full-time equivalent positions. The 12 positions will include five new permanent full-time staff to support the new sewer sampling program and four new permanent full-time staff to support the enhanced sewer inspection program. In addition, Hamilton Water has identified risks with the ability to have Water/Wastewater Treatment Operators regularly attend and inspect the over 80 wastewater outstations and combined sewer overflow facilities, and in providing the needed management oversight for the growing Water Distribution and Wastewater Collection Section within Hamilton Water. As a result, Hamilton Water is recommending two additional Water/Wastewater Treatment Operators and one new Manager position.

Alternatives for Consideration – See Page 7

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Staff hired in 2023 would be funded utilizing 2023 gapping savings and would not require an in-year increase to the 2023 operating budget. Net increase to the 2024 Water, Wastewater and Stormwater Rate Budget of approximately \$2,010,000. Table 1 below contains a break down of the associated costs and savings.

Table 1

Increase or Savings	Reason	Amount
Increase	Staff costs	\$1,470K
Increase	Operational cost	\$ 200K
Savings	Contractor	- \$ 100K
Savings	Overtime	- \$ 60K
One-time Capital	Vehicles and Equipment	\$ 500K
Total		\$2,010K

For staff that are being recommended, a cost breakdown is attached as Appendix “B” to Report PW22088(b). Increased operational costs include additional closed-circuit camera inspections and vehicle operating expenses. All additional costs would be built into the recommended 2024 Water, Wastewater and Stormwater Rate Operating Budget. The Capital investment would be included in the recommended 2024 Water, Wastewater and Stormwater Rate Capital Budget.

Staffing: Approval of the Recommendation in this report will increase the Hamilton Water Divisional complement by 12 full-time equivalents on a permanent basis.

Approval of the Recommendation in this report would necessitate some staffing realignments and minor organizational structure changes. While Hamilton Water has identified the need for these changes, they have not yet been planned. Pending Council approval, Hamilton Water will work with Human Resources to ensure that any changes are made in accordance with the City's established processes and policies.

Legal: Hamilton Water in conversations with the Ministry understand that if the City does not voluntarily implement the recommended sampling and inspection programs, The Ministry may issue a follow-up Provincial Order mandating the City to do so.

HISTORICAL BACKGROUND

On January 18, 2023, the City received [Provincial Officer's Order Number 1-142403769](#) (the Order) issued by the Ministry of Environment, Parks (the Ministry) and Conservation. The eight-part Order was a result of the Burlington Street and Rutherford Avenue sewage spills. The details of these spills are contained in the November 28, 2022 Public Works Committee Report PW22088, and the February 13, 2023 Public Works Committee Report PW22088(a). The Order required the City to undertake several actions to develop a sewer sampling program, assess the feasibility of a detailed in-pipe inspection of the City's sewer system, and assess existing inspection programs with the goal of identifying unauthorized discharge of untreated sewage to the natural environment from the City's sewer systems.

Table 2 below provides the dates each part of the Ministry's Order was met and reference to the corresponding communications.

Table 2

Date	Provincial Officer's Order #1-142403769 Part Numbers	Communication Reference
February 3, 2023	1, 2	Report PW22088(a)
March 16, 2023	3, 4	Communications Update HW.23.02 - Update - Provincial Officer's Order #1-142403769 - Attached as Appendix "C" to Report PW22088(b)
May 10, 2023	5, 6	Communications Update HW.23.04 - Update - Provincial Officer's Order #1-142403769 - Attached as Appendix "D" to Report PW22088(b)

June 29, 2023	7, 8	Communications Update HW.23.05 - Update - Provincial Officer's Order #1-142403769 - Attached as Appendix "E" to Report PW22088(b)
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POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The recommendations in Report PW22088(b) are in alignment with the Rate Budgeted Complement Control Policy (Policy No: CBP-1).

RELEVANT CONSULTATION

Legal & Risk Management Services - regarding the responses to the Ministry orders.

Finance & Corporate Services - regarding the recommended staffing and budget implications.

Human Resources - regarding the proposed staffing changes and organizational restructuring.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The Order required Hamilton Water to retain the services of a qualified person(s) to develop a sewer sampling program, assess the feasibility of completing a detailed in-pipe inspection of the City's sewer system, and assess existing sewer inspection programs considering opportunities for enhancements, with the goal of identifying unauthorized discharges of untreated sewage to the natural environment from the City's sewer systems.

DiCaro & Associates (DiCaro) was retained to assist Hamilton Water in developing a sewer sampling program and provided their recommendations in "Report for the City of Hamilton on the January 18, 2023, Provincial Officer's Order # 1-142403769" included in Appendix "C" to Report PW22088(b). The cost to complete this assignment was \$10K.

The DiCaro report provides a review of the City's current sampling programs and recommends that a proactive dry weather in-pipe sewer sampling program (sampling program) be implemented within the City's combined sewer system.

Section 5 of DiCaro's report outlines the recommended staffing and resources required to undertake the new sampling program. While the DiCaro report recommends four full-time equivalent positions and two student positions, the scope of the report did not consider the additional resources required to process the samples; work that is done by

the City's Environmental Laboratory. Hamilton Water has reviewed the consultants' recommendations and believe that the new sampling program can be implemented with the addition of five permanent full-time staff as outlined in Appendix "B" to Report PW22088(b). Two additional vehicles would be required to support the new sampling program with one-time capital costs of approximately \$175K and annual operational costs of approximately \$20K. Hamilton Water considered whether this new program could be undertaken with the existing complement; however, due to the scope of the work involved as outlined in the DiCaro report this would not be possible without significantly affecting other Hamilton Water programs.

If approved, the new sampling program would encompass the sewer lateral cross connection sampling that is currently being completed by an external contractor at a cost of \$100K annually. This contract would no longer be needed making these operational funds available to offset some of the additional operating costs associated with the program.

Stantec Consulting (Stantec) was retained to conduct the feasibility assessment of completing a detailed in-pipe sewer inspection and to complete a gap analysis of the City's existing sewer inspection programs to identify opportunities for enhancements. Stantec provided their recommendations in their report "100% Study Report to Address Items 5.1-5.4 of MECP Order No. 1-142403796", included in Appendix "D" to Report PW22088(b). The cost to complete this assignment was \$144K.

The Stantec report provides a detailed review of the City's current sewer inspection and maintenance programs; analyses the feasibility of a detailed in-pipe inspection program versus a risk-based inspection program for the City's sewer system; performs a gap analysis of the City's current sewer inspection and maintenance programs against industry best practices and provides recommendations to address these gaps.

A detailed in-pipe inspection program was assessed and deemed impractical due to its high cost (over \$50M) and length of time to complete (seven to 10 years). The Stantec report highlighted that the City's current programs (which included the risk-based inspection pilot) have proven to be highly effective, aligning well with industry best practices and even surpassing them in certain areas. Stantec recommended adopting the risk-based inspection pilot program on a permanent basis until all the City's sewers have been inspected.

Section 4.2.3 of the Stantec report outlines the recommended resources to effectively manage the enhanced risk-based sewer inspection program (inspection program). While the Stantec report recommended four full-time equivalent positions and two student positions, Hamilton Water has reviewed the recommendations and believe that the two student positions can be mitigated utilizing existing staff and are therefore only recommending the addition of four new permanent full-time staff to support the

inspection program as outlined in Appendix “B” to Report PW22088(b). Two additional vehicles would be required to support the new inspection program with one-time capital costs of approximately \$175K and annual operational costs of approximately \$20K. The initial pilot program was completed utilizing existing staff who completed the work on overtime. Stantec has estimated that it will take one crew dedicated to the inspection program at least five years to inspect the City’s entire sewer system. Hamilton Water considered whether this new inspection program could be undertaken with the existing complement; however, due to the scope of the work involved as outlined in the Stantec report this would not be possible without significantly affecting other Hamilton Water programs.

Hamilton Water, as required by the City’s Wastewater Quality Management System, conducts an annual review of the Wastewater Program to review its effectiveness and identify risks. This is followed up by a sectional annual review process where each section presents program overviews, successes, opportunities, challenges, and risks. After the discovery of the Burlington Street spill, it was through these processes that Hamilton Water identified additional risks that had not been previously assessed and were outside of the scope of both the DiCaro and Stantec assignments.

The Wastewater Collections Outstations Team consists of six full-time staff including one Superintendent, one Supervisor and four Water/Wastewater Treatment Operators (Operators). This team is responsible for the operation, preventative maintenance, and oversight of the Dundas Wastewater Treatment Plant (Dundas Plant) and Outstations (consisting of 74 Wastewater/Stormwater Pumping Stations, nine Combined Sewer Overflow tanks and several combined sewage overflow control structures). Two Operators are dedicated to the operation of the Dundas Plant while two Operators are dedicated to the Outstations.

Currently, absences within the Wastewater Collections Outstations Team due to training, sick-time or vacation are managed either through overtime or by assigning one of the two Outstation Operators to the Dundas Plant. This means that regularly there is only one Operator available to manage the numerous Outstations. Evidence has shown that routine inspections and the operators’ ability to effectively troubleshoot and problem-solve issues have suffered. This has led to the creation of unnecessary maintenance work orders which ultimately affects the maintenance team’s ability to perform preventive maintenance.

Adding two Water/Wastewater Treatment Operators as identified in Appendix “B” to Report PW22088(b) to this team will enable the team to effectively manage absences and improve the Operators ability to perform the necessary preventative maintenance and troubleshooting of Hamilton Water’s Outstations. Two additional vehicles would be

required with one-time capital costs of approximately \$150K and annual operational costs of approximately \$20K. With the addition of the two Operators Hamilton Water will be able to reduce overtime costs by approximately \$60K per year and improve staff work-life balance.

The Water Distribution and Wastewater Collection Section of Hamilton Water is responsible for the operation and maintenance of the City's watermain, sewer pipes and associated structures, stormwater management facilities and municipal drains. The responsibility for stormwater management facilities and municipal drains was added to this team's portfolio in 2019. As such, this section currently has a budgeted complement of 98 staff, an operating budget of over \$23M and a capital budget of over \$15M under a single Manager.

This team has performed exceptionally well and is known for their robust and industry leading operational and maintenance programs such as the Leak Detection Program, Sewer Lateral Cross Connection Program and Water Main Flushing Program. However, Hamilton Water has identified that having one Manager overseeing the entire breadth of Water Distribution, Wastewater Collection, Stormwater Management Facilities and Municipal Drains poses a significant risk. In addition to managing the large number of staff required for these programs, each program has significant regulatory requirements that must be met to ensure the safety of staff, the safe delivery of drinking water and the protection of the environment.

Hamilton Water is requesting the addition of a new Manager position as identified in Appendix "B" to Report PW22088(b) which will be used to mitigate the risks associated with such a large portfolio that has extremely heavy regulatory demands.

While the risk has been identified, Hamilton Water has not yet determined what the new structure will be. Hamilton Water will work with Human Resources following approved processes and in harmony with recommendations coming out of the corporate organizational structure review.

ALTERNATIVES FOR CONSIDERATION

Alternative 1:

- (a) That the Hamilton Water Divisional staff complement be increased by 11 new permanent full-time equivalents; and, that the 11 additional full-time equivalents be used to resource the new sewer sampling program, the enhanced sewer inspection program, and add two new Water/Wastewater Treatment Operators to increase the complement of the Wastewater Collection Outstations team;
- (b) That for 2023 funding be provided through Hamilton Water Divisional gapping;

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- (c) That future operating costs as outlined in Report PW22088(b) be included in the annual Water, Wastewater and Stormwater Rate Operating Budget starting in 2024; and,
- (d) That staff be directed to include one full-time equivalent, as a Manager Water Distribution & Wastewater Collection for consideration in the recommended 2024 Water, Wastewater and Stormwater Rate Budget.

Financial: Net Increase to the 2024 Water, Wastewater and Stormwater Rate Budget of approximately \$1,830,000. Table 3 below contains a break down of the associated costs and savings.

Table 3

Increase or Savings	Reason	Amount
Increase	Staff costs	\$1,290K
Increase	Operational costs	\$ 200K
Savings	Contractor	-\$ 100K
Savings	Overtime	-\$ 60K
One-time Capital	Vehicles and Equipment	\$ 500K
Total		\$1,830K

For the staff that are being recommended in Alternative 1 a cost breakdown is attached as Appendix “B” to Report PW22088(b). Increased operational costs include additional closed-circuit camera inspections and vehicle operating expenses. All staffing costs would be built into the recommended 2024 Water, Wastewater and Stormwater Rate Operating Budget. Any staff hired in 2023 would be funded utilizing 2023 gapping savings and would not require an increase to the 2023 operating budget. The Capital investment would be included in the recommended 2024 Water, Wastewater and Stormwater Rate Capital Budget.

Staffing: Approval of the Recommendations in Alternative 1 will increase the Hamilton Water Divisional complement by 11 full-time equivalents on a permanent basis.

Approval of the Recommendations in Alternative 1 will necessitate some staffing realignments and minor organizational structure changes. While Hamilton Water has identified the need for these changes, they have not yet been planned. Pending Council approval Hamilton Water will work with Human Resources to ensure that any changes are made in accordance with the City’s established processes and policies.

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Legal: Hamilton Water in conversations with the Ministry understand that if the City does not voluntarily implement the recommended sampling and inspection programs, The Ministry may issue a follow-up Provincial Order mandating the City to do so.

The Recommendations in Alternative 1 would allow Hamilton Water to implement the new sewer sampling program, the enhanced sewer inspection program, and address the immediate need of the Wastewater Collection Outstations team. However, referring the Manager Water Distribution and Wastewater Collection full-time equivalent for consideration in the recommended 2024 Water, Wastewater and Stormwater Rate Budget would delay Hamilton Water in working with Human Resources to determine a new structure for the Water Distribution and Wastewater Collection section that mitigates the risks that have been identified in Report PW22088(b). Therefore, Hamilton Water is not recommending Alternative 1 of Report PW22088(b).

Alternative 2:

- (a) That the Hamilton Water Divisional staff complement be increased by nine new permanent full-time equivalents; and, that the nine additional full-time equivalents, be used to resource the new sewer sampling program and the enhanced sewer inspection program;
- (b) That for 2023 funding be provided through Hamilton Water Divisional gapping;
- (c) That future operating costs as outlined in Report PW22088(b) be included in the annual Water, Wastewater and Stormwater Rate Operating Budget starting in 2024; and,
- (d) That staff be directed to include three full-time equivalents identified in Appendix “B” to Report PW22088(b) as “staff to address other risks”, for consideration in the recommended 2024 Water, Wastewater and Stormwater Rate Budget.

Financial: Net Increase to the 2024 Water, Wastewater and Stormwater Rate Budget of approximately \$1,510,000. Table 4 below contains a break down of the associated costs and savings.

Table 4

Increase or Savings	Reason	Amount
Increase	Staff costs	\$1,080K
Increase	Operational cost	\$ 18 K
Savings	Contractor	-\$ 100K
One-time Capital	Vehicles and Equipment	\$ 350K
Total		\$1,510K

For the staff that are being recommended in Alternative 2 a cost breakdown is attached as Appendix “B” to Report PW22088(b). Increased operational costs include additional closed-circuit camera inspections and vehicle operating expenses. All staffing costs would be built into the recommended 2024 Water, Wastewater and Stormwater Rate Operating Budget. Any staff hired in 2023 would be funded utilizing 2023 gapping savings and would not require an increase to the 2023 operating budget. The Capital investment would be included in the recommended 2024 Water, Wastewater and Stormwater Rate Capital Budget.

Staffing: Approval of the Recommendations in Alternative 2 will increase the Hamilton Water Divisional complement by nine full-time equivalents on a permanent basis.

Approval of the Recommendations in Alternative 2 will necessitate some staffing realignments and minor organizational structure changes. While Hamilton Water has identified the need for these changes, they have not yet been planned. Pending Council approval Hamilton Water will work with Human Resources to ensure that any changes are made in accordance with the City’s established processes and policies.

Legal: Hamilton Water in conversations with the Ministry understand that if the City does not voluntarily implement the recommended sampling and inspection programs, The Ministry may issue a follow-up Provincial Order mandating the City to do so.

The Recommendations in Alternative 2 would allow Hamilton Water to implement the new sewer sampling program and the enhanced sewer inspection program. However, they would delay Hamilton Water in addressing the immediate needs of the Wastewater Collection Outstation steam and in working with Human Resources to determine a new structure for the Water Distribution and Wastewater Collection section that mitigates the risks that have been identified in Report PW22088(b). Therefore, Hamilton Water is not recommending Alternative 2 of Report PW22088(b).

Alternative 3:

That staff be directed to include all the staffing needs identified in Report PW22088(b) in the recommended 2024 Water, Wastewater and Stormwater Rate Budget.

Financial: N/A

Staffing: N/A

Legal: Hamilton Water in conversations with the Ministry understand that if the City does not voluntarily implement the recommended sampling and inspection programs, The Ministry may issue a follow-up Provincial Order mandating the City to do so.

While Alternative 3 would allow Council to consider all of Hamilton Water's 2024 staffing requests at the same time during the 2024 Water, Wastewater and Stormwater Rate Budget deliberations, it would delay the implementation of the sampling and inspection programs. In correspondence with the Ministry there is an expectation that steps to implement these programs will be underway before the end of 2023 which will not be possible if the consideration of the nine staff required for the implementation of these programs is delayed. Therefore, Hamilton Water is not recommending Alternative 3 of Report PW22088(b).

Alternative 4:

That staff be directed to report back to the Public Works Committee with recommendations and implications of implementing the new sewer sampling program and enhanced sewer inspection program using existing staff and resources, by reducing existing levels of service, eliminating other Hamilton Water programs, or by using a contracted or a hybrid model.

Financial: Financial impacts would need to be assessed and included in the recommendation report.

Staffing: Staffing impacts would need to be assessed and included in the recommendation report.

Legal: Legal implications would need to be assessed and included in the recommendation report.

Due to the tight timelines and staffing demands associated with meeting the requirements of The Order, Hamilton Water has not been able to complete an analysis of what the implications of this Alternative would be. Staff would require at least six months to complete this analysis and bring a comprehensive report to Public Works Committee. In correspondence with the Ministry there is an expectation that steps to implement these programs will be underway before the end of 2023 which would not be possible. Therefore, Hamilton Water is not recommending Alternative 4 of Report PW22088(b).

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” to Report PW22088(b) – Provincial Officer's Order # 1-142403769

Appendix “B” to Report PW22088(b) – Staffing Cost Breakdown

Appendix “C” to Report PW22088(b) – Communications Update HW.23.02 - Update
Provincial Officer's Order #1-142403769

Appendix “D” to Report PW22088(b) – Communications Update HW.23.04 - Update –
Provincial Officer's Order #1-142403769

Appendix “E” to Report PW22088(b) – Communications Update HW.23.05 - Update –
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