



Hamilton

INFORMATION REPORT

TO:	Mayor and Members General Issues Committee
COMMITTEE DATE:	January 12, 2022
SUBJECT/REPORT NO:	Chedoke Creek Order - Update (PW19008(n)) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Tim Crowley (905) 546-2424 Ext. 5063
SUBMITTED BY:	Cari Vanderperk Director, Watershed Management Public Works Department
SIGNATURE:	

COUNCIL DIRECTION

At the February 21, 2020 Public Works Committee, the General Manager of Public Works and the Director of Hamilton Water or their designates were authorized and directed to meet with Royal Botanical Gardens staff to review potential solutions to Chedoke Creek and report back to GIC with their findings.

INFORMATION

The City of Hamilton (City) was served Director's Order No.1-PE3L3 (Order) by the Ministry of the Environment, Conservation and Parks (MECP) on December 4, 2020, as a result of the Main/King Combined Sewer Overflow (CSO) discharge that occurred between January 2014 and July 2018. The goal of the Order is to return Chedoke Creek to its estimated condition prior to the beginning of the discharge event and to provide offsetting remediation/mitigation to account for environmental impacts that may not be addressed by dredging alone. The discharge event was estimated to have released 47 tonnes of total phosphorus (TP) and 312 tonnes of total Kjeldahl nitrogen (TKN). A status update on the activities undertaken to date to address the Order requirements and a summary of next steps to remediate the impacts is provided below.

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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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Chedoke Creek Workplan Overview

The Chedoke Creek Workplan, as required by the Order, identifies the remedial strategy for targeted dredging in Chedoke Creek. Sediment quality samples were collected at numerous locations within Chedoke Creek, the Princess Point Embayment and Cootes Paradise in the Spring of 2021. Additional deeper samples were collected in August 2021 to better inform the dredge design template. Based on the results and the design process, the project expects to remove 34 tonnes of TP and 46 tonnes of TKN within the targeted dredging area beginning 100m south of the Kay Drage Park bridge and extending 100m north of the Desjardins Recreation Trail pedestrian bridge.

Sediment is proposed to be removed from the creek bed using a hydraulic dredge which employs a cutterhead and pump to vacuum and transport the sediments to a dredge material management area (DMMA) which is planned to be located within Kay Drage Park. The average combined dredge depth will be approximately 1.0 m which will remove approximately 10,000 m³ of sediment from the bottom of the creek.

Prior to dredging activities, the work area within the creek will be isolated using a turbidity/silt curtain that will include a weighted line to maintain bottom contact, and a floating line to isolate the work area at the surface. Fish and wildlife will be excluded from the work area prior to the dredging activities by a qualified aquatic biologist, mitigating potential interaction with the dredging operation in accordance with governing protocols.

Dewatering will be performed by pumping the sediment slurry into a geotextile container while an environmentally safe polymer is added to help bind the solids together and suitably separate the water. The separated water will then drain from the geotextile container while the sediment remains inside. The separated water will then either be pumped to a nearby sanitary sewer main (on dry days only) or returned to the creek, depending on the achievable water quality discharge as compared to provincial objectives. The geotextile container, when full of sediment, will then be opened and depending on the quality of the sediment based on in-field testing, will either be hauled off-site to a landfill or beneficially reused.

Stakeholder engagement has continued throughout the design process with discussions, meetings and feedback on the draft 60% targeted dredge design package with community partners and agencies including, but not limited to:

- Royal Botanical Gardens (RBG)
- Hamilton Conservation Authority (HCA)
- Conservation Halton (CH)
- Fisheries and Oceans Canada (DFO)
- Bay Area Restoration Council (BARC)
- Ministry of Transportation (MTO)

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- Indigenous Nations and Peoples (as listed on page 7)
- Environment Hamilton (EH)
- Redeemer University
- Hamilton Harbour Remedial Action Plan (HH RAP)
- Environment and Climate Change Canada (ECCC)
- Ministry of the Environment, Conservation and Parks (MECP)

A summary of the completed tasks to date for the Chedoke Creek Workplan is as follows:

- Topographic survey
- Sediment investigation field work
- Prequalification of contractors
- Species at Risk investigations
- Hydrologic and hydraulic modelling
- 30% design, including direct discussion and review with MECP and RBG
- 60% design, including direct discussion with Community Partners, MECP and RBG
- 90% design along with a Permitting Compliance Report (PCR), supported through discussion with MECP and RBG

The primary timeline challenge has been the permitting and approvals process that is necessary for conducting dredging works in a natural regulated waterway. There are several agencies at the Provincial and Federal level that must provide their approval prior to the work commencing. The 90% design package along with the PCR have been prepared to provide sufficient project detail to assess permitting conditions and approvals. All permit applications have been submitted and are under evaluation by each agency.

Agency	Required Permitting	Status
Ministry of Environment, Conservation and Parks	Information Gathering Form (IGF)	Submitted
	Lilliput Mussel Habitat Suitability Assessment	Submitted
	American Eel Habitat Suitability Assessment	Submitted
	Alternatives Assessment Form (AAF)	Submitted
	Overall Benefits Form (C-PAF)	Submitted
Hamilton Conservation Authority	Conservation Authority Work Permit	Submitted
Ministry of Transportation	Encroachment Permit	Submitted
	Building and Land Use Permit	Submitted

Transport Canada	Navigation Protection Act online application	Submitted
Fisheries and Oceans Canada	Request for Project Review (RFR)	Submitted
	Lilliput Mussel Habitat Suitability Assessment	Submitted
	American Eel Habitat Suitability Assessment	Submitted
	<i>Fisheries Act</i> Authorization Application	Pending RFR
Royal Botanical Gardens	Research Permit	Submitted

Next steps for the Chedoke Creek Workplan will include the advancement of the design to 100% along with the completion of the technical specifications for the tendering process which is tentatively scheduled for March 2022. In addition, it is during these stages that the local community will be engaged according to the project's communications plan, while finalizing the design. The project team will also continue to work with the following internal stakeholders to ensure their requirements are also met.

- Parks and Recreation (Kay Drage Park - usage and closures)
- Transportations, Operations and Maintenance (Trucking Routes and road sweeping)
- Waste Management (Landfill Leachate System – confirm no interference)
- Hamilton Water (Sewer Use Bylaw - if required)

Construction mobilization is expected to occur in May/June 2022 with targeted dredging starting after July 15, 2022. This is the earliest start date since in-water work is restricted based on the Ministry of Northern Development, Mines, Natural Resources and Forestry regulations and the fish species present. Due to the fish species identified in Chedoke Creek, in-water work is prohibited from March 15 to July 15 each year. The project is expected to take four (4) to six (6) months to complete which would extend to December 31, 2022. This represents the revised deadline which was approved by the MECP on October 22, 2021 with all other items in the Order remaining in effect, and unaltered.

Cootes Paradise Workplan Overview

The purpose of the Cootes Paradise Workplan, as required by the Order, is for the City to complete reasonable and complementary offsetting works to address the deficit between the nutrient loading from the discharge event and what the targeted dredge is estimated to recover as shown below.

	TP (est. tonnes)	TKN (est. tonnes)
Discharge Event (Deposited)	47	312
Targeted Dredge (Removal)	34	46

Deficit	13	266
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The offsetting works listed in the following chart mainly fall into two (2) forms, those that reduce the nutrients from the inflowing water, and those in-water works that treat or remove the nutrients and other contaminants either in a one-time reduction or continuously through uptake. These works were, in part, derived from the recommendations in the Chedoke Creek Water Quality Improvement Framework Study (Framework Study), initiated by Hamilton Water, which compiled various suggestions and potential solutions from the City’s community partners to address the overall water quality of the Chedoke Creek and Cootes Paradise. The suggested solutions included the bioremediation solution that was proposed by the RBG’s consultant during the Master Planning presentation to their Board of Directors in early 2020.

In order to determine what offsetting works will be preferred, the City is required under the Environmental Assessment (EA) Act to evaluate any large-scale initiatives through the Municipal Class EA process. The RBG bioremediation solution is one of many that will be contemplated in the Lower Chedoke Master EA Study for which staff is currently in the process of procuring a consultant to begin in early 2022.

Potential Remediation/Mitigation Offsetting Works:

#	Annual Removal Projects
A1	Large Scale Floating Vegetative Mats
A2	Outcomes from Lower Chedoke Master EA Study
#	One-Time Removal Projects
B1	Exploratory Study to Dredge beyond Princess Point Embayment in Cootes Paradise
B2	Sediment Nutrient Inactivation
#	Watershed Projects (Point/Non-Point Annual Removals)
C1	Outcomes from Chedoke Watershed Stormwater Retrofit Master EA Study
C2	Outcomes from Application of Redevelopment Sites – Stormwater Management Policy
C3	Outcomes from Application of Retrofits for Road Rehabilitation Projects / Low Impact Development Best Management Practices Policy
#	Other
D1	Ainsley Woods Class EA (Sewer Separation)

The three (3) Master Planning EA studies identified in the table above will include a detailed environmental, social and economic assessment of opportunities to improve

water quality. Any alternatives identified will be evaluated through additional fieldwork, analysis (modelling) and agency/stakeholder/Indigenous engagement.

The studies will be completed concurrently in 2022 and the identified preferred projects will advance into design in 2023 with construction expected in 2024/25. It is important to note that the Order does not specify completion deadlines for the proposed initiatives identified in the Cootes Paradise Workplan.

A summary of the completed tasks to date for the Cootes Paradise Workplan is as follows:

- Development of the Terms of Reference for A2 and C1
- Procurement for A2 and C1.

Next steps for the Cootes Paradise Workplan will consist of the evaluation and award of the consultant assignments for A2 and C1 including the development of the Terms of Reference and subsequent procurement for D1. The Road Retrofits Rehabilitation and Stormwater Management Policy reviews (C2 and C3) will continue with the appropriate City departments with expected implementation in 2023.

Costs to Date

As previously reported to the General Issues Committee on March 24, 2021 (PW19008(I)), the total incurred costs in response to the Main/King CSO discharge and the subsequent MECP Orders from 2018 to the end of 2020 was \$2,008,290. This included studies to quantify and evaluate the environmental impacts of the combined sewage discharge, operational inspections and clean-up along with initiating outreach and education programs and legal services.

In response to the requirements of the current Order the City retained the services of Wood Environment and Infrastructure Solutions (Wood) to act as the “Qualified Person”. To date, Wood’s services have been procured under a Policy 10 (Emergency) and the total amount invoiced and paid from January 2021 to present, is shown in the chart below, including Legal costs to-date. It is estimated that the construction portion of the targeted dredging will be approximately \$6M which will be further refined once tendering has been completed in Q2, 2022.

Summary of Costs (2021 to Present)

Item	Cost
Small Scale Offsetting	\$ 35,933
Wood’s Services (Workplans, Data Collection, Design and Permitting)	\$ 526,980

Total	\$ 562,913
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The timing and capital budgets of the preferred solutions from each of the three (3) Cootes Paradise Workplan EA's will be further identified once each study is completed. Approximately \$20M has been programmed into the Water, Wastewater, and Stormwater Rates Capital Budget within the next five years and once known, any additional required resources will be added into future budgets accordingly.

Indigenous Nations and Peoples Engagement

The project team in coordination with the City's Urban Indigenous Strategy group and Wood's Indigenous Relations Specialist initiated engagement with each of the Nations listed below. These Nations were anticipated to have interest in the project and were identified based on the City's knowledge and experience engaging with Indigenous Nations for provincial and federal regulated projects.

- Huron-Wendat Nation
- Six Nations of the Grand River.
- Mississaugas of the Credit First Nation
- Haudenosaunee Confederacy Council as represented by the Haudenosaunee Development Institute

Each Nation has expressed interest in the project and would like to be engaged and informed at different stages of the project and the project team will continue to involve each Nation based on their requested frequency.

Communications Strategy

The City's Communications and Strategic Initiatives team is continuing to support this project with a robust communications strategy that helps to ensure the community and key stakeholders are kept up to date on Chedoke Creek remediation progress, and the City's broader investments in the water and wastewater system, including the Clean Harbour program, Hamilton Harbour and stormwater management plans. The communications strategy includes various tactics including webpage updates, new signage, social media updates, special events when possible and community engagement opportunities.

Motion Update

On November 27, 2019 and December 11, 2019 Council amended Item 8 of the November 20, 2019 General Issues Committee (Report 19-024) which outlined items related to the contamination of Chedoke Creek as a result of the discharge from the Main/King Combined Sewer Overflow tank. A status update on each of the items

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identified was provided to GIC on February 13, 2020 (PW19008(f)) and a current update is attached as Appendix "A" to Report PW19008(n).

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PW19008(n) – Chedoke Creek Order – Update – Status of Motion Items