



## REPORT FOR ACTION

## Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Plan Implementation: Municipal Triparty Agreement

**Date:** May 9, 2019

**To:** Infrastructure and Environment Committee

**From:** General Manager, Toronto Water

**Wards:** All

### SUMMARY

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This Staff Report is to request City Council authorization to enter into a Memorandum of Understanding ("MOU") with the Regional Municipality of Peel and the Regional Municipality of Durham to undertake tasks and to share costs associated with the implementation and operation of a Lake Ontario based monitoring, information management, and forecasting system (the "Monitoring System"), covering the Lake Ontario based source waters for the water treatment plants of the three municipalities. The three municipalities will jointly develop, fund, administer and implement infrastructure, instrumentation, equipment and tools to monitor lake circulation and water quality and assist in forecasting impacts of contaminant spills which will guide emergency spills response and water treatment plant operations.

The purpose of the Monitoring System is defined in the Province of Ontario's Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Plan ('The Plan').

This Staff Report also requests staff authority to release amendments to any Toronto & Region Assessment Report and CTC Source Protection Plan proposed by the CTC Source Protection Committee where the amendment is unrelated to source waters relied upon by the City of Toronto.

### RECOMMENDATIONS

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The General Manager, Toronto Water, recommends that:

1. City Council authorize the General Manager, Toronto Water to negotiate, and enter into a Memorandum of Understanding ("MOU") with the Regional Municipality of Peel and the Regional Municipality of Durham or other form of agreement as may be

necessary, on terms and conditions satisfactory to the General Manager, Toronto Water and in a form satisfactory to the City Solicitor, in order to jointly develop, implement, administer and share costs for a Lake Ontario based monitoring, information management, and forecasting system (the "Monitoring System"), covering the lake-based source waters for the water treatment plants of the three municipalities, as set out in the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Plan pursuant to the Clean Water Act, 2006.

2. City Council authorize the General Manager, Toronto Water to enter into any other agreements with any Lake Ontario Collaborative Group members or other partners as may be necessary to support the implementation and operation of the Monitoring System, on terms and conditions satisfactory to the General Manager, Toronto Water and in a form satisfactory to the City Solicitor.

3. City Council, with respect to amendments to the Toronto & Region Assessment Report and the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Plan proposed by the CTC Source Protection Committee, delegate authority to the Deputy City Manager, Infrastructure and Development Services, in consultation with the General Manager, Toronto Water, and the Toronto Medical Officer of Health to:

a. authorize the release, for the purposes of public consultation, amendments unrelated to source waters relied on by the City of Toronto;

b. approve groundwater based amendments unrelated to source waters relied on by the City of Toronto.

4. City Council direct the City Clerk to forward this item to the Toronto and Region Conservation Authority.

## **FINANCIAL IMPACT**

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Funding in the amount of \$0.15 million is available in Toronto Water's 2019 Approved Capital Budget. An additional \$0.43 million for 2020 and a further \$0.65 million for each of 2021 and 2022 are included in the Toronto Water ten year Capital Plan. The 2019 and 2020 allocations are to fund development of the program with implementation to follow in 2021 and 2022. As the work plan and municipal responsibilities for the Monitoring System are further refined, the financial requirements for sustainment will be adjusted annually through Toronto Water's Operating and Capital Budget submission and approval process.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

## DECISION HISTORY

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At its meeting of August 25, 26, 27, and 28, 2014, City Council confirmed its endorsement of the Lake Ontario policies contained in the Credit Valley-Toronto and Region-Central Ontario (CTC) Source Water Protection Plan submitted to the Ontario Minister of the Environment on October 22, 2012, and updated at the CTC Source Protection Committee meeting of June 24, 2014. A copy of the Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.PW33.14>

At its meeting of October 5 to 7, 2016 City Council authorized the Deputy City Manager responsible for Toronto Water, in consultation with the General Manager of Toronto Water and Medical Officer of Health to designate Toronto's two representatives on the CTC Source Protection Committee. A copy of the Council decision document can be found at:

<https://www.toronto.ca/legdocs/mmis/2016/ex/bgrd/backgroundfile-95896.pdf>

## ISSUE BACKGROUND

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In 2006, the Ontario government passed the Clean Water Act, 2006 [S.O. 2006, c 22] (the "Act"). The Act addresses recommendations made by Justice O'Connor in his judicial inquiry into the tainted water tragedy that occurred at Walkerton in 2001.

The Act identified drinking water source protection regions across Ontario, including the Credit Valley-Toronto and Region-Central Ontario (CTC) Source Protection Region. The Act also establishes Source Protection Committees (SPC) for each region with responsibility for developing plans to address activities and land uses around municipal wells and drinking water treatment plant intakes in order to safeguard human health, ensure adequate safe clean water is available, and, protect current and future sources of municipal drinking water from significant threats. The CTC SPC includes representation from Toronto Water and Toronto Public Health.

On October 22, 2012, the CTC SPC fulfilled its legislated mandate and filed a Source Protection Plan (the "Plan") for the CTC Source Protection Region with the Ministry of the Environment, Conservation and Parks (MECP). The Plan represented intensive collaboration among municipalities (including the City of Toronto), Conservation Authorities, First Nations, representatives from industry and from non-governmental organizations, and benefited from in-depth and wide-ranging public consultation prior to submission. After the initial Plan was submitted, additional technical studies were undertaken to better understand groundwater regimes for well water supplies in the upper watershed areas of the CTC Source Protection Area, and additional revisions were made to policies related to Lake Ontario sources of drinking water within the CTC Source Protection Area. The MECP approved the Plan on July 28, 2015, with an effective date of December 31, 2015.

The efforts of the CTC SPC are now focused on the implementation and monitoring of the approved Plan and fulfilling other legislated duties. Municipalities within the CTC

with groundwater based water supplies are responsible for developing Official Plan policies, zoning by-laws, licensing and permitting processes and enforcement – all intended to protect their groundwater supplies. For Toronto, which has only a Lake Ontario based water supply, the Plan focuses on developing contingency plans for significant drinking water threats and enhancing contingency plans for spills which could be carried by lake currents towards the City's four water treatment plant intakes. The sources of such spills could for example be a sanitary trunk sewer or a petroleum pipeline break at a river crossing, a long term disinfection interruption at a wastewater treatment plant or a spill of tritium from an Ontario Power Generation facility.

The MECP approved Plan also contains a Policy (CTC Policy LO-G-2) which provides that the MECP, in partnership with Environment and Climate Change Canada and the municipalities responsible for providing water from systems with intakes in the western basin of Lake Ontario, form the Lake Ontario Collaborative Group (LOCG). The CTC Conservation Authorities are also members of the LOCG. The LOCG is a collaborative approach to collecting, analysing and sharing water quality data and computer simulation modelling of lake circulation and water quality impacts in support of the CTC Source Protection Plan. Its function is to support the implementation of policies to protect the western basin of Lake Ontario as a source of drinking water by ensuring that tools and information are available to all partners to help them manage or mitigate threats to drinking water sources. A Terms of Reference for the LOCG was finalized in March 2017 and provides a framework for how the parties will work together to implement the actions and policies specified in the Source Protection Plan and includes a multi-year work plan which will be reviewed and updated annually.

The LOCG is a successor to previous partnerships developed by municipalities who rely on Lake Ontario as a drinking water supply. In the late 1990–early 2000 period, municipalities from the Region of Durham westerly to Hamilton formed a collaboration to fund research projects to develop solutions to drinking water taste and odour problems. In 2006, the Lake Ontario Collaborative (LOC) was established to undertake activities needed to support the development of Assessment Reports for municipalities with Lake Ontario based water supplies from Picton County in the east to the Region of Niagara. The current LOCG, includes only the three municipalities with lake-based drinking water intakes within the CTC Source Protection Region; i.e. The Regional Municipalities of Peel and Durham, and the City of Toronto.

Under the CTC Source Protection Plan, the City of Toronto and the Regional Municipalities of Peel and Durham are required to participate as members of the LOCG and to undertake tasks (including funding portions) as agreed to in support of the implementation of these policies that are enunciated in CTC Policy LO-G-2. This policy can be found on page 135-136 at:

[https://www.ctcswp.ca/app/uploads/2016/03/RPT\\_20151231\\_CTC\\_ASPP\\_Chapter10\\_fnl\\_UPDATED\\_DEC6\\_2016.pdf](https://www.ctcswp.ca/app/uploads/2016/03/RPT_20151231_CTC_ASPP_Chapter10_fnl_UPDATED_DEC6_2016.pdf)

## **COMMENTS**

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### **Implementation of the Lake Ontario Collaborative Group (LOCG) and Work plan**

Recommendation 1 of this Staff Report seeks authorization to enter into a Memorandum of Understanding (MOU) with the Regional Municipalities of Peel and Durham to jointly fund the development and implementation of instrumentation, equipment and tools (the Monitoring System) to assist in forecasting impacts of surface water spills on Water Treatment Plants of the three municipalities, including long term administration and sustainment of the Monitoring System. The MOU will set out the proposed approach, decision making structure, and cost sharing model for the tasks that will be undertaken by the three municipalities to implement the proposed Monitoring System.

Lake Ontario is Toronto's only source of water supply for municipal drinking water. Lake Ontario is a high quality source of drinking water but its quality can be affected by large scale processes such as unforeseen significant events and unplanned contaminant releases from the many industrial and municipal facilities along the lakeshore and the major tributaries feeding into the lake.

The CTC Source Protection Plan is intended to protect Toronto's drinking water source from spills of contaminants and similar unplanned events by implementing risk reduction measures at their source, and by improving the knowledge base available for forecasting lake circulation and water quality impacts to the City's water treatment plants, when a spill occurs. The ability to respond to an event which can occur over the period of just a few hours is essential to maintaining public safety and confidence in the drinking water supply.

The LOCG has formed a Technical Committee which is responsible for program deliverables needed to implement the Monitoring System. The committee objectives are as follows:

- Develop and implement infrastructure, instrumentation, electronic tools, and databases to collect, store and share information about Lake Ontario circulation and currents and Lake Ontario water quality monitoring data;
- Maintain, develop and periodically update a 3-Dimensional Hydrodynamic and Lake Circulation Model to track and predict lake water currents and the transport of pollutants and thereby determine the potential for a spill to significantly impact Lake Ontario based water treatment plant intakes, and become a drinking water threat;
- Manage and share monitoring and modelling data amongst the CTC municipalities, the MECP, and Environment & Climate Change Canada (ECCC) among others; and
- In the event of a spill and in collaboration with MECP, use the model to assess any risk of water quality impacts at municipal water treatment plant intakes, such that the appropriate notifications and spills response activities can be activated.
- Improve spills notification procedures between the municipalities, the MECP's Spills Action Centre (SAC), and industrial spill sources such as petroleum pipeline companies and Ontario Power Generation.

The Memorandum of Understanding (MOU) between the Regional Municipalities of Peel and Durham and the City of Toronto will set out the intention of the three municipalities to implement and maintain the Monitoring System and will address governance, decision making mechanisms, dispute resolution, funding, deliverables and program function of a Municipal Director's Committee. It will detail the responsibility of each municipality for the installation and maintenance of water quality instruments, the

collection analysis and storage of data, modelling, inter-municipal communications, and any other issues that the Municipal Director's Committee deem to be necessary.

The MOU will outline the municipalities' cost sharing arrangements shared responsibilities to implement and maintain on-going activities defined in the work plan.

The proposed work plan for the common elements required by the three municipalities for 2019-2020 includes developing a data and information management system linked with a 3-Dimensional Hydrodynamic and Lake Circulation Model in the estimated amount of \$500,000. The annual long-term operating cost associated with the on-going model maintenance, data management and program management is currently estimated at \$150,000. These costs will be shared equally with the Regions of Peel and Durham.

Funding in the amount of \$ 0.15 Million is available in Toronto Water's Approved 2019 Capital Budget and \$0.43 million for 2020 is included to address the City of Toronto's portion of the common elements shared by the three municipalities. As the work plan of the LOCG is further refined, the financial requirements will be adjusted annually through Toronto Water's Operating and Capital Budget submission and approval process.

In addition, each municipality will fund as part of its water infrastructure asset base, the installation of a lake current meter and water quality monitoring system at a specific water treatment plant; i.e. instrumentation and equipment that resides on the property of each municipality is owned and fully funded by the respective municipality. For the City of Toronto, systems are planned for installation at the Clark Treatment Plant, and the R.C. Harris Treatment Plant; these capital costs are accounted for in Toronto Water's Approved 2019 Capital Budget and 2020 to 2028 Capital Plan, separate from the funding for the common elements of the three municipalities.

Recommendation 2 of this Staff Report, seeks authorization to enter into any other agreements with any Lake Ontario Collaborative Group members or other partners as may be necessary to sustain or improve the implementation and operation of the Monitoring System.

It is expected that, separate from the tasks which will be undertaken by the Regions of Peel and Durham and the City of Toronto, the MECP and ECCC will contribute in-kind support to the development of the Monitoring System, such as data from existing lake meters, research results from current and past monitoring activities along the Lake Ontario shoreline and forecasts of the wind data. Additionally, other municipalities or potential partners with monitoring data, instrumentation or information on lake circulation and water quality may be identified and brought on to contribute to the Monitoring System and the collective goals of the LOCG. This recommendation would authorize the General Manager, Toronto Water to enter into any other agreements that may be necessary in respect of such contributions by LOCG members or other partners.

### **Amendments to the 2015 MECP Approved CTC Source Protection Plan**

The CTC has formed an Amendments Working Group composed of CTC and municipal staff, to consider technical refinements needed to the 2015 MECP approved Source Water Protection Plan.

The Clean Water Act, 2006 requires that source protection authorities obtain a municipal council resolution from each municipality affected by an amendment prior to conducting public consultation on the amendment. A municipality may be considered “affected” if it is located within a geographic area related to the amendment, and/or the municipality is responsible for taking actions or otherwise implementing source protection policies related to the amendment.

This Staff Report therefore requests through Recommendations 3 and 4 that the Deputy City Manager, Infrastructure and Development Services, in consultation with the General Manager, Toronto Water and the Toronto Medical Officer of Health be delegated authority to authorize the release, for purposes of public consultation, any future amendments to the Toronto & Region Assessment Report and the CTC Source Protection Plan proposed by the CTC Source Protection Committee, where the proposed amendments focus on groundwater sources of municipal water supply not relied upon by the City of Toronto. The requested delegated authority also eliminates the need for Council approval of amendments that only impact groundwater sources in the upper reaches of the CTC Source Protection Area. City of Toronto staff will continue to seek an endorsement from City Council, where amendments to the Toronto & Region Assessment Report and the CTC Source Protection Plan proposed by the CTC Source Protection Committee focus on Lake Ontario sources of municipal water supply.

## **CONTACT**

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## **SIGNATURE**

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Lou Di Gironimo  
General Manager, Toronto Water

## **ATTACHMENTS**

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1. Lake Ontario Collaborative Group (LOCG) Program Deliverables

# ATTACHMENT 1: Lake Ontario Collaborative Group Program Deliverables

The Lake Ontario Collaborative Group (LOCG) program deliverables will:

1. Provide technical tools to collect, store and share information about Lake Ontario circulation and water quality monitoring, and where technically feasible:

- a) install, operate and maintain permanent instrumentation (e.g., continuous recording current meters with link to MECP Environmental Monitoring and Reporting Branch and the LOCG members) to provide real-time monitoring of current speed, direction, temperature and other water quality parameters throughout the water column for use with a 3-D Hydrodynamic Circulation Model for future forecasting of spills impact assessments and assessing spill prevention strategies;
- b) ensure that the real-time data are available to municipalities and conservation authorities; and
- c) undertake Lake Ontario nearshore water quality monitoring, and make the data available to municipalities and conservation authorities.

2. Provide for the maintaining and on-going developing and updating of a 3-D Hydrodynamic Circulation Model or other models as appropriate through continuous inputs from external and LOCG monitoring data sources, with particular focus to the nearshore of Lake Ontario, to assess activities to determine their potential to be significant drinking water threats, including:

- a) maintaining specialized modelling and limnology expertise to undertake spills scenario modelling; and
- b) leading the development of typical lake circulation spill base cases for mock and real-time emergency scenarios to provide tools for quick assessments of spills to provide early warning for emergency response and remedial action, including determining the parties to be notified in the event of a spill.

3. Provide for using the model as a consistent foundation for approaches to assess potential drinking water threats from:

- a) other existing activities which might be a drinking water threat to one or more municipal drinking water system;
- b) assessing newly proposed activities which may pose a threat to one or more municipal drinking water systems at the proposal stage; and
- c) assessing impacts of climate change.

4. In the event of a spill, provide a way to collaborate with MECP to explore opportunities to use the model to assess and respond to potential water quality impacts at municipal water treatment plant intakes.

5. Provide for the sharing of environmental monitoring data and using modelling to inform research on topics such as, but not limited to:



- a) the effectiveness of risk management measures and spill contingency measures;
- b) cumulative impacts of point and non-point sources of contaminants on nearshore water quality; and
- c) the effectiveness of Source Protection Plan policies in reducing the risk related to pathogens