

IE7.11 Attachment 1



Lou Di Gironimo
General Manager

Tracey Cook
Deputy City Manager

Toronto Water
City Hall
100 Queen Street West
East Tower, 24th Floor
Toronto, Ontario M5H 2N2

Tel: 416-392-8200
Fax: 416-392-4540
lou.digironimo@toronto.ca
www.toronto.ca

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Sent via e-mail

Ms. Carolyn O'Neill
Manager, Great Lakes Office
Ministry of the Environment, Conservation and Parks
40 St. Clair Avenue West, Floor 10
Toronto, ON M4V 1M2

E-mail: Carolyn.oneill@ontario.ca

Re: City of Toronto Submission - Proposed New Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (ERO #019-0198)

Dear Ms. O'Neill:

I am writing on behalf of the City of Toronto (Toronto) in response to the Environmental Registry posting #019-0198: Proposed New Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (draft new COA). Toronto appreciates the opportunity to comment on the draft 2020 COA and is pleased to provide comments and recommendations in this submission for your consideration.

Toronto commends the Governments of Canada and Ontario for their continued leadership in protecting water quality and ecosystem health of the Great Lakes through the renewal of the COA. The purpose and vision of the draft new COA to "restore, protect and conserve Great Lakes water quality and ecosystem health in order to assist in achieving the vision of a healthy, prosperous and sustainable region for present and future generations" is shared by Toronto.

Toronto concurs with the priorities and results presented in the draft new COA annexes including new areas of action pertaining to plastics pollution, road salt management, and reducing nutrients in Lake Ontario. These priorities and results will support meeting Canada's obligations under the Canada-U.S. Great Lakes Water Quality Agreement (GLWQA), the implementation of the Made-in-Ontario Environment Plan and the advancement of goals in Ontario's Great Lakes Strategy.

The new COA presents an opportunity for Canada, Ontario and Toronto to work in greater collaboration to eliminate combined sewer overflows (CSOs), advance the delisting of the Toronto and Region Area of Concern (AOC), and improve wastewater and stormwater infrastructure to reduce nutrient, pathogen and contaminant loadings to Lake Ontario. Toronto's submission focuses on these annexes of the draft new COA. Comments are also provided on other aspects of the draft agreement pertaining to harmful pollutants, source water protection, and climate change and resilience.

General Comments and Recommendations

While Toronto supports many of the elements in the draft new COA, we provide the following general comments and recommendations pertaining to the draft agreement in its entirety with the intent of strengthening the draft agreement so that it is effective in achieving its priorities and results.

- **Clear and Measurable Results and Commitments** – many of the results and commitments in the draft new COA lack clarity and specificity compared to the 2014 COA and earlier agreements which included goals to be achieved. Results and commitments should be written in actionable language that leads to implementation by communicating clear actions and measurable outcomes, e.g., target completion years.
- **Stronger Focus on Collaborative Actions with Municipalities** – Article II of the draft new COA sets out that the agreement should provide momentum to wider efforts and facilitate collaborative arrangements and collective actions to achieve the COA's vision. While the draft new COA commits to specific collaborative initiatives with municipalities in some annexes, in others, the commitments are vague. The draft new COA would be strengthened with the inclusion of additional opportunities to collaborate with municipalities, particularly in Annex 5: Areas of Concern (AOCs).
- **Dedicated Funding Resources for Infrastructure Implementation** – The draft new COA needs to be supported by dedicated and sustained investments from both levels of government as set out in the commitment of the parties set out in Article VIII. Commitments in the annexes should identify funding or co-funding arrangements with municipal partners to implement wastewater and stormwater infrastructure projects that will significantly contribute to achieving the results of the agreement.
- **Prioritizing Actions to Address Long-Standing Critical Threats** – The draft new COA incorporates new results and actions to address threats to the Great Lakes Basin such as plastic pollution and road salt, which Toronto supports. It should also prioritize completing long-standing goals and commitments for action, in particular, the elimination of combined sewer overflows and the delisting of AOCs including the Toronto and Region AOC.

Comments and Recommendations on Draft New COA Annexes

Toronto's primary area of interest is the protection and improvement of water quality in the near shore of Lake Ontario and its tributary watersheds. This area includes Toronto's Inner Harbour and Waterfront (an Area of Concern in the Great Lakes Basin), six major watercourses including the Don River, eleven swimming beaches (including eight Blue Flag Beaches), and the intakes for the City's four water treatment facilities, which provide drinking water for Toronto's 2.9 million residents and 600,000 residents in York Region.

Toronto's detailed comments and recommendations are provided in six principal areas of the draft new COA:

1. Delisting the Toronto and Region AOC and Accelerating the Don River and Central Waterfront Project (Annex 5)
2. Improving Wastewater and Stormwater Management (Annex 3)
3. Nutrient management for Lake Ontario (Annex 1)
4. Near shore water quality and source water protection (Annex 6)
5. Reducing harmful pollutants including plastics (Annex 2)
6. Climate Change and Resilience (Annex 10)

1. Delisting the Toronto and Region AOC and Accelerating the Don River & Central Waterfront Project (Annex 5)

Toronto's comments and recommendations for Annex 5 focus on the City's interest to accelerate the completion of the Don River and Central Waterfront Project (DRCW), which is the largest CSO control project in Canada and Toronto's highest priority water quality improvement project, aimed at delisting the Toronto and Region Area of Concern (AOC).

The draft new COA provides a tremendous opportunity for the Governments of Canada and Ontario to collaborate with Toronto by providing financial support to accelerate the DRCW's completion to 2030, eight years earlier than the current plan (2038). When completed, the DRCW will achieve significant reductions in CSOs and significant water quality improvement in Toronto's Don River and central waterfront. This will ultimately lead to the delisting of the Toronto AOC, co-benefit results in other COA annexes, and support waterfront revitalization.

Toronto and Region Area of Concern and CSOs

Since 1987, Toronto's waterfront has been designated by the International Joint Commission (IJC) as one of 43 Areas of Concern (AOCs) in the Great Lakes Basin where environmental health and water quality are severely degraded, particularly in Toronto's Inner Harbour and the Don River.

While progress has been made to improve ecosystem functions in the Toronto and Region AOC under the Remedial Action Plan (RAP), significantly degraded water quality persists in the Inner Harbour and Don River and impaired beneficial uses (BUI) have yet to be delisted including eutrophication (undesirable algae), beach closings, and degradation of fish and wildlife populations and habitat.¹

Combined sewer overflows (CSOs), a mixture of raw sewage and stormwater, discharged from sewer system outfalls along the Don River and directly to the Inner Harbour are a primary source of pollution. CSOs loadings containing bacteria, pathogens, heavy metals, oils and pesticides, other contaminants, and refuse and plastic waste degrade water quality and adversely impact the environmental health and fish habitat in the lower Don River and Toronto's central waterfront.

Environmental degradation from CSOs also negatively impacts the aesthetics, recreational uses and the revitalization of Toronto's waterfront, which is a primary tourism destination for Toronto's 43 million visitors and plays a critical role in the economic, cultural and environmental vitality of the city.

Don River and Central Waterfront Project (DRCW) and Its Benefits

Toronto appreciates the important role the City plays in providing environmental stewardship for Lake Ontario. Toronto is strongly committed to actions to improve water quality in Toronto's waterfront and tributaries and Lake Ontario by addressing CSO and stormwater pollution from the City's wastewater and stormwater infrastructure. Comments on the implementation of projects from the City's Wet Weather Flow Master Plan (WWFMP) are provided in the next section of this submission on Annex 3.

Toronto has embarked on the largest CSO control project of its kind in Canada – the Don River and Central Waterfront Project (DRCW), which is the most significant water quality improvement project from the WWFMP. The DRCW is an integrated wet weather flow management system to capture,

¹Kidd, Joanna, 2016. *Within Reach: 2015 Toronto and Region Remedial Action Plan Progress Report*. Toronto and Region Conservation Authority, pg. 5.

store, and transport and treat CSOs and storm water discharges from all combined sewer outfalls to the Lower Don River, Taylor-Massey Creek and Toronto's Inner Harbour. More information and a video about the DRCW is available on the City's website at: <https://www.toronto.ca/services-payments/water-environment/managing-rain-melted-snow/what-the-city-is-doing-stormwater-management-projects/lower-don-river-taylor-massey-creek-and-inner-harbour-program/>

When fully completed, the DRCW will provide multiple long-term benefits including:

- Achieving significant water quality improvement in the Lower Don River and Inner Harbour by significantly reducing CSO discharges from all CSO outfalls to these water bodies;
- Reducing loadings of pathogens, heavy metals, oils and pesticides, other contaminants, and nutrients that contribute to harmful and nuisance algae growth, and thereby supporting a healthier aquatic habitat for fish and aquatic wildlife and co-benefitting other COA priorities and annexes (Annexes 1, 2, 3, 6, and 8); and,
- Enhancing recreational opportunities such as boating and fishing and improve aesthetics, public safety and quality of life for Toronto's waterfront communities and visitors by reducing raw sewage, refuse and plastics pollution entering Toronto's waterfront.

The DRCW also supports waterfront revitalization efforts by the three levels of government to develop dynamic and diverse new communities, create new parks and public spaces, remove barriers and make connections to Toronto's waterfront for its residents and visitors, and to promote a clean and green environment.

The DRCW's water quality improvement benefits to the lower Don and Inner Harbour support the Mouth of the Don Naturalization and Flood Protection Project, and the development of new vibrant and healthy communities at the mouth of the Don River such as East Bayfront, West Don Lands and future development of the Port Lands. The DRCW's importance as the City's major pollution control initiative for the revitalization of Toronto's waterfront was highlighted in an August 2019 report released by the International Association for Great Lakes Research.²

Most importantly, the DRCW will ultimately lead to the delisting of the Toronto and Region AOC. The DRCW has been identified in the 2015 Toronto and Region Remedial Action Plan Progress Report as a priority action to address Beneficial Uses that are Impaired (BUIs) in the Toronto and Region AOC.³ In 2011, Toronto received a letter of support for the DRCW Environmental Assessment (EA) from the co-chairs of the Canada-Ontario Agreement Respecting the Great Lakes Basin (COA) Annex Implementation Committee. The letter commented on the DRCW as a major step towards delisting the Toronto and Region AOC and meeting commitments under the Canada-US GLQWA.

Letters of support for the DRCW from the 2011 COA co-chairs and other stakeholders including the Toronto and Region Conservation Authority and Don Watershed Regeneration Council, among others are available at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.PW7.6>.

DRCW Accelerated Plan and Funding

Currently, the City is funding the implementation of the \$2.5 billion DRCW project without federal and provincial financial assistance. Construction began last fall and is forecast for completion in 2038. Toronto is committed to implementing the DRCW's implementation with \$1.022 billion allocated in Toronto Water's approved 2019-2028 Capital Budget and Plan.

² Hartig, H. John, Krantzberg, G., Austin, J and McIntyre P., 2019. Great Lakes Revival. How Restoring Polluted Waters Leads to Rebirth of Great Lakes Communities. International Association for Great Lakes Research, pg. 69.

³ Kidd, Joanna, 2016. Within Reach: 2015 Toronto and Region Remedial Action Plan Progress Report. Toronto and Region Conservation Authority, pg. 69.

Toronto can move faster to complete the DRCW to advance the delisting of the Toronto AOC and improve the ecosystem health of the City's waterfront and Lake Ontario. In July 2019, City Council adopted a staff report titled [Don River and Central Waterfront Accelerated Plan](#) that set out a plan to accelerate the DRCW's completion by 8 years to 2030. To complete the DRCW by 2030 requires \$1.051 billion in capital funding in addition to the \$1.022 billion allocated in Toronto Water's approved 2019-2028 Capital Budget and Plan.

The above report included an overview of existing federal and provincial infrastructure funding programs to which the City could apply to provide the funding necessary to support the acceleration of the DRCW. No immediate funding opportunities were identified, which highlights the municipal challenge of planning and implementing large-scale multi-year infrastructure projects such as the DRCW around federal and provincial infrastructure funding programs.

City Comments and Recommendations for Annex 5: Areas of Concern

The COA commits the Governments of Canada and Ontario to clean-up and delist Canadian AOCs, which supports Canada's commitments with the United States to delist AOCs in the Great Lakes Basin under the Canada-US GLWQA.

In other Areas of Concern, the Governments of Canada and Ontario have worked in collaboration with municipalities to cost-share the implementation of remediation projects. One example is the clean-up of Randle Reef in Hamilton Harbour to support the delisting of the Hamilton AOC by significantly improving water quality and fish and wildlife habitat.

The draft new COA (*Result 11, Commitment (e)*) identifies the completion of the Randle Reef Sediment Remediation Project as a commitment by the Governments of Canada and Ontario. The draft new COA also includes commitments by the Governments of Canada and Ontario for infrastructure funding dedicated to specific projects such as the implementation of options for the Dundas Sewage Treatment Plant to reduce phosphorus inputs into Cootes Paradise.

Stronger commitments by the Governments of Canada and Ontario similar to ones above for the Hamilton AOC are required under *Result 12, Commitment (b)* to restore impaired beneficial uses to delist the Toronto and Region AOC. These commitments should identify funding support for municipal infrastructure projects such as the DRCW that address CSOs as a primary source of pollution and impairment of water quality and beneficial uses in the Toronto AOC.

Toronto recommends the inclusion of the DRCW's completion in *Result 12, Commitment (b)* as a priority remedial action by the Governments of Canada and Ontario in collaboration with Toronto to delist the Toronto and Region AOC. Consistent with City Council direction⁴, Toronto is requesting that a commitment by the Governments of Canada and Ontario to support the acceleration of the DRCW by co-funding the Project's implementation with Toronto be added in *Result 12, Commitment (b)* as follows:

Canada and Ontario will:

(b) Undertake remedial actions to achieve beneficial use impairment delisting criteria:

⁴ <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.IE6.7>

iv. Support the acceleration of the Don River and Central Waterfront Project (DRCW) by providing the funding required to complete the DRCW in 2030 to reduce combined sewer overflows and improve water quality to achieve delisting criteria.

The above recommendation aligns with commitments by the Government of Ontario in the Made-in-Ontario Environment Plan to "encourage targeted investment and invocation in managing wastewater that overflows into our lakes and rivers".⁵

Concluding Comments on Annex 5

To date, three Canadian Areas of Concern have been delisted through the collaborative efforts of Canada, Ontario, municipalities, agencies and non-governmental organizations under Remedial Action Plans (RAPs). The Toronto and Region AOC remains listed due to significant water quality and beneficial use impairments.

The draft new COA provides a tremendous opportunity for the Governments of Canada and Ontario to work in collaboration with Toronto to accelerate the completion of the DRCW, a project of national and provincial significance, which will ultimately delist the Toronto and Region AOC, provide for a cleaner and healthier Toronto waterfront and Lake Ontario, and help meet Canada's and Ontario's commitments under the COA and Canada's obligations under the Canada-US GLQWA.

2. Improving Wastewater and Stormwater Management (Annex 3)

Toronto welcomes the elevated priority of wastewater and stormwater management in the draft new COA with the addition of Annex 3, which includes new actions to support the implementation of green infrastructure and address road salt impacts.

This new annex provides opportunities for greater collaboration by the Governments of Canada and Ontario with Toronto to implement initiatives that address raw sewage contamination from combined sewer overflows (CSOs) and nutrient and contaminant loadings from wastewater and stormwater discharges to the Great Lakes and its tributaries.

We provide comments on four topics in this annex:

- a) Funding for municipal wastewater and stormwater infrastructure project implementation
- b) Improving monitoring and reporting of sewage overflows and bypasses
- c) Stormwater and wastewater policies and green infrastructure implementation
- d) Road salt management

a) Funding for Municipal Wastewater and Stormwater Infrastructure Project Implementation

Since 2003, Toronto has been implementing projects and initiatives from the Wet Weather Flow Master Plan (WWFMP) – a long-term plan to reduce the adverse impacts of CSOs and stormwater discharges to Toronto's environment with the ultimate goal of improving water quality conditions and ecosystem health in Toronto's six watersheds and waterfront. From 2003 to the end of 2018, Toronto has spent approximately \$825 million to implement source control, conveyance control and end-of-pipe projects from the WWFMP. The most recent progress report on the WWFMP's implementation is available at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PW21.6>

⁵ Ministry of the Environment, Conservation and Parks, 2018. A Made-in-Ontario Environment Plan. Queen's Printer for Ontario, pg. 15.

As noted in our comments above to Annex 5, Toronto is currently implementing the largest and most significant stormwater management program in the city's history, which includes the [Don River and Central Waterfront Project \(DRCW\)](#) and [connected projects at Ashbridges Bay Wastewater Treatment Plant \(ABTP\)](#) to greatly improve water quality in Toronto's near shore by reducing CSOs from combined sewer outfalls and contaminant and nutrient loadings from the ABTP.

While progress is being made, much work remains to improve and protect water quality, beaches and public health, particularly related to CSO and stormwater impacts. The implementation of these projects is challenging for municipalities given the large capital investments required and competing budget priorities including maintaining infrastructure in a state-of-good repair and upgrading stormwater and wastewater infrastructure to reduce flooding risks associated with severe storms and climate change.

The preamble in Annex 3 acknowledges that significant investments from all levels of government are required to improve wastewater and stormwater management. Toronto's experience has been that there are limited federal and provincial funding opportunities for major infrastructure wastewater and stormwater improvement projects to improve water quality, particularly CSO management, as noted in our comments to Annex 5.

Toronto appreciates the funding made available to municipalities by the Government of Canada through the *Investing in Canada Infrastructure Program (Green Infrastructure Stream)*, however, the current programs are not designed to fund larger multi-year infrastructure projects such as the DRCW. Funding opportunities from the Government of Ontario to support municipal wastewater improvement initiatives have been even more limited.

Toronto provides the following comments and recommendations (with suggested revisions in **bold**) pertaining to *Results 1 and 2* and commitments therein with the objective of more clearly articulating the provision of funding by the Governments of Canada and Ontario for municipal projects that reduce excess nutrient and contaminant loadings and to identify combined sewer overflows as a priority consideration for funding. In addition, priority actions to achieve *Results 1 and 2* should be identified in consultation with municipalities.

Result 1 – Excess nutrient loadings from stormwater and wastewater collection and treatment facilities in urban and rural communities are reduced.

- The definition of the term "excess" in *Result 1* is unclear and context should be provided in the Annex. If the context for the term "excess" is based on *Result 3, Annex 1: Nutrients*, this linkage should be made clear in Annex 3.
- Revise *Result 1, Commitment (a)* as follows: *Identify, promote and **fund** priority actions to assist municipalities to meet commitments in the Canada-United State Great Lakes Water Quality Agreement;*
- Revise *Result 1, Commitment (b)* as follows: *Promote infrastructure planning and **provide** eligible investments that support the reduction of excess nutrients from point sources such as municipal wastewater **collection** and treatment systems, including **combined sewer** overflows and bypasses as priority considerations under applicable infrastructure and other funding programs **and cost-sharing arrangements.***
- Revise *Result 1, Commitment (c)* as follows: ***Provide** eligible investments, including investments in green infrastructure, that support the reduction of excess nutrients from non-point sources such as urban and rural stormwater (including stormwater from agricultural landscapes), as priority considerations under applicable infrastructure and other funding programs **and cost-sharing arrangements.***

Result 2 – Contaminant loadings from stormwater and wastewater collection and treatment facilities in urban and rural communities are reduced.

- *Revise Result 2, Commitment (a) as follows: Consistent with Lakewide Action and Management Plans (LAMPs), identify and promote priority actions for contaminants (emerging and conventional) and pathogens from wastewater treatment plants, urban and rural stormwater and **combined sewer systems**, rural domestic septic systems and other rural sources;*
- *Revise Result 2, Commitment (b) as follows: Promote infrastructure planning and **provide** eligible investments that support the reduction of contaminant and pathogen loadings as priority considerations under applicable infrastructure and other funding programs **or cost-sharing arrangements**.*

b) Improving monitoring and reporting of sewage overflows and bypasses

Result 1, Commitment (f) and Result 2, Commitment (j) state that Ontario will work with municipalities to improve the monitoring and reporting of sewage overflows and bypasses. The monitoring and reporting of CSOs, in and of itself, provides little insight into the operation or condition of the sewer system and does not generate improvements in water quality. Toronto contends that provincial and municipal resources are better spent on implementing municipal initiatives that manage wet weather flows rather than monitoring CSOs and bypass events at wastewater treatment plants.

Actions taken by the Government of Ontario to improve CSO and bypass monitoring and reporting should assist municipalities in meeting the CSO reporting requirements of the *Federal Wastewater Systems Effluent Regulations, 2012*, and should consider differences in the size and complexity of sewer systems in individual municipalities, and technical feasibility and cost implications for municipalities.

In Toronto, the implementation and operation of system-wide sewage overflow monitoring would be cost-prohibitive due to the complexity of the combined sewer system with over 300 CSO regulator locations. Toronto provides effective public notification of potential CSO events and unsafe conditions for swimming or recreational activities after wet weather events through signage and beach postings at Toronto's 11 swimming beaches and signage at key recreational areas along the Toronto shoreline.

c) Wastewater and Stormwater Policies and Green Infrastructure Implementation

Result 1 includes the following commitments concerning wastewater and stormwater policies and green infrastructure:

- *Commitment (e) - Update Ontario's wastewater policies and develop a new stormwater management policy including policies specific to treatment requirements, sewage overflows and bypasses to reduce nutrient loadings;*
- *Commitment (g) - Work with municipalities and other stakeholders to undertake monitoring of the performance and effectiveness of stormwater and green infrastructure and publicly communicate the results, including any co-benefits of nutrient reduction; and,*
- *Commitment (h) - Where feasible, work with municipal partners toward reducing loadings through improvements to stormwater management systems (including facility rehabilitation and incorporation of green infrastructure and innovative treatment technologies).*
- *Commitment (i) - Work with developers, municipalities, conservation authorities and others to promote and support the use of green infrastructure and low impact development systems for stormwater management, including clarifying and enhancing policies as well as developing green standards.*

Toronto provides the following comments with respect to Ontario updating its wastewater policies and developing a new stormwater policy:

- Consult with municipal partners to ensure that new policy directions and requirements are technically feasible and cost-effective for municipal compliance;
- Consider land requirements in built-up urban municipalities that pose constraints to siting above-ground green infrastructure for water quality improvements such as stormwater ponds;
- Similarly, retrofitting wastewater treatment facilities to achieve major changes in wastewater effluent nutrient concentrations would require new treatment processes (i.e. tertiary processes) which necessitates large areas of land that may not be available at all facility sites in built-up municipalities;
- Consider research and development projects undertaken by municipalities such as Toronto's proposed upgrades with Chemically Enhanced Primary Treatment (CEPT) to reduce loadings of contaminants and nutrients from wastewater treatment plants during wet weather events, when bypasses can occur; and,
- The benefit of reductions in the loadings from wastewater treatment facilities which discharge into deeper water, on the near shore algae problem needs to be demonstrated through research as deeper waters in Lake Ontario are oligotrophic. The aquatic habitat and lake productivity could be impaired rather than improved by reducing nutrient loadings from these facilities.

Toronto welcomes *Commitments (g) (h) and (i)* by Ontario that support the incorporation of green infrastructure (GI) and low impact development (LID) to reduce nutrient loadings. Developing a better understanding of the feasibility, benefits and best practices to implement GI and LIDs is important to its future implementation and working with municipalities to set criteria, acceptable practices and basic standards will help towards closing the knowledge gap.

Toronto has taken steps to advance the implementation of GI through the release of the [City's Green Street Technical Guidelines](#) and has undertaken GI pilot projects at various locations within the City's right-of-way. Toronto also promotes the uptake of GI through the [Wet Weather Flow Management Guidelines](#) that set out stormwater management performance objectives for new and redevelopment including minimum targets for water balance (or annual runoff volume) and water quality, which are embedded in the [Toronto Green Standard](#) (TGS).

Toronto's Green Roof Building Standard and Eco-Roof Incentive Program also support the implementation of GI. More information is available on these initiatives at: <https://www.toronto.ca/services-payments/water-environment/environmental-grants-incentives/green-your-roof/>.

d) Road Salt Management

Toronto commends the Governments of Canada and Ontario on the addition of a commitment to promote salt application best management practices to minimize salt impacts to the environment.

Toronto's Salt Management Plan strives to minimize the amount of salt entering the environment by including best salt handling practices and new technologies to ensure its most effective use over the road system. Toronto looks forward to working in collaboration with the Governments of Canada and Ontario to maintain road safety while reducing the use and impacts of road salts and to regularly review progress achieved in this area.

More information on Toronto's Salt Management Plan is available at: <https://www.toronto.ca/services-payments/streets-parking-transportation/road-maintenance/winter-maintenance/salt-management-plan/>

3. Nutrient Management for Lake Ontario (Annex 1)

Toronto supports the intent of Annex 1 to address excess nutrient loadings and reduce harmful and nuisance algal blooms with an understandable emphasis on Lake Erie. Toronto welcomes the addition of Lake Ontario in this annex as a new priority for the reduction of harmful and nuisance algal blooms, which impair human use and harm ecosystem functions in Lake Ontario's nearshore including Toronto's Inner Harbour and shoreline.

Toronto's comments and recommendations focus on *Results 2 and 3* pertaining to:

- a) Improving Understanding of Nutrient Sources, Dynamics and Transport in Lake Ontario; and,
- b) Canadian Nutrients Strategy and Management Actions for Lake Ontario.

a) Improving Understanding of Nutrient Sources, Dynamics and Transport in Lake Ontario

Toronto supports the science-based approach outlined in Annex 1 to improve understanding of nutrient sources, dynamics and transport in Lake Ontario and maintaining a healthy lakeside trophic system. This is of critical importance for the development of policy approaches including the potential setting of phosphorus concentrations and loading reduction targets for Lake Ontario.

There is currently no scientific consensus for setting phosphorus loading reduction targets in Lake Ontario. Therefore, *Result 2, Commitment (d)* to assess the adequacy of Lake Ontario monitoring, research and modeling to calculate phosphorus loads to the Lake is an important action for implementation.

Toronto is pleased with the inclusion of *Result 5, Commitment (f)* which commits the Governments of Canada and Ontario to conduct long-term in-lake monitoring to track water quality and algal conditions, including monitoring *Cladophora* at sentinel sites in Lake Ontario. Toronto recommends the addition of microcystin to *Commitment (f)*, which is indicative of levels of cyanobacteria that pose major threats to source drinking water.

Toronto along with the Regional Municipalities of Peel and Durham will be conducting long-term monitoring activities at selected water treatment facilities intakes in the same part of the Lake Ontario coastal zone for source water protection purposes and would welcome the sharing of monitoring data and research.

In addition, long-term lake monitoring should include monitoring surveys along shorelines, particularly in urban areas for algae, nutrients, etc. to help spatially assess the relative contribution of stormwater (non-point discharges), tributaries and off-shore point source discharges (such as wastewater treatment plant effluents) on nearshore nuisance algal blooms, and provide insight on where nutrient reductions can be applied to achieve the greatest benefit.

Toronto welcomes the opportunity to collaborate with Canada and Ontario on long-term lake monitoring activities in the future.

b) Canadian Nutrients Strategy and Management Actions for Lake Ontario

Annex 1 also proposes to begin applying scientific data, knowledge and policy approaches from Lake Erie to Lake Ontario to inform the development of a Canadian Nutrients Strategy for Lake Ontario in *Result 3*. This requires careful consideration and understanding of the differences between the two lakes in the nearshore and offshore (deep water) areas.

In developing the Lake Ontario Nutrients Strategy and future actions to reduce nutrient loadings, Toronto provides the following comments:

- The Nutrients Strategy for Lake Ontario should also consider scientific data and knowledge from Lake Michigan whose nutrient dynamics, transport and size may be more comparable to Lake Ontario than Lake Erie, which is shallow and warmer than Lake Ontario;
- Future actions to reduce nutrient loadings must consider and balance the positive impacts of reducing benthic algae beds in the near shore and potential negative impacts (e.g., fishery impacts) in offshore areas of Lake Ontario where total phosphorus concentrations may be quite oligotrophic⁶;
- The nutrient management strategy should consider a potential minimal response in the extent and magnitude of benthic algae beds (especially the green algae, *Cladophora*) to a phosphorus reduction strategy, as the light regime has a potential concurrent limitation with phosphorus in controlling the growth of *Cladophora*;
- Nutrient loading reduction targets should be targeted to locations and sources that contribute the most intense loadings to the watershed (e.g., non-point sources to tributaries such as urban stormwater runoff and rural runoff) and provide the greatest benefit in reducing nuisance and harmful algae;
- Local circumstances should be considered in lake management, such as Toronto's unique new ABTP outfall which directs more of its nutrient discharges to off-shore waters; and,
- The Nutrients Strategy and any future actions, including potential loading reduction targets must be developed in consultation with municipalities to ensure they are technically feasible and cost-effective, and take into consideration actions by municipalities to reduce nutrient loadings from wastewater and stormwater infrastructure (see comments in Annex 3 concerning wastewater treatment plant upgrades).

Toronto is committed to reducing nutrient loadings to the city's watercourses and waterfront through the projects and initiatives highlighted in our comments to Annex 3 and 5, especially the DRCW and upgrades at wastewater treatment facilities including the new ABTP outfall. The three levels of government should work cooperatively to develop and implement collective actions that will provide the greatest benefit and cost-effectively reduce harmful and nuisance algae in the Great Lakes. Toronto looks forward to working with the Governments of Canada and Ontario to identify and implement future priority actions to achieve the results in Annex 1.

⁶ Offshore total phosphorus concentrations of ca 5 ug/L are about half of the International Joint Commission target concentration for Lake Ontario of less than 10 ug/L (see Scavia and Chapra, 2012; J. Great Lakes Res., vol 38, pp 741-754).

4. Near shore water quality and source water protection (Annex 6)

Toronto strongly supports the purpose and results in Annex 6: Lakewide Management to advance the restoration, protection and conservation of the Great Lakes with a focus on improving near shore ecosystem health and protecting source drinking water.

The emphasis of this annex on collaborative efforts by the Governments of Canada and Ontario with the Great Lakes community is essential in identifying threats and priority actions to water quality, including beach water quality and drinking source water in connection with Ontario's *Great Lakes Strategy* and Ontario's *Clean Water Act, 2006*.

Toronto was an active participant in the development of the CTC Source Water Protection Plan for Lake Ontario to protect drinking water sources as required by Ontario's *Clean Water Act*. The CTC Source Water Protection Plan includes 15 policies that are intended to specifically address current and future potential threats to the City's intakes within Lake Ontario.

CTC Policy LO-G-2 of the CTC Source Water Protection Plan provides that the MECP, in partnership with Environment and Climate Change Canada (ECCC) 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). Under CTC Policy LO-G-3, Toronto, together with the Regional Municipalities of Peel and Durham, participate as members of the Lake Ontario Collaborative Group (LOCG) and undertake and collectively fund tasks, agreed to in the Terms of Reference.

The LOCG's current focus is to implement and operate a Lake Ontario based monitoring, information management, and forecasting system whose elements include infrastructure, instrumentation, equipment, and tools to monitor lake circulation and water quality and assist in forecasting the impacts of contaminant spills which will guide emergency spills response and water treatment plant operations. The LOCG demonstrates a collaborative approach to collecting, analyzing, and sharing water quality data for Lake Ontario's coastal zone.

Toronto is encouraged by the Governments of Canada and Ontario *Commitments (a) to (e) under Result 5* to identify and assess potential risks to the Great Lakes as a source of safe drinking water and early actions to manage these risks. Toronto looks forward to the Governments of Canada and Ontario fulfilling these commitments to support the work of the LOCG, specifically by functioning as members of the LOCG and by committing resources in these areas of research and monitoring.

5. Reducing Harmful Pollutants including Plastics (Annex 2)

Toronto strongly supports the results and commitments in Annex 2 including the addition of plastic pollution as a new priority for action by the Governments of Canada and Ontario to reduce releases of harmful pollutants into the Great Lakes basin.

Plastic pollution degrades the aesthetics, recreational uses and biota health of the city's waterfront and watercourses. Each year PortsToronto removes 400 to 900 metric tons of debris including plastic pollution from Toronto's Inner Harbour and the Don River, and it is

estimated that more than 650 kg of plastic pollution enters Lake Ontario from the Don River annually.⁷

Toronto supports the Governments of Canada and Ontario's commitments in Annex 2 to reduce risks and impacts from plastic waste and microplastics through provincial and federal-level plastics reduction initiatives. Toronto is currently undertaking consultation to inform policies and programs that also aim to reduce single-use and takeaway items, including plastic packaging that contributes to plastic waste.

Toronto is additionally encouraged by the actions to transition to a producer responsibility model to reduce plastic pollution. As part of [Toronto's Long Term Waste Management Strategy](#), Toronto is working towards an aspirational goal of zero waste and a circular economy to limit the negative impacts of waste.

Toronto is also implementing stormwater management projects that will reduce plastic pollution from entering the City's watercourses and Lake Ontario nearshore from the City's sewer and storm sewer infrastructure. As mentioned in our comments to Annex 5, the Don River and Central Waterfront Project, when completed, will significantly reduce CSO discharges to the Lower Don River and Toronto's Inner Harbour and thereby will reduce plastics pollution in these waterbodies as CSOs often carry plastics.

With respect to Ontario commitments to address plastics and microplastics pollution by *(j) working with industry partners to encourage best practices (e.g. filtering wastewater discharges) and (l) considering plastic pollution in wastewater and stormwater policies*, we contend that source control measures to reduce and eliminate plastic pollution, especially microplastics (such as the federal ban on microbeads) are more cost-effective solutions than developing new policies or requirements for end-of-pipe treatment solutions.

In summary, Toronto supports the results and commitments in Annex 2 to prevent plastic waste from entering into the Great Lakes and is committed to working with federal and provincial governments to collectively reduce, reuse, and recycle and move towards a zero waste future.

6. Climate Change and Resilience (Annex 10)

Toronto supports the purpose and principles in Annex 10 to continue to build understanding of climate change impacts, advance the integration of this knowledge into Great Lakes adaptation strategies and management actions, and help communities build climate resilience.

Toronto is committed to significant greenhouse gas emission reductions to meet its target of reducing greenhouse gas emissions by 80% against 1990 levels by the year 2050. [TransformTO](#) is Toronto's long-term greenhouse gas-reduction strategy and aims to reduce local greenhouse gas emissions, and improve our health, grow our economy, and improve social equity. In July 2017, City Council unanimously approved a set of long-term, low-carbon goals, and strategies to reach them.

⁷ <https://oceanconservancy.org/blog/2018/08/02/torontos-don-river-source-plastic-pollution-great-lakes/>

The imperative to address climate change and to prepare for the impacts is urgent and cities across the Great lakes are at the forefront for action in building climate resilience to extreme weather events and to mitigate the impacts of a changing climate change. These impacts include disproportionate burdens on the most vulnerable residents and significant costs related to infrastructure damage caused by extreme weather events including flooding and High Lake Effect.

Earlier this year, Toronto released [Toronto's Resilience Strategy](#) which sets out a vision, goals, and actions to help Toronto survive, adapt and thrive in the face of any challenge, particularly climate change and growing inequities. Toronto's multi-year Basement Flooding Protection Program is one of the City's key initiatives to mitigate urban flooding associated with extreme storms by making improvements to the City's storm drainage systems to reduce basement and surface flooding risks.

Collaborative efforts by the Governments of Canada and Ontario with municipalities and other partners (e.g., Toronto and Region Conservation Authority) involved in assessing climate change impact vulnerabilities are very helpful. Toronto as part of the LOCG with the Regional Municipalities of Peel and Durham looks forward to the information generated by *Results 1, 2 and 3* which will assist the LOCG in estimating changes in Lake Ontario Coastal Zone water temperatures, lake circulation, water levels and related phenomena due to climate change impacts.

Toronto recommends that Annex 10 make a stronger link between the impacts of climate change and public health. While the impacts on people, public health, communities, and infrastructure in the Great Lakes basin are described in the preamble of Annex 10 preamble, the results and commitments in this section should reflect these potential impacts. For example, *Result 4, Commitment (b)* should also include reference to human health.

Conclusion

In summary, Toronto would like to again commend the Governments of Canada and Ontario on the renewal of the COA. We look forward to collaborating with both parties on the initiatives outlined in this submission to achieve the COA's priorities. If you have any questions or require additional information please contact me at 416-392-8200 or by e-mail at lou.digironimo@toronto.ca.

Yours truly,

Lou Di Gironimo
General Manager, Toronto Water

C: Chris Murray, City Manager, City of Toronto
Heather Taylor, Chief Financial Officer, City of Toronto

Tracey Cook, Deputy City Manager, Infrastructure & Development Services
Sandra Rodriguez, Director, Corporate Intergovernmental & Agency Relations, City
Manager's Office
Jim Baxter, Director, Environment and Energy Division