



February 22, 2021

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Ministry of Environment, Conservation and Parks
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Ms. Malhotra:

**RE: York Region Response – ERO 019-2833 – Lake Simcoe Protection Plan
10-Year Review**

York Region thanks the Province for engaging the Region on the *Lake Simcoe Protection Plan 10-year review*. This letter outlines key comments and recommendations from York Region staff. These comments will be reviewed by Regional Council members at the Committee of the Whole meeting on March 4. Staff request the Ministry of the Environment, Conservation and Parks consider any additional comments that may be provided by Regional Council in addition to what is included in this response.

Region staff strongly support the Lake Simcoe Protection Plan and its objective to improve the health of Lake Simcoe and have implemented actions under the plan for the last ten years. Reviewing the Lake Simcoe Protection Plan provides an opportunity to learn from the last ten years and assess the effectiveness of actions designed to protect and improve the health of the lake. Like other growing municipalities around the lake, York Region has a strong interest in helping the Province meet the objectives of the Lake Simcoe Protection Plan in a manner that protects the natural environment and facilitates Provincially mandated growth.

Starting in the 1960s, Lake Simcoe has been one of the most studied watersheds in Ontario. There is a long-documented history of phosphorus and dissolved oxygen issues impacting the lake. According to Environment and Climate Change Canada, the annual phosphorus loading rate for Lake Simcoe has more than doubled to 77 tonnes of phosphorus per year since the 1800s. Efforts to restore Lake Simcoe have been under

way since the 1980s, beginning with the Lake Simcoe Environmental Management Strategy (LSEMS) program, in 1981. Forty years later, phosphorus reductions have largely come from sewage treatment plants, that have reduced phosphorus loadings by approximately 50 percent and at significant financial cost since 2009.

York Region staff have focused their comments on concrete ways to drive action that will help achieve targets outlined in the Lake Simcoe Protection Plan. Specific recommendations are detailed within this response and the following highlights key recommendations:

1. Accelerate phosphorus reduction in Lake Simcoe by focusing on the most impactful and cost-effective actions that are measurable to address phosphorus from non-point sources
2. Develop, fund and commit to a time-bound implementation plan for reducing phosphorus
3. Make governance changes to the Lake Simcoe Coordinating Committee to facilitate an adaptive management approach to implementation
4. Give Lake Simcoe Region Conservation Authority the authority and tools required to effectively lead implementation and monitor the effectiveness of the Lake Simcoe Protection Plan
5. Convert some policy areas within the Lake Simcoe Protection Plan to 'Designated Policies' that mandate action
6. Align the Lake Simcoe Protection Plan with recent changes to Provincial land-use plans, including the Provincial Policy Statement, Greenbelt Plan, Oak Ridges Moraine Conservation Plan, and balance with requirements under 'A Place to Grow'
7. Clarify how municipalities can comply with both legislated growth targets and wastewater servicing restrictions under the Lake Simcoe Protection Plan
8. Focus on addressing the impacts of invasive species like mussels on the watershed and infrastructure for the next ten years

The following provides detailed comments that elaborate on York Region's key recommendations.

Polders

Polders are highly productive agricultural areas but are also significant contributors of phosphorus to the watershed (Minister's 10-year report on Lake Simcoe, 2020). Phosphorus inputs from the Polders have been increasing in recent years due to more frequent and intense storms. By installing a treatment system on each polder, it would convert a non-point source into a point source that can be treated. York Region has proposed a project to address loading from the highest contributing polder, the Holland Marsh Polders, which provides an example of how treatment technologies can be applied to address these agricultural sources. At a cost of \$40 million the project would reduce phosphorus outputs from the Holland Marsh Polders by over 40%. Agricultural phosphorus removal could also result in economic development opportunities, using home grown treatment technologies tailored to an agricultural setting and the Ontario climate. Phosphorus removal technologies for agricultural runoff has been the subject of technology trials through the Ontario Federation of Agriculture's [Thames River Phosphorus Reduction Collaborative](#).

1. Accelerate phosphorus reduction in Lake Simcoe by focusing on the most impactful and cost-effective actions that are measurable to address phosphorus from non-point sources

The Lake Simcoe Protection Plan has led to a significant reduction in phosphorus and an improvement in the health of Lake Simcoe. While there have been significant improvements, phosphorus levels still need to be reduced by an additional 50% to achieve targets under the Lake Simcoe Protection Plan. Over the last ten years, significant investments in wastewater infrastructure improvements have been made to reduce phosphorus despite these sources only representing 2% of overall watershed inputs. Continued focus on these point sources will not achieve the reductions needed in Lake Simcoe under the Lake Simcoe Protection Plan. Septic tanks represent an additional 4% of point source inputs to the lake. Additional policy requiring reductions from these point sources is unwarranted and come at a significant cost for limited environmental benefit.

Over the next ten years, efforts to reduce phosphorus entering Lake Simcoe must focus on non-point sources. Runoff is the single largest source of phosphorus, representing 64% of phosphorus entering the lake, with the agricultural sector contributing 39% and urban stormwater 25%.

It is recommended that action on non-point sources be the priority over the next 10 years, focused on **measurable** outcomes, **impact**, and **cost effectiveness**. Using these criteria to guide action, **York Region staff recommend the following actions:**

- i) Focus investments on phosphorus removal technologies on the four main polders within the watershed.
- ii) Update Strategic Action 4.25 to formally empower the Lake Simcoe and Region Conservation Authority (LSRCA) Phosphorus Offsetting program to address no net increase in phosphorus in new developments and convert to a Designated Policy.
- iii) Accelerate installation of green infrastructure to prevent phosphorus in stormwater from entering Lake Simcoe, by integrating terms “low impact development” and “green infrastructure” into

Green Infrastructure

Urban environments contribute 25% of phosphorus in Lake Simcoe, making them a priority for action.

A Lake Simcoe Region Conservation Authority (LSRCA) study identified that a significant proportion of the stormwater infrastructure in the watershed is not operating at designed levels, resulting in more than 4 additional tonnes of phosphorus loading the Lake than design specifications (LSRCA, 2011). Urban growth in the watershed will amplify these challenges.

Green infrastructure provides a potential long-term solution to these challenges by offering development sites flexible alternatives to improve stormwater management, as demonstrated in the LSRCA technical guidelines. While green infrastructure like engineered wetlands or low-impact development represent a greater upfront investment than a stormwater management pond, these systems have much lower long-term maintenance costs and are more effective in removing phosphorus. Green infrastructure is also addressed in other provincial plans such as *A Place to Grow* and the *Greenbelt Plan*

Designated Policies 4.7 and 4.8, making them consistent with other Provincial Plans.

Actions to address agricultural and stormwater runoff offer significantly higher phosphorus reductions per dollar spent

Non-point source phosphorus reduction initiatives offer far greater phosphorus reduction per dollar spent as compared to wastewater treatment facility upgrades. A study performed by XCG Consulting on behalf of the LSRCA, demonstrates that agricultural and stormwater projects offer significantly greater phosphorus reduction return on investment. Results are summarized in Table 1.

Table 1: Cost per kg of Phosphorus Removal for Lake Simcoe

Project	Cost per kg of Phosphorus Removed (\$)
<i>Agriculture</i>	
Field management BMPs	3.45 – 31.33
Streambank and Gully BMPs	7.90 – 19.93
Manure management BMPs	145.11 – 269.96
<i>Stormwater</i>	
Stormwater retrofits	1,700
<i>Sewage Treatment</i>	
Upgrade Sunderland WPCP from lagoon system to mechanical plant with Tertiary filtration	8,033
Upgrade Cannington WPCP from lagoon system to mechanical plant with Tertiary filtration	6,014
Upgrade Holland Landing WPCP from lagoon system to mechanical plant with Tertiary filtration	5,281

Source: Lake Simcoe Phosphorus Offsetting Program Report Appendices, August 2014, XCG

To further highlight the range of costs listed above, tertiary wastewater treatment upgrades completed at York Region’s Keswick Water Resource Recovery Facility resulted in an estimated phosphorus removal cost of \$45,000 per kilogram.

2. Develop, fund and commit to a time-bound implementation plan for reducing phosphorus

Currently, the Lake Simcoe Protection Plan lacks interim targets and milestones for action. It is essential that the updated plan be time-bound and contain a funded work plan that incorporates the three top priority ranked actions above.

It is recommended that the Province, in consultation with the Lake Simcoe Coordinating Committee, First Nations and other affected parties, develop an

Implementation Plan for the next ten years with interim, measurable milestones to enable an adaptive management approach.

- **As outlined above, polders within the watershed represent the logical first step for the implementation plan to address phosphorus inputs to Lake Simcoe (see attached map).**

Furthermore, it is recommended that the Province provide the financial resources to allow for implementation within the timeline outlined in the workplan.

3. Make governance changes to the Lake Simcoe Coordinating Committee to facilitate an adaptive management approach to implementation

The Implementation Plan will need a team of experts with representation from major interested parties and First Nations in the watershed to oversee implementation of the workplan. While the Lake Simcoe Coordinating Committee (Committee) could fulfill this role, it would require governance changes to effectively discharge this important function. Although the Committee includes business, government, Indigenous, and agricultural stakeholders at the watershed level, key decision makers with direct responsibility for implementation are not at the table. For the Committee to undertake the planning and adaptive management roles associated with the Implementation Plan, the following changes will be required.

It is recommended that LSRCA have a broader and clearer mandate in the governance of the Lake Simcoe Protection Plan with specific actions as follows:

- **All upper tier municipalities, a representative group of lower-tier municipalities, and scientific experts from LSRCA and the Ministry of the Environment, Conservation and Parks have designated seats on the Committee.**
- **With LSRCA as the lead, the Committee be empowered to develop the Implementation Plan, including interim milestones, to reduce phosphorus in the watershed, using an adaptive management approach to allow for flexible implementation that is outcome-based.**
- **Groups identified above would share responsibility with the Province to implement actions within the Implementation Plan and must be involved in the development process.**
- **The Committee be afforded annual meetings with the Minister to raise issues and apply an adaptive management approach to the Lake Simcoe Protection Plan.**

4. Give the Lake Simcoe Region Conservation Authority the authority and tools required to effectively lead implementation and monitor the effectiveness of the Lake Simcoe Protection Plan

Strong leadership is required to guide the Implementation Plan and the Lake Simcoe Protection Plan overall. The LSRCA has been very effective at implementing actions under the Plan and should be empowered to continue to drive actions under this Plan and in associated land-use planning matters.

Recent changes to the *Conservation Authorities Act* puts the ability of LSRCA to effectively implement the Lake Simcoe Protection Plan at risk. As regulations under the *Conservation Authorities Act* are under development, it will be critical that LSRCA be provided mandated powers and provincial funding to effectively lead implementation of this Lake Simcoe Protection Plan. It will also be critical that LSRCA not be restricted from taking on responsibilities deemed necessary by municipalities to achieve Lake Simcoe Protection Plan goals.

5. Convert some policy areas within the Lake Simcoe Protection Plan to ‘Designated Policies’ that mandate action

There are many policies within the Lake Simcoe Protection Plan that are Strategic Actions, Have Regard To and Monitoring policies, rather than Designated Policies that mandate action. Land-use planning is one of the primary mechanisms for implementing these policies via review and approval of planning applications. Based on experience during the first ten years of implementation, non-mandatory policies are significantly less effective in achieving desired outcomes.

It is recommended that the following policies be converted to Designated Policies:

- 4.19 to ensure the aggregates and minerals industry implements best practices for reducing phosphorus inputs to the lake, which will become especially important due to recent changes to the aggregates policy in the Provincial Policy Statement and recent excess soils regulatory changes
- 4.24 a revised version would ensure the Phosphorus Reduction Strategy continues to be maintained and updated as conditions change in the watershed and drive innovation through initiatives like water reuse
- 5.1 would help ensure consistent water flows are maintained

6. Align Lake Simcoe Protection Plan with recent changes to Provincial land-use plans, including the Provincial Policy Statement,

Greenbelt Plan, Oak Ridges Moraine Conservation Plan, and balance with requirements under *A Place to Grow*

Under the *A Place to Grow* plan (Growth Plan), York Region has been directed by the Province to grow from 1.2 to 2.02 million residents by 2051, a growth rate of approximately 26,000 residents per year. Areas within the Lake Simcoe watershed will need to grow significantly to achieve these growth targets. The Lake Simcoe Protection Plan must be aligned with other Provincial Plans to accommodate this growth while also protecting the health of Lake Simcoe. Recent changes to the Provincial Policy Statement and other Provincial Plans along with the implementation of the Lake Simcoe Source Protection Plan have led to some discrepancies in terminology, definitions and policy frameworks. Consistency between key planning documents will help reduce regulatory burden, while also ensuring effective growth management and land use planning in the Lake Simcoe watershed.

It is recommended that the Lake Simcoe Protection Plan be:

- **Aligned with the Natural Heritage System of the Growth Plan, Greenbelt Plan and Oak Ridges Moraine Conservation Plan**, which include parts of the Lake Simcoe watershed. This change will help protect key hydrologic features of the Lake Simcoe watershed.
- **Updated to include policies related to excess soils, watershed planning, mineral aggregates, source water protection, road salt, recharge management, natural heritage system, stormwater management and water budgets.**
- **Revised, specifically Strategic Action 4.5, to align with Growth Plan and Greenbelt Plan watershed planning policies with respect to stormwater management master plan requirements.**

It is also recommended that stormwater management policies under the Lake Simcoe Protection Plan be reviewed and updated to reflect current stormwater management standards.

7. Clarify how municipalities can comply with both legislated growth targets and wastewater servicing restrictions under the Lake Simcoe Protection Plan

Servicing growth will need to be a key consideration in the revised Lake Simcoe Protection Plan. The prohibition on new municipal systems must not apply to replacing existing municipal capacity with new and improved treatment technology. Replacement wastewater treatment facilities that treat to a higher level must be permitted in both policy and practice to service mandated growth within the watershed.

Recent changes to the Provincial Policy Statement have resulted in private communal sewage treatment facilities for residential development being viewed more favourably as a servicing option for areas without municipal wastewater treatment. New private

communal systems servicing residential developments, with the few existing exceptions currently identified in Designated Policy 4.3, are currently prohibited, and should continue to be prohibited under the Lake Simcoe Protection Plan. The improper operation and maintenance of private communal sewage systems presents a greater risk of non-compliance and resulting harm for Lake Simcoe than more advanced municipal sewage treatment plants. It will be critical that the Province provide direction on how municipal wastewater treatment systems can permit mandated growth to occur while helping achieve goals under the Lake Simcoe Protection Plan.

It is recommended that policies be introduced into the Lake Simcoe Protection Plan that:

- **Are based on the principle of achieving net reductions of phosphorus and the application of innovative solutions to allow for both growth and reductions of phosphorus.**
- **Support the development of new municipal wastewater treatment facilities that replace existing capacity with newer and more effective treatment technology to achieve the long-term goals of the Plan.**

8. Focus on addressing the impact of invasive species such as mussels on the watershed and infrastructure for the next ten years

There has been a significant amount of research indicating that invasive mussels contribute to a shift of nutrients in nearshore environments. While this growing body of research has been quite helpful, greater understanding of how mussels are impacting algae issues is required. Further, it would be helpful to understand how phosphorus impacts the lake as a whole. Dr. Bootsma, a leading researcher in this area, has advocated for up-to-date scientific models “that tell us how both the offshore and the nearshore zones will respond to changes in phosphorus loading” ([IJC, 2017](#)). It is unclear how long-term reductions in phosphorus will impact mussel colonies and algal blooms.

What is clear, is that mussels are having a direct impact on algae and infrastructure in Lake Simcoe along with most of the Great Lakes. Species such as zebra and quagga mussels have restricted incoming flow from the water treatment plant intakes and water pollution control plant outfalls. These species damage filtration membranes and clog filter beds, leading to costly repairs and capacity issues.

Given how critical it is to understand the dynamic impact invasive species have on the lake, it is strongly recommended that specific actions and funding be identified to support this research.

Region staff thank the Province for considering the above comments on the future direction of the Lake Simcoe Protection Plan and look forward to continued engagement as it is updated. A time-bound and funded Implementation Plan with effective governance will result in real environmental benefits.

If you have questions regarding this response or would like to further discuss these recommendations, please contact Brent Marissen, Policy and Advocacy Senior Program Analyst, Environmental Services at Brent.Marissen@york.ca.

Sincerely,



Erin Mahoney, M. Eng.
Commissioner
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The Regional Municipality of York

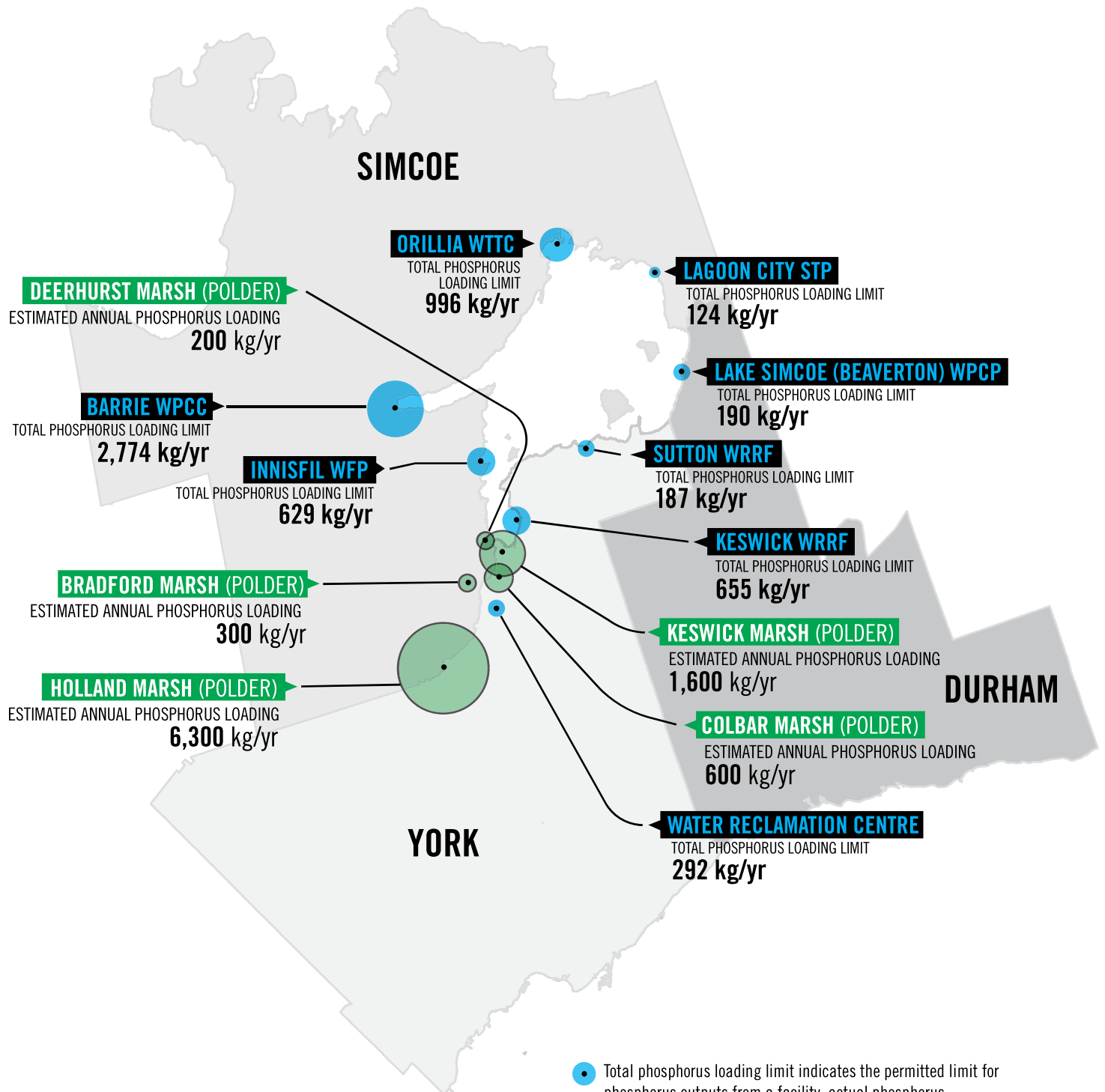


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Attachment (1)

eDOCS#12463882

Lake Simcoe Phosphorus: Wastewater Treatment Plant Limits and Estimated Contributions from Polders



- Total phosphorus loading limit indicates the permitted limit for phosphorus outputs from a facility, actual phosphorus discharges vary year to year but are well under these limits.
- Polder phosphorus loading is based on three year hydrological averages (2015-2017) that change year to year and should only be considered broad estimates of annual loading.

Source of estimated annual phosphorus loading from polders: LSRCA

Source of wastewater total phosphorus loading limits:
 Environmental Compliance Approvals retrieved from
 Access Environment database