

Date: 2021-06-23

Subject: Recommendation Report: Lake Enhancement Strategy - All Wards (RM 131/2019)

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Report Number: Public Works & Engineering-2021-175

Recommendations:

1. That the report titled **re: Lake Enhancement Strategy – City-wide – All Wards** to the Committee of Council meeting of June 23, 2021 be received; and
2. That the **Lake Enhancement Strategy** be endorsed by Council.

Overview:

- The **Lake Enhancement Strategy** helps achieve **Term of Council Priorities (Implement a Green Framework, Healthy Citizens)** by integrating and enhancing natural heritage spaces into our communities, and by encouraging active lifestyles and mental wellbeing.
- The **Lake Enhancement Strategy** was prepared as requested through **Council Resolution CW477-2019** from November 2019.
- Initial lake enhancement efforts are focused on four (4) **Priority Lakes: Norton Place Park, Donnelly Ponds, Loafer’s Lake and Professor’s Lake.**
- **Short Term Recommendations and Long Term Considerations** outlined in the **Lake Enhancement Strategy** are based on the **Council-approved Eco Park Strategy**, review of best practices, site evaluations, and consultation with internal and external stakeholders.
- In the short term, a **Lake Habitat and Water Quality Monitoring Program** will direct future water quality improvements for each **Priority Lake.**

- **The purpose of the report is to seek Council endorsement of the Lake Enhancement Strategy.**

Background:

In September 2019, City Council directed City staff to report back to the Committee of Council by the end of November 2019, on the opportunities, costs, and benefits to more actively maintain, improve, and celebrate our local waterbodies within Brampton, particularly Heart Lake, Professor's Lake, Loafer's Lake, Claireville Reservoir, and stormwater management ponds (Resolution # CW342-2019).

In November 2019, City Staff presented a report that included past and current City and Conservation Authorities' efforts and projects to improve and enhance Brampton's lakes and stormwater ponds, and high-level steps to further maintain and celebrate Brampton's waterbodies. In response, City Council further directed Staff to "develop a timeline, plan and costing to improve water quality related to the water bodies" (Resolution # CW477-2019)."

The most recent comprehensive assessment of the water quality, vegetation, wildlife, and fisheries of Brampton's lakes was the Citywide Lake Management and Monitoring Report – Interim Report (2006), based on field investigations conducted in 2004 and 2005. Significant water quality issues in Brampton's lakes were identified in the 2006 Citywide Lake Management and Monitoring Report.

Recently, Brampton's lakes have seen some additional challenges, including increasing number of summer beach closures at Professor's Lake due to high levels of E. coli, and Loafer's Lake with its ongoing challenges with algae blooms.

In 2020, Council approved the Brampton Eco Park Strategy that reinforced the City's commitment to improving environmental performance and celebrating its green spaces, by integrating natural heritage systems within our communities, and improving recreational opportunities within parks and natural spaces.

Brampton has 14 lakes, but only a few are widely known, such as Professor's Lake, Loafer's Lake, and Heart Lake. Currently, only one Brampton lake (Professor's Lake) allows swimming and has on-going water quality monitoring, and only three lakes (Professor's, Chinguacousy and Heart Lake) allow on-water recreational activities (kayaking, canoeing, paddle boating etc.). Fishing is also popular at a number of Brampton lakes, however, it is not actively promoted nor is there infrastructure and regulations that support fishing.

Brampton lakes have an abundance of valuable, yet underutilized, natural and recreational characteristics. Brampton lakes can be a showcase for the City, increase community cohesion and pride, and attract visitors, while also helping connect people with nature responsibly. To improve the awareness, appreciation and utilization of these lakes, an innovative framework is required.

The Lake Enhancement Strategy (Appendix 1) utilizes the recent approach of the Eco Park Strategy as a lens to achieve Council's vision and builds upon the 2006 Citywide Lake Management and Monitoring Report – Interim Report. The Lake Enhancement Strategy is the first example of an Eco Park lens being strategically applied to Brampton's community parks and signature natural features that service and attract a broad range of users and community members.

Current Situation:

Brampton is unique in its large number of picturesque lakes and river systems still maintaining fair water quality within the urban boundaries of a large and growing city.

Significant population growth is predicted for Brampton's future, which will bring with it increasing pressure on Brampton's environmental, recreational, and infrastructure systems. Brampton lakes provides a great opportunity to meet Brampton's growing local recreational needs while achieving environmental enhancements. With strategic enhancements, these lakes can become citywide destinations offering a host of active and passive recreational amenities.

The Covid 19 pandemic has further highlighted the importance of our public and natural spaces and the irreplaceable services they provide to the community. These unique times require a re-evaluation of how we think about, design, and use public outdoor spaces and require more thought in the maintenance, sustainability and multi-functional use of spaces.

As an immediate action of the Lake Enhancement Strategy, a Lake Habitat and Water Quality Monitoring Program will be implemented for the Priority Lakes identified in the Strategy. This Lake Habitat and Water Quality Monitoring Program has been identified and approved in the 2021 budget. This program will aim to find ways to identify the source of water quality issues at Priority Lakes and provide appropriate and feasible mitigation measure to improve water quality and lake habitat

Lake Enhancement Strategy

The Lake Enhancement Strategy aims to transform Brampton lakes into signature citywide destinations within Brampton's recreational open spaces by presenting conceptual park and lake improvements and recreational programming expansion. This Strategy also aims to incorporate Brampton's lakes into the Brampton Eco Park by creating animated Eco Spaces that integrate the utilization of outdoor spaces for recreational activities with natural heritage conservation.

It is important to note that this Strategy only provides a framework (Vision, Goals and Objectives) to guide decision making in future lake improvements and programming *and should not be taken as the only path forward for improving Brampton's Priority Lakes*. The Strategy's framework was developed in consultation with the Community Services Department, including their Recreation and Parks Maintenance & Forestry Divisions, as well as with the Toronto & Region Conservation Authority.

Staff have prioritized recommendations for initial efforts on four (4) Priority Lakes (See Appendix 2):

1. Norton Place Park Lake,
2. the Donnelly Ponds,
3. Loafer's Lake, and
4. Professor's Lake

The four Priority Lakes were selected as they provide a good cross-section of the type of lakes found in Brampton. They provide the best opportunity to express the principles of the Brampton Eco Park Strategy and offer opportunities to establish citywide destinations, expanded lake-based recreational programs, and natural heritage restoration.

Additionally, to further help direct efforts it is recommended the four Priority Lakes be ranked as listed in the Strategy (1. Norton Place Park Lake, 2. the Donnelly Ponds, 3. Loafer's Lake, and 4. Professor's Lake). Recommended ranking of the four lakes is based on existing park and recreation infrastructure, costs of proposed enhancements, recent park upgrades, funding opportunities, and ability to utilize existing city assets and programs.

Regardless of recommended ranking, immediate actions towards enhancing all four lakes include:

- Establishment of a Lake Monitoring Program to assess water quality and lake habitat for Priority Lakes;

- Integrating existing City programs such as park tree plantings and adopt a park program into Priority Lakes;
- Reviewing bylaws to ensure they facilitate desirable recreational use of the lakes;
- Developing a citywide Lake Promotion Strategy; and
- Engaging residents in the Priority Lake enhancement design process.

Lake Enhancement Framework

Vision:

Transform Priority Lakes into signature features of Brampton's Eco Park

Goals:

Natural Heritage

- Improve lake habitat and water quality

Parks

- Connect people with lakes

Recreation

- Expand sustainable water-related programming

Communication and Engagement

- Engage community and park users and build awareness of Brampton lakes

Objectives, Short Term Recommendations, Long Term Considerations and Concept Plans have been prepared for each of the four Priority Lakes. The Concept Plans are aspirational visualizations to help articulate the potential opportunities at each Priority Lake. Short Term Recommendations are displayed in tables and reflect potential opportunities to investigate and possibly be initiated in the next three years. Long Term Considerations are future opportunities to explore and could be implemented in the next three to ten years subject to available budget and operational capacity.

Norton Place Park – The Hidden Gem

Norton Place Park is host to a diverse range of natural habitats and in the Citywide Lake Management and Monitoring Report – Interim Report (2006), was deemed to have one of the best water quality scores among Brampton lakes. It is expected that at Norton Place Lake, the Lake Enhancement Strategy's Lake Habitat and Water Quality Monitoring Program will provide long term mitigation measures to enhance and maintain the water quality at the Lake and provide measures to protect the lake from increasing salt, litter and nutrient loading from local trails and amenity use.

In 2017, a \$2 million revitalization project to Norton Place Park was completed. The project involved improvements to park amenities including construction of the boardwalks, pier, shade structure, picnic areas, community garden, information signage, and labyrinth. The project also upgraded existing trails, retrofitted the playground and undertook shoreline restoration activities.

Despite the City's recent investments in park improvements, Norton Place Park is still underutilized by residents. Norton Place Park Lake also suffers from a reputation of being unsafe partly rising from a number of very publicized police incidents in the area. Littering is also a significant issue in an around the lake.

Providing more programming, addressing safety and littering concerns and increasing public awareness of amenities can turn Norton Place Park into a central natural and recreational destination for residents across the city.

Donnelly Ponds - A Natural Oasis

Situated between Heart Lake Conservation Area and White Spruce Park, the Donnelly Ponds lie within Brampton's largest contiguous interconnected natural heritage area. The primary way of experiencing the Donnelly Ponds is by trailing through the park on the Esker Lake Trail. The park has limited seating and viewing opportunities and no picnicking infrastructure.

The Donnelly Ponds are within one of the most biodiverse areas in Brampton, offering a watercourse corridor, a thriving woodland, and wetland that is a part of the Heart Lake Provincially Significant Wetland Complex. The most recent assessment from the Citywide Lake Management and Monitoring Report – Interim Report (2006) indicated a poor water quality score that is primarily attributed to stormwater runoff from Sandalwood Parkway. The Lake Enhancement Strategy's Lake Habitat and Water Quality Monitoring Program will focus on improving water quality and lake and shoreline habitat, including identifying measures to reduce nutrient inputs into the pond from Sandalwood Parkway and other local sources.

Currently, the Donnelly Ponds are not being utilized to their fullest potential as a citywide destination. The Donnelly Ponds offer the opportunity to establish a citywide picnicking space offering a diverse range of outdoor passive recreational experiences including, fishing and bird watching and outdoor environmental education opportunities.

Loafer's Lake – Urban Retreat

Loafer's Lake provides a beautiful scenic lake setting and is physically connected to many recreational amenities through trails including the Etobicoke Creek Trail, Loafer's

Lake Recreation Centre, Cyril Clark Library, the new Camden Park East Dog Park, Jim Archdekin recreation centre and active recreation amenities available nearby in an adjacent parkland.

Though physically connected to many amenities, use of the lake area is low and is mostly experienced by walking or cycling through the lake area along the Etobicoke Creek trail. There is currently no active recreational programming around the lake, nor many amenities that allow the public to appreciate and enjoy the lake.

For a number of years, Loafer's Lake has suffered from excessive algae growth in the summer, leading to discoloration of the lake water. The most recent water quality testing of the lake in the Citywide Lake Management and Monitoring Report – Interim Report (2006) indicated the lakes water quality as the third worst of all lakes in Brampton with high nutrient concentrations; however, it still maintained fair fisheries potential. In 2019, the City installed six aerators in Loafer's Lake to combat the algae growth, however algae continues to be present during July and August, likely due to the high nutrient concentrations within the lake. To combat the algae growth, the Lake Enhancement Strategy's Lake Habitat and Water Quality Monitoring Program will assess Loafer's Lake's internal and external nutrient loads and define target nutrient load reductions to help identify feasible mitigation measures.

Currently, the relationship between the lake and the Loafer's Lake Recreation Centre could be strengthened to enhance the use of the lake area and improve the amenities and programs offered by the recreation centre. Loafer's Lake Park's many natural features are underappreciated, which is made worse by the algae growth in the lake, the lack of access to the water, and limited work on maintaining or enhancing the lakes shoreline.

Professor's Lake – A Day at the Lake

Professor's Lake is the largest and one of the most well-known lakes in Brampton. It offers many active and passive recreational opportunities including being the City's only swimmable lake. Professor's Lake has a water slide, a beach, a beach volleyball court, boat rentals, two playgrounds, a recreation centre offering a variety of community programs and classes, multi-use trails.

There are challenges that limit Professor's Lake's potential. Increasingly, Professor's Lake is experiencing summertime water quality issues due to high levels of the bacteria *Escherichia coli* (E.coli). In 2020, due to high E.coli measurements, the beach was closed and swimming prohibited 20 times between July and August. To address the growing E.coli outbreaks and determine appropriate mitigation measures, the Lake

Enhancement Strategy's Lake Habitat and Water Quality Monitoring Program will identify causes of elevated nutrients and investigate microbial source tracing techniques to track E. coli inputs into the lake.

Another challenge is that the infrastructure and amenity capacity at Professors Lake is currently limited. The communities surrounding Professor's Lake has experienced significant growth since Professor's Lake beach and amenities opened in the early 1980's. This, including its growing popularity, has seen visitation significantly increase over the years and beach amenities regularly reaching maximum capacity during the summer period. Since its construction, minimal infrastructure or amenity improvements have been implemented at Professor's Lake, with most upgrades focused on maintaining the trail around the lake.

Additionally, City's by-laws, such as Park Lands By-law 161-83, restrict community use of the Professor's Lake's for water based-recreational purposes. Review of water-based activities and associated regulations may be warranted to ensure desirable recreational use of the lake is facilitated.

Finally, historically local residents have expressed concern over proposed park enhancement projects around the lake. A number of initiatives to improve the lake's water quality, recreational amenities and programs have faced local opposition situated along the lake.

To become a citywide destination, the City and community must take collective action to improve Professor's Lake water quality, update facilities, raise awareness about the lake, review local regulations and facilitate engagement with the local community.

Cost Estimates

The Lake Enhancement Strategy focuses on providing Short Term Recommendations and Long Term Considerations. Short Term Recommendations utilize existing City programs and partnerships to implement many of its goals, such as water quality monitoring, shoreline restoration, pathway improvements, tree planting and communication plans. The Strategy's Long Term Considerations will require future study and additional costs that will be considered in future City budgets.

To provide a general idea of scale and budget associated with the Strategy's Short Term Recommendations and Long Term Considerations, high-level costing estimates were developed for each lake. These estimates provide an approximation of the *accumulative* cost of achieving lake enhancement goals over the long term *and are preliminary, order of magnitude costing for initial consideration only.*

- Norton Place Park Lake: \$1,500,000 – \$3,500,00
- Donnelly Ponds: \$3,500,000 – \$6,500,000
- Loafer's Lake: \$3,500,000 – \$6,500,000
- Professor's Lake: \$3,500,000 – \$6,500,000

Estimates do not consider operational costs or internal capacity required to implement recommendations. Departments would need to determine these requirements at the time of budget deliberations and submission for specific actions.

Next Steps

Implementing the Lake Enhancement Strategy requires collaboration between various departments and divisions to achieve its goals. Community Services Department will play a significant role, with Recreation and Parks Maintenance & Forestry Divisions taking the lead to deliver on the goals of the Lake Enhancement Strategy. Groups outside of Community Services that will need to play an important supporting role to achieve certain goals and objectives include Environmental Planning, Strategic Communications, and Culture & Events. Externally, the City will work with Toronto Region Conservation Authority on water quality monitoring and ecological restoration actions.

Subsequent to Council approval, immediate next steps for all four Priority Lakes would include:

- Public Works and Engineering Department commencing a Lake Habitat and Water Quality Monitoring Program for the Priority Lakes with assistance of Toronto Region Conservation Authority and Region of Peel. This Lake Habitat and Water Quality Monitoring Program has been identified and approved in the 2021 budget.
- Community Services Department to review the Short Term Recommendations and prioritize these in ongoing programs such as the 1 Million Trees Program and Open Space Naturalization Program.
- Community Services Department to review the Strategy's Long Term Considerations and determine additional staff resources needed to implement them. Those Long Term Considerations deemed feasible for implementation will be submitted through capital and operating budgets in subsequent budget submissions.
- Community Services Department developing a citywide Lake Awareness Campaign, in partnership Strategic Communications.

Corporate Implications:

Financial Implications:

There are currently no financial implications resulting from the recommendations in this report. Any resources and funding required to implement actions of the Lake Enhancement Strategy will be identified and brought forward to Council for approval, as part of the annual budget process.

Term of Council Priorities:

The Lake Enhancement Strategy contributes to the “**Brampton is a Green City**” Term of Council priorities particularly “Implement a Green Framework” and the effort to “integrate and enhance natural heritage within our communities”.

In addition, the Strategy contributes to promoting “**Brampton is a Mosaic**” and “**Brampton is a Healthy and Safe City**”, by developing inclusive and flexible spaces, promoting community events, engagement and outreach programs encouraging active community, and building assessable spaces and recreational elements for all residents and abilities.

Conclusion:

The Lake Enhancement Strategy aims to transform Brampton lakes into signature features of Brampton’s recreational open spaces. The Strategy outlined in this report aims to enhance and integrate the social and recreational services offered at Brampton lakes while maintaining the natural heritage features and valuable ecosystem services. An integrated approach to improve Brampton’s lakes involving the City and community stakeholders is ideal to maximize the opportunities the lakes offer. Applying these enhancement techniques and measures throughout the city will create attractive eco spaces and continue to bring awareness to the beautiful lakes present throughout Brampton. While the Strategy identified a number of priority opportunities at specific lakes, the Strategy is intended to be used as a foundation for future lake enhancements that encompasses all Brampton lakes.

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Attachments:

Appendix 1: Lake Enhancement Strategy

Appendix 2: Map of Priority Lakes