

Item for the Information of the Regional Watershed Alliance

TO: Chair and Members of the Regional Watershed Alliance
Wednesday, March 22, 2023 Meeting

FROM: Anil Wijesooriya, Director, Restoration and Infrastructure

RE: NATURAL CHANNEL RESTORATION PROJECTS IN BRAMPTON

KEY ISSUE

Report on natural channel restoration and Eco Park partnerships in Brampton, specifically the Jordan Jefferson Jayfield Parks (JJJ) Natural Channel Restoration Project and Eastbourne Park Natural Channel Restoration Project.

RECOMMENDATION:

THAT the report on Natural Channel Restoration Projects in Brampton and accompanying presentation, be received.

BACKGROUND

Toronto and Region Conservation Authority (TRCA) is the largest watershed-based conservation organization in Canada and is a global leader in habitat restoration with over 60 years of experience protecting, enhancing, restoring, and monitoring natural habitats. TRCA's Restoration and Resource Management group uses a strategic approach to identify, plan, implement, and monitor projects that enhance habitats and improve ecosystem functions. Restoring ecosystem function provides ecosystem services such flood mitigation and water quality treatment, that benefit where humans live, work and play. TRCA uses a science-based approach to understand local history, hydrology, and ecology to identify natural areas that are impaired, set restoration targets and identify priority projects. These projects focus on improving natural cover; restoring streams and riparian areas using natural channel design principles; restoring, creating, and enhancing wetlands and shorelines; rehabilitating native; providing essential wildlife habitats and using applied research and monitoring to quantify restoration benefits. TRCA restores hundreds of hectares of natural areas each year.

In previous decades, many watercourses in the Region of Peel were modified through channelization and various forms of armouring. A standard practice at the time, channelization and armouring was done to improve flood flow conveyance. The realignment (straightening) of watercourses accompanied filling within valleylands to facilitate development, a practice that is no longer permitted due to negative environmental impacts. Current knowledge has shown that channelization can increase the chances of downstream flooding and erosion (Villard, 2015). Moreover, channels that have been lined with concrete or other hard treatments have a limited ability to sustain ecological function or provide habitat for fish and wildlife. Many of these altered channels are now nearing the end of their operational life expectancy and are in varying states of disrepair. These channels are now contributing to erosion and streambank

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failure, which can raise the risk of local flooding and damage to adjacent properties and infrastructure.

Natural channel restoration involves the replacement of hardened channels through the construction of a natural watercourse that will facilitate water conveyance; improve flood storage; and provide habitat for fish and wildlife. Restoring hydrologic processes benefits nutrient and sediment transport, aquatic habitat, and riparian cover. Natural channel design principles typically include widening the floodplain where possible; re-establishing channel meanders with in-stream substrates; reconnecting the channel to its floodplain; planting riparian areas; and installing structural habitat using woody debris.

The Eco Park model, approved by Brampton Council in January 2020, is made up of a network of sustainable urban/green spaces, referred to as Eco-Spaces, that better integrate residents with the natural environment. Most of Brampton's 2500 hectares of Natural Heritage System (NHS) forms the backbone of Brampton's Eco Parks. From this foundation, Brampton Eco Parks will expand and evolve into city parks, streetscapes, and other spaces to eventually form a comprehensive green network. Eco Parks aim to foster local stewardship, encourage active communities, help build attractive neighbourhoods, and responsibly connect people with nature. Eco Parks will help protect and support City infrastructure while conserving, enhancing, and celebrating Brampton's natural landscapes.

The attached presentation outlines the strategic process for identifying priority natural channel projects and provides updates on projects currently being implemented. The Jefferson, Jordan and Jayfield Natural Channel Restoration Project, which will be completed in Spring 2023, is the first to include Eco Park principles into its design. Components of the work include removal of a concrete lined channel and drop structures; widening the floodplain; creating a meandering watercourse with in-stream habitat; constructing floodplain wetlands; and extensive tree and shrub plantings. Eco Park design principles include upgrades to park amenities with opportunities to view the restored watercourse.

Completed Work to date:

- Construction of 1000m of Natural Channel restoration including 150m of new trail alignment
- Eco Park amenities installed (Outdoor Amphitheatre, Outdoor Classroom, Log play structure, log benches and lookout areas)
- Trees Planted: 8,425 trees and shrubs, 360 calipers, 7000 bioengineering stakes

Work Remaining:

- Installation of Eco Park Fitness Stations
- Remaining tree and shrub and riparian plantings in Spring 2023

Construction started for Eastbourne Park Natural Channel Restoration Project. To date, a detailed design has been completed for a 1km stretch of concrete lined channel within

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Eastbourne Park. A Community meeting occurred on October 26, 2022 to inform residents of plans in advance of the construction that is now underway.

RATIONALE

A report titled “Ten Year Strategic Plan for Urban Stream Restoration in City of Brampton” was produced by TRCA in 2018 at the request of the City of Brampton to identify and prioritize potential urban stream restoration projects. Previously completed studies including “Interim Report: Peel Channels Remediation Strategy” (2014); “Spring Creek Remediation Project Fluvial Geomorphological Characterization” (2015); and “Aquatic Habitat and Geomorphology Monitoring: Progress Report” (2018) have been used to guide the prioritization process. A list of five priority sites were identified where degraded concrete lined channels would benefit most from stream restoration, using the following criteria:

- TRCA’s Integrated Restoration Prioritization ranking;
- Infrastructure state of repair;
- Flood risk potential;
- access and available work areas; and
- fish and wildlife habitat gain potential.

Five priority sites were identified, which include:

- Jefferson Jordan and Jayfield Parks
- Eastbourne Park
- Fallingdale and Earnscliffe Park
- Donald M. Gordon Chinguacousy and Hilldale Parks
- Maitland and Hilldale Parks

All these sites have excellent potential to employ Eco Park design principles as they are well used by residents and have trail and amenity infrastructure already existing that could be enhanced and expanded.

Relationship to TRCA’s 2022-2034 Strategic Plan

This report supports the following Pillar(s) and Outcome(s) set forth in TRCA’s 2023-2034 Strategic Plan:

Pillar 1 Environmental Protection and Hazard Management:

- 1.1 Deliver provincially mandated services pertaining to flood and erosion hazards

Pillar 3 Community Prosperity:

- 3.1 Connect communities to nature and greenspace

FINANCIAL DETAILS

Funds for the projects were obtained through Peel capital budgets to complete the stream restoration components of the work. The Eco Park portion of the project was funded through a Fee for Service agreement with the City of Brampton.

DETAILS OF WORK TO BE DONE

The JJJ Natural Channel Project will be completed in Spring of 2023. The restoration

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work at Eastbourne Park is scheduled for completion in Fall of 2024. TRCA will continue work with the City of Brampton to implement priority projects identified in “Ten Year Strategic Plan for Urban Stream Restoration in City of Brampton”.

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