Toronto and Region Conservation Authority

Board of Directors Meeting
Agenda

#8/19

September 27, 2019

9:30 A.M.

HEAD OFFICE, 101 EXCHANGE AVENUE, VAUGHAN

Pages

1. **ACKNOWLEDGEMENT OF INDIGENOUS TERRITORY**

2. **MINUTES OF MEETING #7/19, HELD ON JULY 26. 2019**
   Meeting Minutes

3. **BUSINESS ARISING FROM THE MINUTES**

4. **DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF**

5. **DELEGATIONS**

   5.1 **EDWARD MCDONNELL, CHIEF EXECUTIVE OFFICER, GREENBELT FOUNDATION**
   Presentation in regard to Agenda Item 8.4.

6. **PRESENTATIONS**

7. **CORRESPONDENCE**

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   Final Endorsement

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100+ Priority Projects to Enhance Our Greenbelt

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New Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (ERO #019-0198)

10. MATERIAL FROM EXECUTIVE COMMITTEE MEETING #7/19, HELD ON SEPTEMBER 6, 2019

Meeting Minutes

10.1 SECTION I - ITEMS FOR BOARD OF DIRECTORS ACTION

10.1.1 REQUEST FOR PROPOSAL FOR 2019 SLOPE STABILITY AND EROSION RISK ASSESSMENTS WITHIN CITY OF TORONTO

Award of Request for Proposal (RFP) No. 10020502 to undertake geotechnical investigations to complete various slope stability and erosion risk assessments for multiple private properties within the City of Toronto. (Exec Minutes p. 2/135)

10.1.2 REQUEST FOR TENDER FOR CONSTRUCTION SERVICES FOR BEAUCOURT ROAD (12-30) MAJOR MAINTENANCE PROJECT

Award of Request for Tender (RFT) No. 10020533 for the supply of all labour, equipment and materials necessary to repair a TRCA-owned retaining wall along Mimico Creek for the Beaucourt Road (12-30) Major Maintenance Project in the City of Toronto. (Exec Minutes p. 9/135)

10.1.3 GREENLANDS ACQUISITION PROJECT FOR 2016-2020

Flood Plain and Conservation Component, Duffins Creek Watershed, 711371 Ontario Corp. (CFN 61809) (Exec Minutes p. 13/135)

10.1.4 REQUEST FOR A CONVEYANCE, CITY OF TORONTO, HUMBER RIVER WATERSHED

Receipt of a request from the City of Toronto, for a conveyance of TRCA-owned lands located at the rear of 61 Claireville Drive, east of Highway #27 and north of Finch Avenue West in the City of Toronto, required for maintenance of an existing storm water management pond, Humber River watershed. (CFN 22577) (Exec Minutes p. 17/135)

10.1.5 REQUEST FOR RELEASE OF PORTION OF ACCESS EASEMENT

Receipt of a request from the Regional Municipality of York and Hai Xia Cao for TRCA to release a portion of an access easement, in the City of Richmond Hill, Regional Municipality of York, Rouge River Watershed. (Exec Minutes p. 21/135)

10.2 SECTION III - ITEMS FOR THE INFORMATION OF THE BOARD

10.2.1 APPOINTMENT OF ENFORCEMENT OFFICER

Recommended appointment of one Enforcement Officer for the purpose of signing authority in the administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 166/06, as amended). (Exec Minutes p. 25/135)

10.2.2 Q2 COMMUNICATIONS SUMMARY

Educational report regarding Toronto and Region Conservation Authority's (TRCA) corporate media communication activities during the second quarter of 2019 (April - June). (Exec Minutes p. 26/135)

10.2.3 2019 FIRST QUARTER FINANCIAL REPORT

Receipt of Toronto and Region Conservation Authority's (TRCA) unaudited revenue and expenditures as of the end of the first quarter, March 31, 2019 for informational purposes. (Exec Minutes p. 40/135)

10.2.4 FUNDING AND GRANTS PROGRAM - IN-YEAR UPDATE

To provide an in-year update to the Funding and Grants program and to highlight the success rate as of August 2019. (Exec Minutes p. 51/135)

11. CLOSED SESSION

The Board of Directors shall enter into closed session, pursuant to Section C.4. of TRCA's Board of Directors Administrative By-law, as the subject matter consists of:

c.4.(d) Labour relations or employee negotiations (being to discuss Ontario teacher labour negotiations and potential impacts on Toronto and Region Conservation Authority education programs).

12. NEW BUSINESS

NEXT MEETING OF THE BOARD OF DIRECTORS #9/18, TO BE HELD ON FRIDAY, OCTOBER 25, 2019 AT 9:30 A.M. AT HEAD OFFICE, 101 EXCHANGE AVENUE, VAUGHAN

John MacKenzie, Chief Executive Officer

/am

Item 8.1

Section I – Items for Board of Directors Action

TO: Chair and Members of the Board of Directors
Meeting #8/19, Friday, September 27, 2019

FROM: Moranne McDonnell, Director, Restoration and Infrastructure

RE: **TORONTO AND REGION CONSERVATION AUTHORITY (TRCA) TRAIL STRATEGY FOR THE GREATER TORONTO REGION**
Final Endorsement

KEY ISSUE
Final endorsement of the TRCA Trail Strategy for the Greater Toronto Region.

RECOMMENDATION

WHEREAS it was resolved by the TRCA Board at Meeting #9/18 on November 30, 2018 that the Draft Trail Strategy for the Greater Toronto Region, dated November 2018, be endorsed in principle for the purposes of engaging with external partners to obtain input prior to finalizing the Strategy and Workbook and for informing staff reviews of projects and plans and preliminary budget submissions (RES.#A183/18);

WHEREAS it was resolved by the TRCA Board at Meeting #9/18 on November 30, 2018 that staff were requested to report back to the Board of Directors in Q3 2019 for final approval of the Strategy;

THEREFORE, LET IT BE RESOLVED THAT the TRCA Trail Strategy for the Greater Toronto Region be approved;

AND THAT TRCA staff be directed to meet with partner municipalities to discuss priority projects, service level agreements, and funding agreements in support of the expansion and management of the regional trail network;

AND FURTHER THAT TRCA'S trail partners and the Regional Watershed Alliance be so advised.

BACKGROUND
TRCA drafted the Trail Strategy for the Greater Toronto Region (the Trail Strategy) in 2018. The Trail Strategy sets out the direction for TRCA to work towards achieving its vision of "a complete regional trail network in greenspace and along the Lake Ontario shoreline that connects our growing communities to nature, to culture, and to each other, contributing to active living and enhancing our conservation legacy." It outlines TRCA's plan to complete, expand, manage and celebrate the Greater Toronto Region trail network and serves as a framework to protect potential trail alignments. It acts as a guide for the planning, development and management of these trails, and creates the opportunity for partnership with our member municipalities, provincial and federal agencies, and trail focused groups.

The draft TRCA Trail Strategy for the Greater Toronto Region was endorsed by the Board of Directors at Meeting #9/18, on November 30, 2018, with RES.#A183/18.

RATIONALE
When endorsing the draft Trail Strategy in 2018, the TRCA Board of Directors directed staff to engage with external partners to obtain input prior to finalizing the Strategy. Staff proceeded to consult with external partners, stakeholders and the public from December 3, 2018 to January 18, 2019. Engagement occurred in the form of meetings, workshops, presentations, social media marketing campaigns, online commenting forms and public open houses. The extensive and constructive input provided by governments, community stakeholders and the public greatly improved the Trail Strategy.

Staff incorporated the feedback received from the additional engagement in late 2018 and early 2019 into the final Trail Strategy (Attachment 1). The overall framework of the Trail Strategy is maintained, including the concept and guiding principles.

Updates to the Trail Strategy
The following highlights some of the changes made to the Trail Strategy as staff prepared it for final endorsement.

Purpose, Vision Statement and Strategic Objectives
The purpose of the Trail Strategy was updated to emphasize the importance of capitalizing on the development process to protect land in support of trail development. The updated purpose of the Trail Strategy is “to outline a plan to protect potential trail alignments, and to guide the planning, development and management of a network regional trails”.

The vision of the Strategy was updated to include the Lake Ontario shoreline as it serves as an integral feature of the regional trail network in the Greater Toronto Area. The updated vision for the Trail Strategy is “a complete regional trail network in greenspace and along the Lake Ontario shoreline that connects our growing communities to nature, culture, and to each other, contributing to active living and enhancing our conservation legacy”.

The strategic objectives now consist of seven strategies that set out how TRCA will work to achieve the vision of the Trail Strategy. The eighth strategic objective (Organize Effective Trail Leadership) was removed as a strategic objective and its content was included as part of the Making It Happen: Organizing for Success section of the document. The rationale for this change is that this strategic objective was better suited as a short-term operational objective rather than a longer-term goal.

The remaining seven strategic objectives are as follows:

1. Prioritize trail and destination area capital projects
2. Promote greater trail use and awareness
3. Build a sound knowledge base
4. Integrate community enjoyment and protection of our heritage
5. Promote meaningful community engagement
6. Support complete communities
7. Secure adequate and sustainable investment

Trail Concept
Staff received important feedback from both our government partners and the public. Comments and suggestions were used to update conceptual trail alignments and provided TRCA staff with a greater understanding of how people use trails and where improvements could be made. Existing and conceptual trail alignments were refined to include updated, project-level detailed

trail alignments and recommendations from municipalities, stakeholders and the public. The concept now better aligns with municipal initiatives.

In total, the Greater Toronto Region Trail Network includes 1,000 kilometres of trails. This includes 520 kilometres of trails that are already in place. A remaining 480 kilometres of new trails are required to complete the network. The trail concept will continue to be updated to reflect current conditions opportunities and priorities. TRCA has prepared this spatial dataset and will make it available in conjunction with the final endorsement on the Trail Strategy.

Context
The Cultural Heritage context section of the Trail Strategy was expanded to elaborate on key terms and concepts. This complements the section on Natural Heritage and demonstrates TRCA's interest in cultural heritage protection and celebration.

Making it Happen
The Trail Strategy positions trails a key component of complete communities and as a mechanism to conserve the natural and cultural heritage features of our watershed. The development industry plays a significant role in the development of our communities. Therefore, more emphasis was put on the development process and its importance towards building the regional trail network.

The proposed external Trail Leaders Round Table was removed from the document and replaced with targeted meetings with government partners involved in trail planning, implementation and operations. These meetings will build on existing relationships with TRCA's municipal partners, other government agencies, and trail leaders.

The Workbook is no longer included as a separate document. Financial information previously included as part of the Workbook was moved to the Trail Strategy document. Other information contained in the Workbook such as the trail and destination capital project candidate lists and implementation plans will be included as part of future online mapping initiatives and will be maintained to reflect current conditions including opportunities and completed works.

Relationship to Building the Living City, the TRCA 2013-2022 Strategic Plan
This report supports the following strategies set forth in the TRCA 2013-2022 Strategic Plan:

Strategy 3: Rethink greenspace to maximize its value
Strategy 4: Create complete communities that integrate nature and the built environment
Strategy 5: Foster sustainable citizenship
Strategy 6: Tell the story of the Toronto region
Strategy 7: Build partnerships and new business models

FINANCIAL DETAILS
Financial resilience will require a range of eligible funding sources as well as leveraging the revenue-generating potential of trails and related facilities. TRCA will use the Trail Strategy to collaborate with municipal, provincial and federal colleagues, non-governmental organizations, trail and community leaders, and the development industry to acquire, protect and enhance the Greater Toronto Regional Trail Network. A financial plan to obtain funding to deliver the projects will be developed and the Trail Strategy initiatives and actions will be incorporated into work plans and into business and budget planning processes in a manner that maximizes budgets, time, and resources. This will include all traditional funding sources and support, including the

levy process, service agreements, mutually beneficial partnerships with municipalities, federal, provincial and municipal funding programs, Toronto and Region Conservation Foundation donations and funding campaigns, the development process, and development and management agreements, as well as other partnership projects with trail and community organizations.

The total cost to increase TRCA's trail program budget to meet the directions provided in the Trail Strategy and its action plan will be identified as unfunded priorities within TRCA's budget planning process in 2020 and beyond. If funding support for the administration of the Trail Strategy is secured for 2020, it would include consideration of all proposed amendments or updates from trail partners, advancement of three actions identified in the action plan per year, and monitoring and reporting on the performance of the Trail Strategy at a cost of $500,000.00 (2020 dollars). Staff will continue to explore a variety of additional funding sources to contribute to the financial implementation of projects outlined in the Trail Strategy in conjunction with budget planning process for the unfunded priorities.

DETAILS OF WORK TO BE DONE

- Provide the Trail Strategy to TRCA staff and external stakeholders for use in the development and review of projects and plans.
- Continue to pursue and obtain funding to administer the Trail Strategy and deliver priority trail and destination capital projects through TRCA's budget planning process, the TRCA grants centre and with trail partners.
- Form the TRCA Trails Working Group to guide the phased implementation of the Trail Strategy, to prioritize trail capital projects, and to ensure that trail-related activities are coordinated within TRCA and with our municipal partners and partner agencies.
- Formalize municipal partner working group meetings to discuss existing and future trail projects, coordinate implementation plans, seek opportunities for partnership, secure land and easements, and address trail ownership and management.
- Incorporate the Trail Strategy initiatives and actions into work plans and into business and budget planning processes.
- Track and report on the performance of the Trail Strategy.

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Date: June 17, 2019
Attachments: 1

Attachment 1: TRCA Trail Strategy for the Greater Toronto Region

Trail Strategy

for the Greater Toronto Region

Growing Our Legacy

September 2019

Toronto and Region Conservation Authority

Acknowledgements

As we strive to create a complete regional trail network in greenspace that connects our growing communities to nature and to each other, Toronto and Region Conservation Authority (TRCA) acknowledges that the Trail Strategy was undertaken within the traditional territory of the Anishinaabe, including the Mississaugas of the Credit First Nation and the Williams Treaty Nations, the Haudenosaunee, Huron-Wendat, and Métis nations. As stewards of land and water resources within the Greater Toronto Area, TRCA appreciates and recognizes the history and diversity of the land, as well as our shared values and interests, and is respectful of working in this territory.

The TRCA Trail Strategy is a product of significant inventory, research, mapping, analysis, writing and editing. It builds upon the foundations of the *Niagara Escarpment Plan*, the *Greenspace Plan*, *Regeneration: Toronto's waterfront and the sustainable city*, and the *Oak Ridges Moraine Conservation Plan*, and reflects the current and forward-looking directions provided in the *Regional Transportation Plan*, the *Growth Plan*, the *Greenbelt Plan*, and regional official plans.

Throughout this process, intensive consultation with our partners aligned the Strategy with our collective goals. We would like to express our appreciation to our following partners for their co-operation and contributions: the governments of Canada and Ontario, municipal and regional staff and various public and private agencies, boards, associations and grassroots trail groups.

Executive Summary

The Trail Strategy for the Greater Toronto Region outlines Toronto and Region Conservation Authority's (TRCA) plan to work with partners to complete, expand, manage and celebrate the Greater Toronto Region Trail Network, a connected trail network in our regional greenspace system. It serves as a framework to protect potential trail alignments, and to guide the planning, development, and management of these trails. In addition, the Trail Strategy provides rationale and informs efforts to secure greenspace and should be used to support the *Greenlands Acquisition Project for 2016–2020* and its future iterations. As such, it will facilitate the concerted effort of expanding greenways and building the Greater Toronto Region Trail Network in partnership with our trail community colleagues and partners. The Trail Strategy consists of the following:

- A vision expressing what we want to achieve
- A concept describing our proposal
- Guiding principles to steer our efforts
- Context for our work
- Strategic objectives to translate our vision into specific plans and projects
- Actions required to achieve our concept

The vision for the Greater Toronto Region Trail Network sees a complete regional trail network in greenspace and along the Lake Ontario shoreline that connects our growing communities to nature, to culture, and to each other, contributing to active living and enhancing our conservation legacy.

The concept for the Greater Toronto Region Trail Network sees the development of almost 480 km of proposed trails through the Oak Ridges Moraine, the valleys of the Etobicoke, Mimico, Highland, Petticoat, and Duffins Creeks, and the major valleys of the Don, Humber, and Rouge Rivers; along the Lake Ontario Waterfront; and through regional infrastructure corridors, including transit, utility, and electric power facility corridors. It also envisions the introduction of blue trails, which are paddling routes on our navigable waterways. Combined with the 520 km of existing trails in our greenspace system, implementation of this Strategy would see the provision of 1,000 km of regional trails across our jurisdiction.

This concept builds on the existing regional trail system whose foundation is provided in the *Niagara Escarpment Plan*, the *Greenspace Plan*, *Regeneration: Toronto's waterfront and the sustainable city*, and the *Oak Ridges Moraine Conservation Plan*. It reflects the current and forward-looking directions provided in the *Regional Transportation Plan*, the *Growth Plan*, the *Greenbelt Plan*, and regional official plans to capitalize on current growth and development opportunities. This concept affirms our commitment to strategically expand publicly owned and accessible greenspace and trails through a variety of mechanisms. It also proposes investment in 10 conservation destination areas to enhance the trail network and provide amenities. This concept, that has been developed with extensive stakeholder input, identifies the existing trail system, prioritizes key missing links within the regional network, and proposes opportunities for trail

connections that would link to both regional and municipal trail systems. Many of the opportunities to be investigated extend beyond TRCA-owned lands and require collaboration with member municipalities, private landowners, utilities, and other agencies.

Five guiding principles form the foundation of the Trail Strategy, underpinning the vision of the document and informing the rationale and methodology for its implementation: lead, collaborate, steward, invest, and celebrate. The following seven strategic objectives along with their associated initiatives and actions, will guide TRCA and its partners towards achieving the vision of the Trail Strategy:

1. Prioritize trail and destination area capital projects
2. Promote greater trail use and awareness
3. Build a sound knowledge base
4. Integrate community enjoyment and protection of our heritage
5. Promote meaningful community engagement
6. Support complete communities
7. Secure adequate and sustainable investment

The Trail Strategy supports *The Living City®* vision for a new kind of community where human settlement can flourish forever as part of nature's beauty and diversity. In particular, it reinforces TRCA's Leadership Strategic Priority # 3: Rethink greenspace to maximize its value, as identified in *TRCA's Building the Living City®: 10 Year Strategic Plan 2013–2022*. The expected outcomes of the Trail Strategy are as listed:

- Protection of opportunities to achieve the regional trail network through the development review process
- Protection of connected routes and corridors for wildlife, recreation, and active transportation
- Provision of natural spaces for play, exploration, and recreation
- Provision and protection of green infrastructure and ecosystem services
- Protection of our cultural heritage and promotion of its understanding
- Creation of opportunities for land-based education
- Enhancement of our physical landscapes, to inform existing and future development
- Encouragement of urban regeneration
- Support for the economic potential of eco-tourism
- Improvement of social inclusion, equity, and accessibility of greenspaces
- Improvement of opportunities to enjoy and connect with nature
- Reinforcement of our regional identity

TRCA will leverage this Strategy to partner with municipal, provincial, and federal colleagues, non-governmental organizations (NGOs), community partners, and the development industry to inform our efforts to acquire, protect, and enhance natural assets, and to achieve new and upgraded trails, while connecting people to nature.

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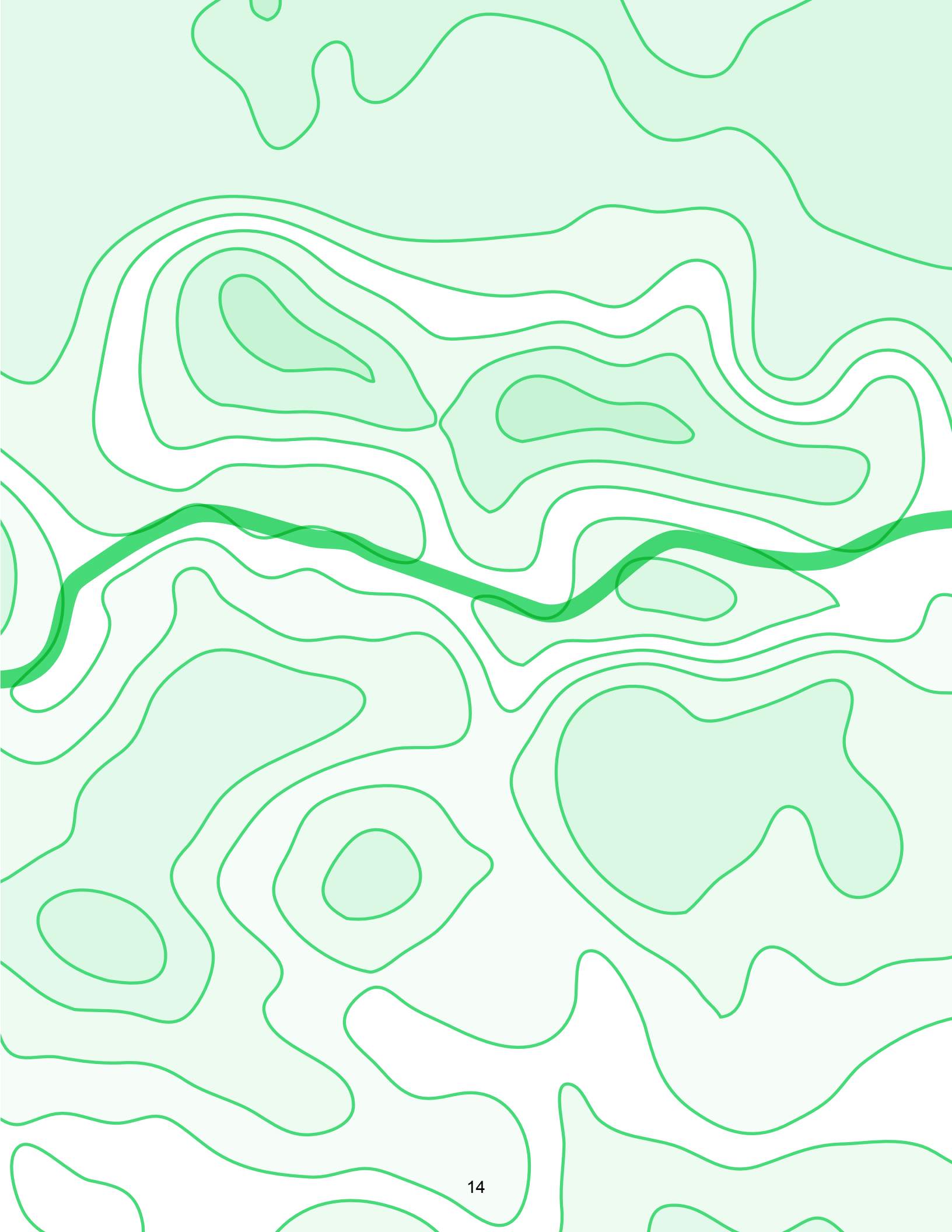


Introduction

Trails have become a defining feature of our landscapes. Trails connect residents to nature and to each other, and provide opportunities for community, recreation, active transportation, and healthy living.

Increasing the amount of publicly accessible greenspace can help to accommodate urban growth while maintaining a high quality of life and ecological functions.

For more than 10,000 years, trails have woven through the forests, valleys, and meadows of what is now known as the Greater Toronto Area (GTA). They were used by traders, hunters, and fishers during the migration of Indigenous people, and later by waves of settlers and immigrants. In the process, trails have become a defining feature of our urban and rural landscapes. Trails connect residents to nature and to each other, and provide opportunities for community, recreation, active transportation, and healthy living. They form a network for movement, linking neighbourhoods in the Oak Ridges Moraine (ORM) and the Greenbelt to the growing suburban and urban centres that frame Lake Ontario.

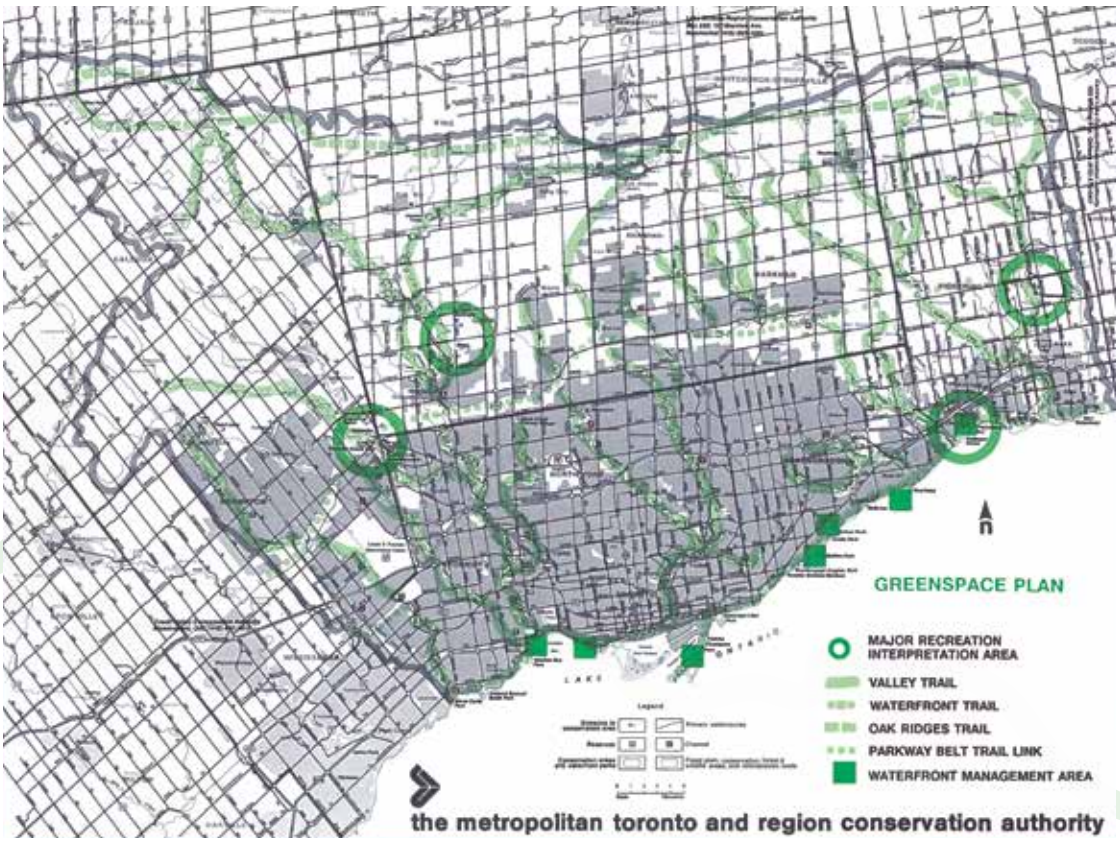
Situated in the largest metropolitan area in Canada, TRCA's area of jurisdiction is uniquely positioned with some of the most remarkable natural areas in our region. Making these special places accessible through trails – while growing, enhancing, and protecting our greenspace system – is essential to preserving a high quality of life.

TRCA has a long history of nature-based trail planning, development, and delivery. Over the past 60 years, TRCA has worked in collaboration with its regional trail community partners to provide responsible access to nature through scenic recreational trails and greenways. Inspired by the successful establishment of the Bruce Trail, TRCA proposed the concept of a regional trail network in greenspace that would connect the ORM and the Niagara Escarpment to the shoreline of Lake Ontario in 1989 (see Figure 1.a: Greenspace Plan). This proposed trail

network was intended to provide continuous public access through conservation corridors to the magnificent landscapes of the Greater Toronto Area. TRCA has since worked in partnership with community groups and all levels of government to develop this network. This network was reinforced in landmark planning documents such as *Regeneration: Toronto's waterfront and the sustainable city*, and *Space for All: Options for a Greater Toronto Area Greenlands Strategy*. There are currently 520 km of regional trails in greenspace connecting the municipalities of Mono, Peel, York, Durham, and the City of Toronto, including sections of the Bruce Trail, the Lake-to-Lake Trail, the Oak Ridges Trail, The Great Trail, and the Waterfront Trail. This network has become an important mechanism to secure greenspace, mitigate climate change, improve human health and well-being, promote responsible public access create more resilient communities, and inspire environmental stewardship.

Presently, our region is experiencing unprecedented urban growth. By 2041, our population is projected to have increased by 40 per cent to reach close to 10 million residents (Ontario Ministry of Finance, 2017). Twelve of the urban growth centres in the *Growth Plan for the Greater Golden Horseshoe* (Ontario Ministry of Municipal Affairs, 2017),and 36 mobility hubs identified in Metrolinx's *Regional Transportation Plan* (2018), are in TRCA's jurisdiction. Increasing the amount of publicly accessible greenspace

Figure 1.a: Greenspace Plan (1989)



can help to accommodate this projected urban growth while maintaining a high quality of life, and ecological functions. This Strategy encourages the proactive protection of trail corridors to mitigate environment impacts of growth in the GTA while simultaneously preventing negative environmental impact with this coming intensification.

Expanding greenspace and providing trails more equitably across our jurisdiction will provide nature-based amenities and recreation opportunities to communities, while improving our collective health and well-being. The creation of new trails, trailheads, and neighbourhood linkages to our regional system will facilitate access to incredible destinations, allowing people to experience nature through the seasons. We must target our efforts and capitalize on development opportunities to realize these possibilities and service planned growth according to our environmental planning policies and objectives. We must also secure adequate and sustainable investment in this community infrastructure that accounts for the full lifecycle costs of trails to maintain assets in a state of good repair to our desired level of service.

TRCA has developed the Trail Strategy to provide a strategic vision for a complete regional trail network in greenspace and the Lake Ontario shoreline that connects our growing communities to nature, to culture, and to each other. The network contributes to active living and once built will be a lasting conservation legacy. As development accelerates, TRCA will employ this Strategy and partner with municipal colleagues senior levels of government, NGOs, utilities, landowners, and the development industry to continue to acquire, protect, and enhance natural assets while connecting people to nature. Through this collaboration, ongoing public procurement of greenspace and the provision of scenic trail greenways will occur. At our doorstep, we have a precious hinterland network of nature-based recreation trails across the ORM, the Niagara Escarpment, our nine river valleys, and the Lake Ontario waterfront. By working together strategically, we can grow and maintain this legacy in support of complete communities, a thriving economy, and a healthy environment.

Purpose

The Trail Strategy outlines a plan to protect potential trail alignments, and to guide the planning, development, and management of a network of regional trails.

The Strategy should be read in conjunction with *The Living City Policies* (TRCA, 2014), which state TRCA's environmental planning and development objectives, goals, and policies for the provision of non-motorized recreational trails located within our watersheds. The Strategy provides additional rationale to secure greenspace to increase the natural system while providing appropriately sited scenic greenways. As such, it should be used to support the objectives of the *Terrestrial Natural Heritage System Strategy (TNHSS)* (TRCA, 2007), the *Greenlands Acquisition Project for 2016–2020* (TRCA, 2015), the *Greenspace Strategy* (TRCA, 1989), and their future iterations. The Strategy also aligns with the *Community Engagement Strategy* (TRCA, 2017) by fostering sustainable citizenship towards realizing *The Living City*® vision. This Strategy provides direction regarding regional trails for future TRCA planning documents, including Watershed Plans, Management Plans, and Master Plans for TRCA and publicly owned assets.

The Trail Strategy represents the first product of an ongoing TRCA Trail Program. The Trail Strategy contains the following six major components:

1.

A **vision** expressing what we want to achieve

2.

A **concept** describing our plan that has been developed with extensive input

3.

Guiding principles to steer our efforts

4.

Context outlining influencing factors

5.

Strategic objectives to translate our vision into specific plans and projects

6.

Actions required to achieve our concept

This Strategy defines **active living** as a way of life in which physical, social, mental, emotional, and spiritual activities are valued and are integrated into daily living.[1]

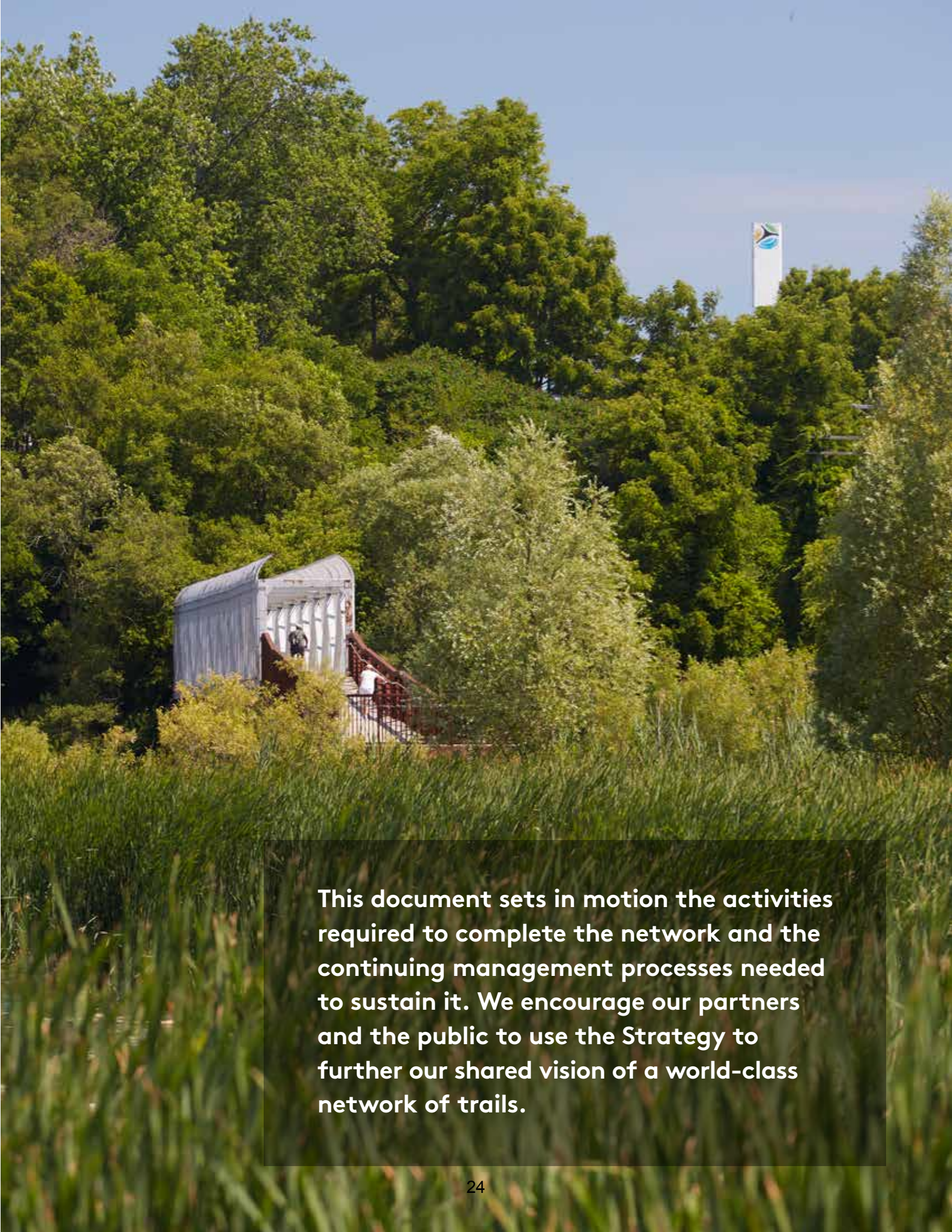
This Strategy defines **active transportation** as using your own power to get from one place to another. This includes walking, biking, skateboarding, in-line skating/rollerblading, jogging and running, non-mechanized wheelchairing, snowshoeing, and cross-country skiing.[2]

This Strategy defines **recreation** as non-intrusive, outdoor leisure activities that facilitate enjoyment of nature, such as hiking, cycling, cross-country skiing, and bird watching.

This Strategy defines a **regional trail** as a non-motorized trail, primarily in greenspace, that crosses municipal boundaries and connects communities throughout our region through recreation and/or active transportation uses.

1. https://www.activeagingcanada.ca/participants/get-active/active-living/what-is-active-living.htm

2. https://www.canada.ca/en/public-health/services/being-active/active-transportation.html)



This document sets in motion the activities required to complete the network and the continuing management processes needed to sustain it. We encourage our partners and the public to use the Strategy to further our shared vision of a world-class network of trails.

Vision

A complete regional trail network in greenspace and along the Lake Ontario shoreline that connects our growing communities to nature, to culture, and to each other, contributing to active living and enhancing our conservation legacy.

Concept

The concept plan for the Greater Toronto Region Trail Network provides connections from the headwaters of the Oak Ridges Moraine and the Niagara Escarpment to the Lake Ontario Waterfront, across the river valleys and tablelands to the conservation destinations of our nine watersheds.

The concept for the Greater Toronto Region Trail Network reflects and serves as our vision by building on existing regional trail systems, provincial and municipal plans, and current growth and development opportunities to strategically expand greenspace and trails through a variety of development mechanisms.

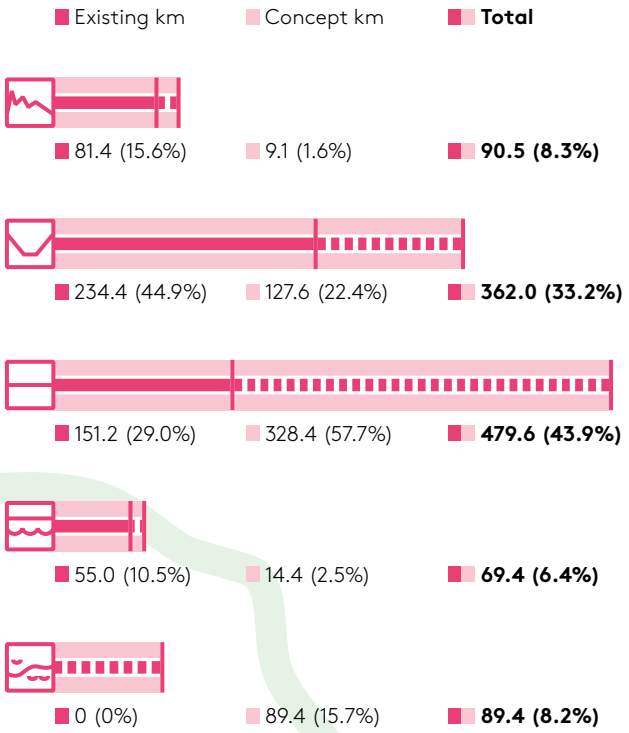
In the growing communities of Vaughan, Richmond Hill, King, Mayfield, and Bolton, opportunities exist for land acquisition to grow, enhance, and protect habitat and provide trails concurrent with planned development. New communities in Markham and Pickering also hold exciting prospects to acquire greenway corridors that would link the spectacular Rouge River and Duffins Creek systems from the Lake Ontario Waterfront to the ORM.

There are approximately 520 km of regional trails in our greenspace system. The concept proposes almost 480 additional kilometres of trail to complete a regional trail system of 1,000 linear kilometres that connects greenspace to conservation destinations, neighbourhoods, employment lands, and transit and mobility hubs. It also proposes investment in 10 conservation destination areas to enhance the trail network and provide amenities.

Where possible, conceptual trails are located within the natural system of our watersheds to provide a continuous trail system in greenspace. Where this is not possible, conceptual trails are located within the urban fabric of our communities to facilitate the goal of regional connectivity to greenspace, neighbourhoods, employment lands, and transit and mobility hubs. Many of the trails may serve both recreation and active transportation functions. Each trail must be evaluated to determine its network function and associated design requirements to ensure a positive and safe user experience.

In realizing these future connections, the detailed trail alignments, design, and operation should avoid, mitigate, and/or compensate for impacts to the natural system, and should provide opportunities for natural restoration and cultural heritage preservation. Trails should be sited to avoid sensitive habitats, species, and natural hazards, consistent with *The Living City Policies*. Many of the conceptual trails extend beyond lands that TRCA owns or manages and require collaboration with member municipalities, private landowners, and other agencies. The following is a summary of the concept for the Greater Toronto Region Trail Network.

Figure 4.a: Trail Typologies



Five trail typologies comprise the conceptual framework for the Greater Toronto Region Trail Network. These categories are: **Ridge, Valley, Corridor, Waterfront,** and **Blue** trails. Some of the trails described by these typologies are existing regional trails, while others are new corridors or gap connections.

Ridge trails feature the historic Bruce Trail, and span the rugged Niagara Escarpment and the Oak Ridges Trail, stretching across the ORM.

Valley trails comprise existing north-south ravine and valley routes, including the Black Creek, the Etobicoke Creek, the Humber, Lower Don, and Seaton Trails, and the Pan Am Path, as well as proposed expansions of trails that traverse urban forests and valley lands.

Corridor trails provide additional east–west greenway linkages integrated into existing roadway, railway, pipeline, and hydro corridors.

The **Waterfront trail** stretches along the shore of Lake Ontario, connecting communities, parks, and natural areas across the waterfront.

Blue trails propose opportunities to explore certain navigable shoreline areas of Lake Ontario and the mouths of the Humber, Don, and Rouge Rivers, and Duffins Creek.

This cohesive framework provides the backbone for building out the diversity of experiences found in our regional trail network (see Figure 4.a: Trail Typologies).

Ten destinations provide key places of interest throughout the network where visitors can be immersed in nature, experience year-round seasonal beauty, and observe breathtaking scenery. The concept proposes investment in these conservation hubs to enhance the network as a world-class, nature-based trail experience.

1. At the **Hills of the Headwaters**, the cliffs and caves of the Niagara Escarpment converge with the forests and hills of the ORM, and nature can be explored at Glen Haffy and Albion Hills Conservation Parks.

2. In the **Humber Valley Wilderness**, Nashville Conservation Reserve, Kortright Centre for Conservation, and Boyd Conservation Park form a continuous corridor of mixed forests, valleys, and meadows along the Humber Trail.

3. The **Kettle Lakes** district in the Oak Ridges Corridor Conservation Reserve provides vistas of Lake Wilcox, Swan Lake, and Bond Lake along the Oak Ridges Trail, through the growing community of Richmond Hill.

4. A national gem, **Rouge National Urban Park** is a rich tapestry of working farms, Carolinian forests, marshes, beaches, and trails.

5. The largest area of interior forest habitat, as well as exceptional hiking, mountain biking, cross-country skiing, and snowshoeing trails can be found in the **Forested Headwaters** at TRCA's East Duffins Headwaters properties.

6. Further south, the **Black Creek Parklands** offer urban greenspace in proximity to transit, active transportation routes, and rapidly densifying communities, from the future Vaughan Metropolitan Centre to Downsview Park.

7. Towards Lake Ontario, the **Humber Parklands** connect people to the idyllic greenspaces of the Eglinton Flats, Humber Marshes, and Humber Bay Park.

8. In the heart of Canada's largest city, the **Toronto Harbour** engages us with the shoreline and the water that sustains us.

9. The **Forks of the Don** evokes Toronto's industrial past, with Todmorden Mills and Don Valley Brick Works situated in Toronto's lush ravines.

10. Along the waterfront, the **Scarborough Bluffs** are a natural wonder, soaring up to 90 metres above Lake Ontario.

Connecting people to recreational and active transportation opportunities in greenspace supports healthy lifestyles.

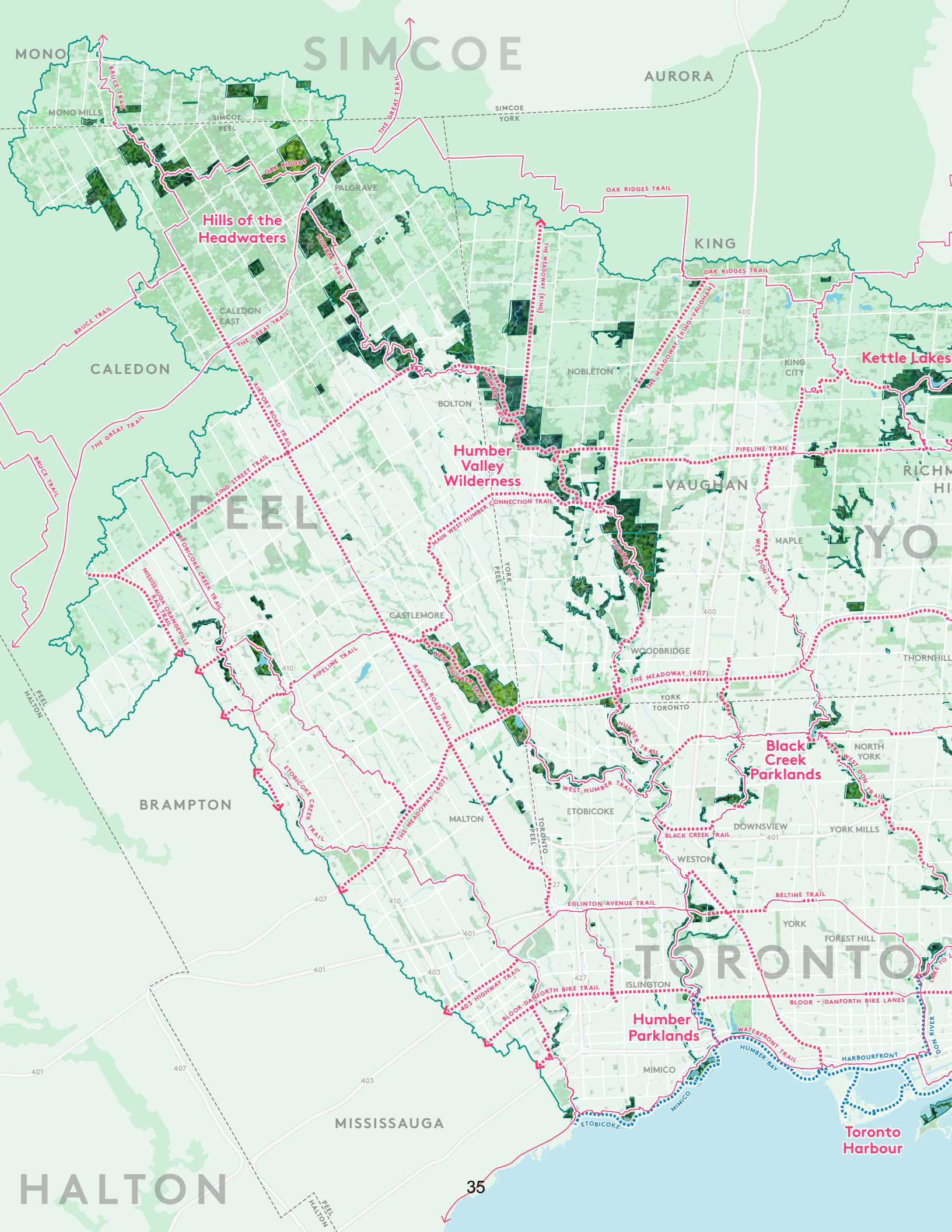
The Greater Toronto Region Trail Network will connect people to these 10 exceptional destinations through trail-based recreational experiences that cross regional boundaries. Connecting people to recreational and active transportation opportunities in greenspace supports healthy lifestyles. This is a key resiliency strategy that supports climate change adaptation and mitigation for our region by helping to reduce greenhouse gas emissions.

This network contributes to active living by providing a safe off-road network within greenspace for people to move about their daily lives, linking them to greenspace, neighbourhoods, employment lands, and transit and mobility hubs. It helps address the first-and last-mile regional transit issue, and combats road congestion. It will create more equitable access to trails and greenspace by improving accessibility to conservation areas and greenspace across our region. It will also allow a wider population to access a backyard nature experience and move us closer towards building sustainable communities that minimize our collective impact on the environment. The concept for the Greater Toronto Region Trail Network is illustrated in Figures 4.b.– 4.f: Concept Maps.

Concept Maps

The concept maps on the following pages illustrate the proposed Greater Toronto Region Trail Network that TRCA will strive to achieve. The concept identifies the existing trail system and key missing links, and proposes opportunities for trail connections to TRCA Conservation Parks and destinations that would link into the regional and municipal trail systems. These maps have benefited from extensive input and consultation with our partners and the public. Many of the opportunities to be investigated extend beyond TRCA's greenspaces and will require collaboration with member municipalities, private landowners, and other agencies. The proposed alignments are conceptual corridors that have gone through extensive consultation. These key linkages and corridors should be protected for future trail use.

The information depicted on the concept maps is current as of February 2019.


SIMCOE
MONO
AURORA
MONO MILLS
SIMCOE
PEEL
SIMCOE
YORK
THE GREAT TRAIL
BRUCE TRAIL
OAK RIDGES
PALGRAVE
OAK RIDGES TRAIL
Hills of the Headwaters
KING
CALEDON EAST
CALEDON
THE MEADOWAY (KING)
THE MEADOWAY (KING-VAUGHAN)
NOBLETON
KING CITY
Kettle Lakes
BOLTON
AIRPORT ROAD TRAIL
KING STREET TRAIL
Humber Valley Wilderness
PIPELINE TRAIL
VAUGHAN
PEEL
MAIN WEST HUMBER CONNECTION TRAIL
MAPLE
ETOBICOKE CREEK TRAIL
MISSISSAUGA ORANGEVILLE TRAIL
YORK
PEEL
CASTLEMORE
WEST DON TRAIL
WOODBRIDGE
THORNHILL
THE MEADOWAY (407)
YORK
TORONTO
HUMBER TRAIL
Black Creek Parklands
NORTH YORK
WEST HUMBER TRAIL
BRAMPTON
MALTON
ETOBICOKE
DOWNSVIEW
YORK MILLS
BLACK CREEK TRAIL
WESTON
EGLINTON AVENUE TRAIL
BELTINE TRAIL
YORK
FOREST HILL
TORONTO
ISLINGTON
BLOOR - DANFORTH BIKE LANES
403 HIGHWAY TRAIL
Humber Parklands
WATERFRONT TRAIL
HARBOURFRONT
HUMBER BAY
MIMICO
DON RIVER
MISSISSAUGA
Toronto Harbour
HALTON
PEEL HALTON

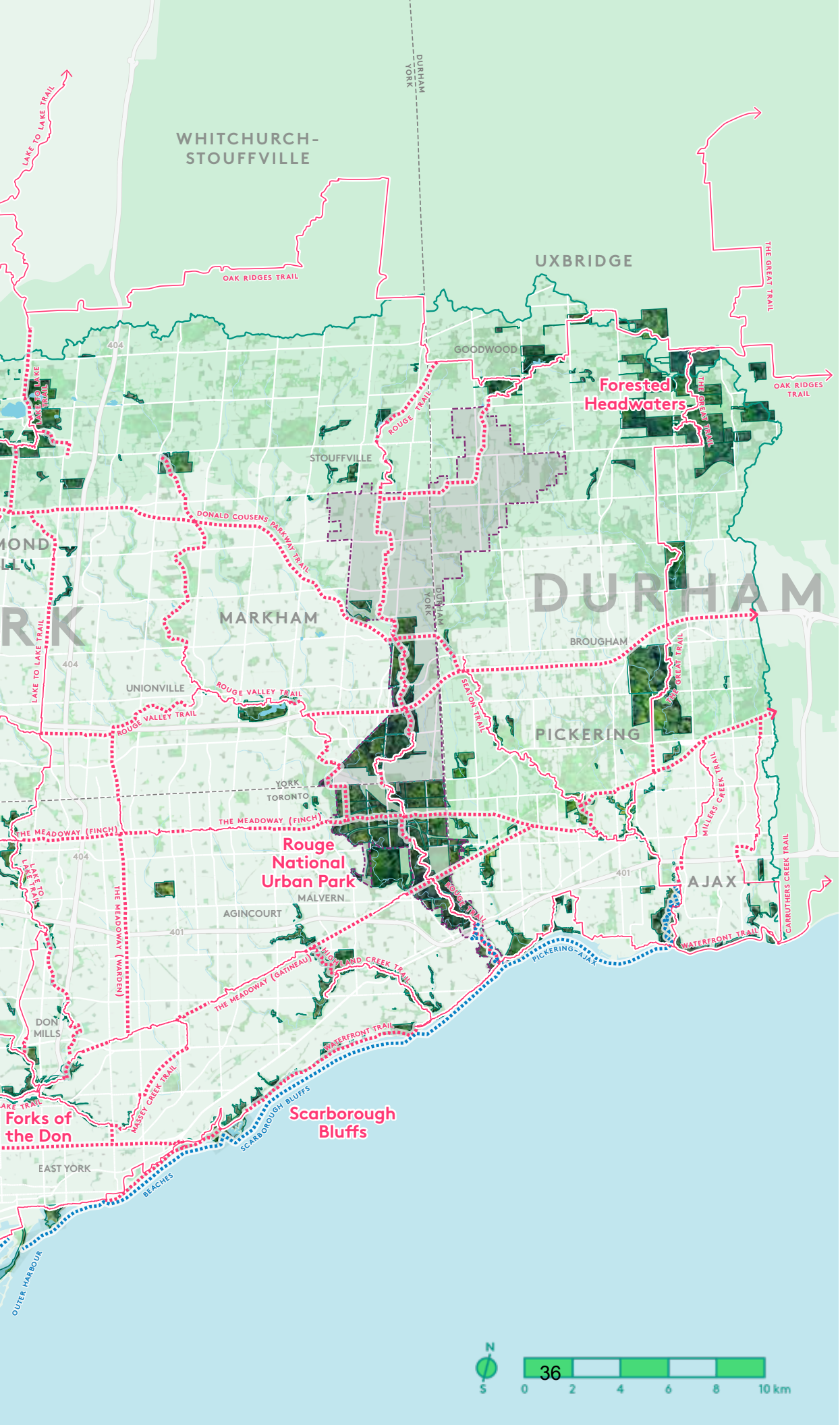


Figure 4.b: Concept Plan: Greater Toronto Region Trail Network

- Existing trail
- Proposed trail
- Proposed blue trail
- TRCA jurisdiction
- TRCA owned or managed property
- Rouge National Urban Park
- Greenbelt

Right →

Figure 4.c: Concept Plan: North West

Existing trail

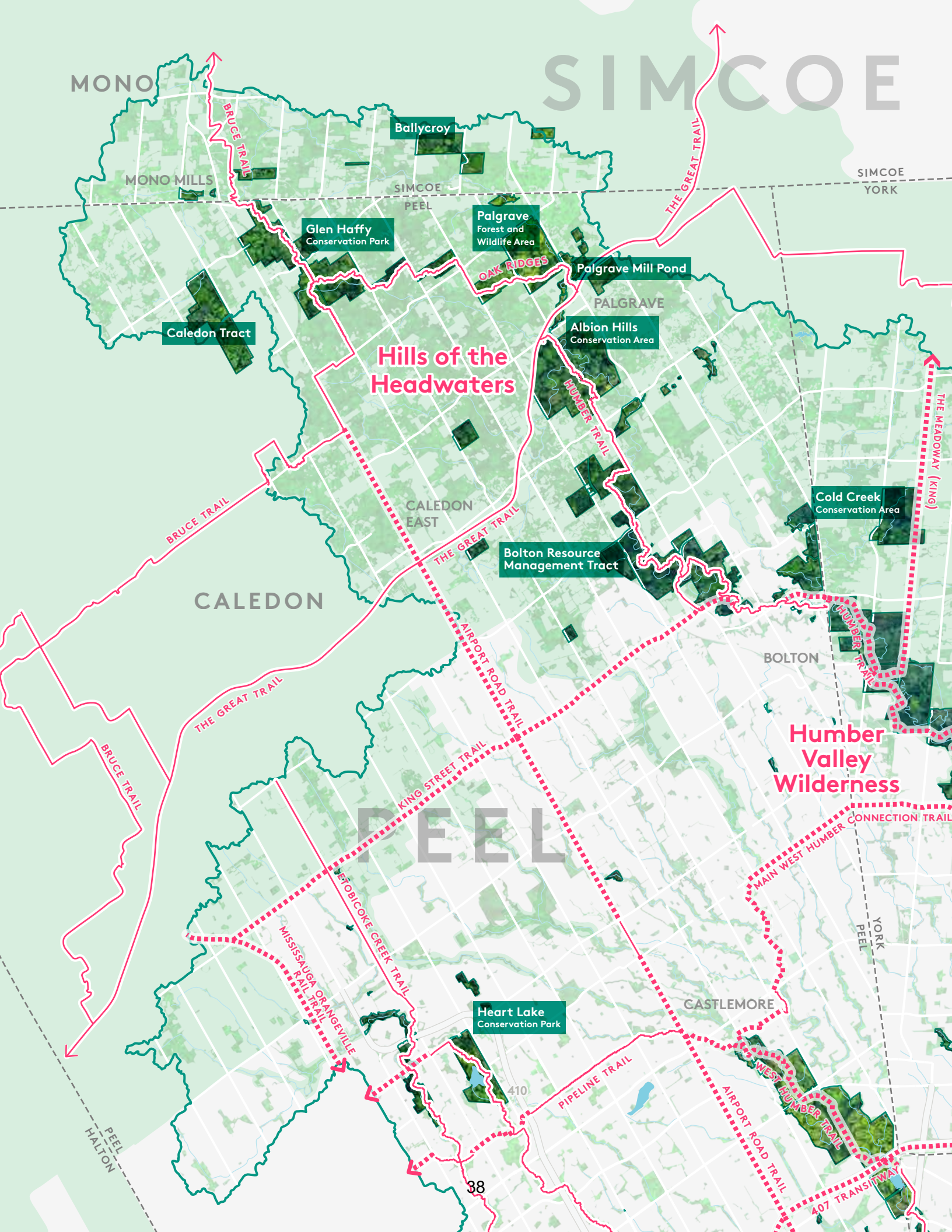
Proposed trail

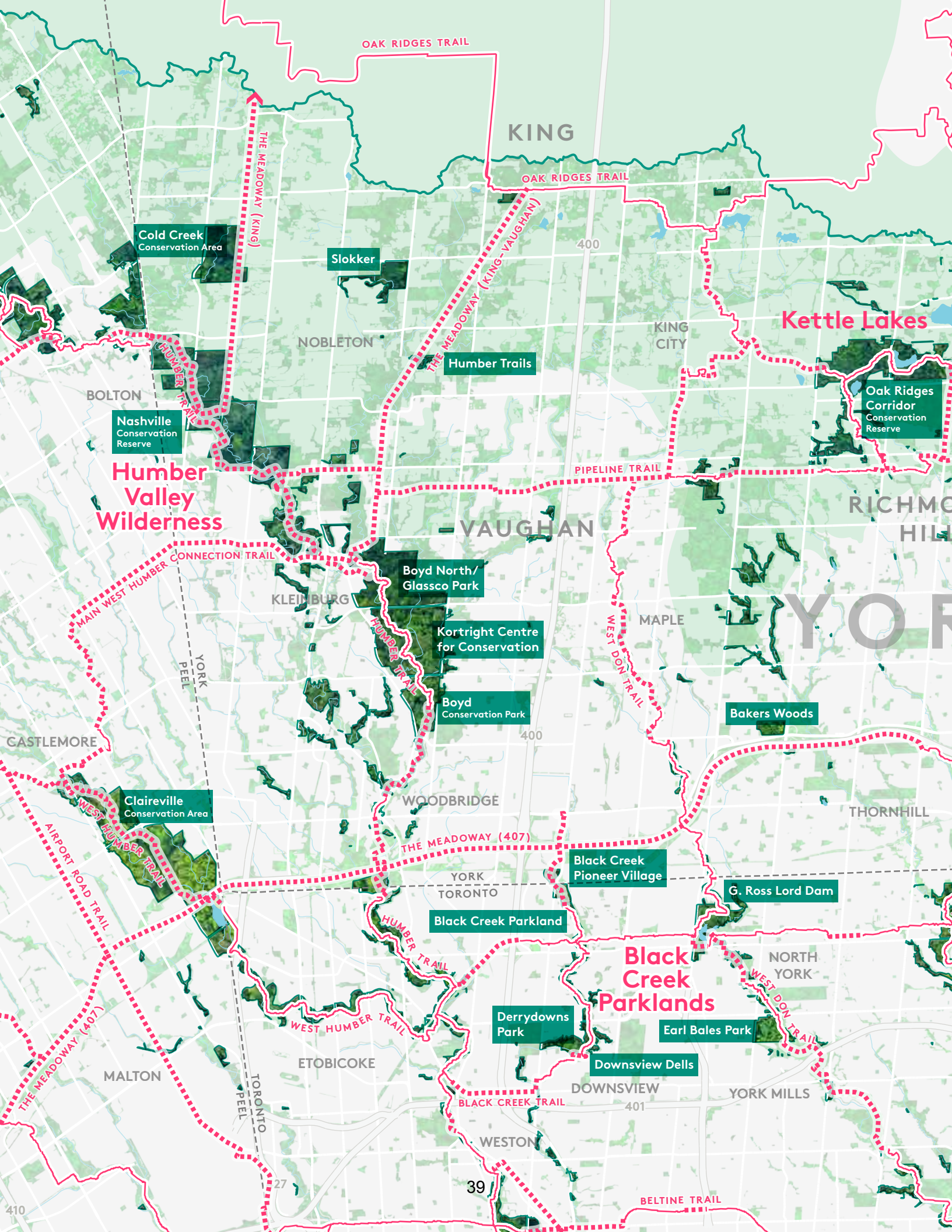
Proposed blue trail

TRCA jurisdiction

TRCA owned or managed property

Greenbelt


MONO
SIMCOE
MONO MILLS
SIMCOE
PEEL
SIMCOE
YORK
BRUCE TRAIL
THE GREAT TRAIL
Ballycroy
Glen Haffy
Conservation Park
Palgrave
Forest and
Wildlife Area
OAK RIDGES
Palgrave Mill Pond
PALGRAVE
Albion Hills
Conservation Area
Caledon Tract
Hills of the
Headwaters
HUMBER TRAIL
THE MEADOWAY (KING)
Cold Creek
Conservation Area
CALEDON
EAST
Bolton Resource
Management Tract
BRUCE TRAIL
THE GREAT TRAIL
CALEDON
AIRPORT ROAD TRAIL
BOLTON
HUMBER TRAIL
THE GREAT TRAIL
BRUCE TRAIL
KING STREET TRAIL
Humber
Valley
Wilderness
PEEL
MAIN WEST HUMBER CONNECTION TRAIL
ETOBICOKE CREEK TRAIL
MISSISSAUGA ORANGEVILLE
RAIL TRAIL
YORK
PEEL
CASTLEMORE
Heart Lake
Conservation Park
410
PIPELINE TRAIL
WEST HUMBER TRAIL
AIRPORT ROAD TRAIL
407 TRANSITWAY
PEEL
HALTON


OAK RIDGES TRAIL
KING
OAK RIDGES TRAIL
THE MEADOWAY (KING)
THE MEADOWAY (KING–VAUGHAN)
400
Cold Creek Conservation Area
Slokker
NOBLETON
KING CITY
Kettle Lakes
Humber Trails
HUMBER TRAIL
BOLTON
Nashville Conservation Reserve
Oak Ridges Corridor Conservation Reserve
Humber Valley Wilderness
PIPELINE TRAIL
RICHMO
HILL
VAUGHAN
MAIN WEST HUMBER CONNECTION TRAIL
Boyd North/ Glassco Park
KLEINBURG
Kortright Centre for Conservation
MAPLE
YO
WEST DON TRAIL
YORK
PEEL
Boyd Conservation Park
Bakers Woods
CASTLEMORE
400
Claireville Conservation Area
WEST HUMBER TRAIL
WOODBRIDGE
THORNHILL
AIRPORT ROAD TRAIL
THE MEADOWAY (407)
Black Creek Pioneer Village
YORK
TORONTO
G. Ross Lord Dam
Black Creek Parkland
HUMBER TRAIL
Black Creek Parklands
NORTH YORK
WEST DON TRAIL
Derrydowns Park
Earl Bales Park
WEST HUMBER TRAIL
THE MEADOWAY (407)
ETOBICOKE
Downsview Dells
MALTON
DOWNSVIEW
YORK MILLS
BLACK CREEK TRAIL
401
TORONTO
PEEL
WESTON
27
410
BELTINE TRAIL

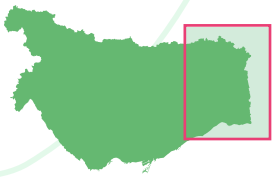
← Left

Figure 4.d: Concept Plan: Central

OAK RIDGES TRAIL
404
GOODWOOD
Lake St. George Field Centre
LAKE TO LAKE TRAIL
Cold Creek Conservation Area
Stouffville Reservoir
ROUGE TRAIL
Goodwood Resource Management Tract
Bruce's Mill Conservation Park
STOUFFVILLE
DONALD COUSENS PARKWAY TRAIL
MARKHAM
YORK
DURHAM
404
UNIONVILLE
ROUGE VALLEY TRAIL
ROUGE VALLEY TRAIL
SEATON TRAIL
Bob Hunter Memorial Park
YORK
TORONTO
THE MEADOWAY (FINCH)
THE MEADOWAY (FINCH)
404
Rouge National Urban Park
MALVERN
AGINCOURT
ROUGE TRAIL
Glen Rouge Campground
401
THE MEADOWAY (WARDEN)
THE MEADOWAY (GATINEAU)
HIGHLAND CREEK TRAIL
Colonel Danforth Park
Lower Highland Creek Park
Morningside Park
DON MILLS
WATERFRONT TRAIL

Existing trail
Proposed trail
Proposed blue trail
TRCA jurisdiction
TRCA owned or managed property
Rouge National Urban Park
Greenbelt

N S 0 1 2 3 4 km
0 15 30 45 min walk



Right →

Figure 4.e: Concept Plan: North East

Existing trail

Proposed trail

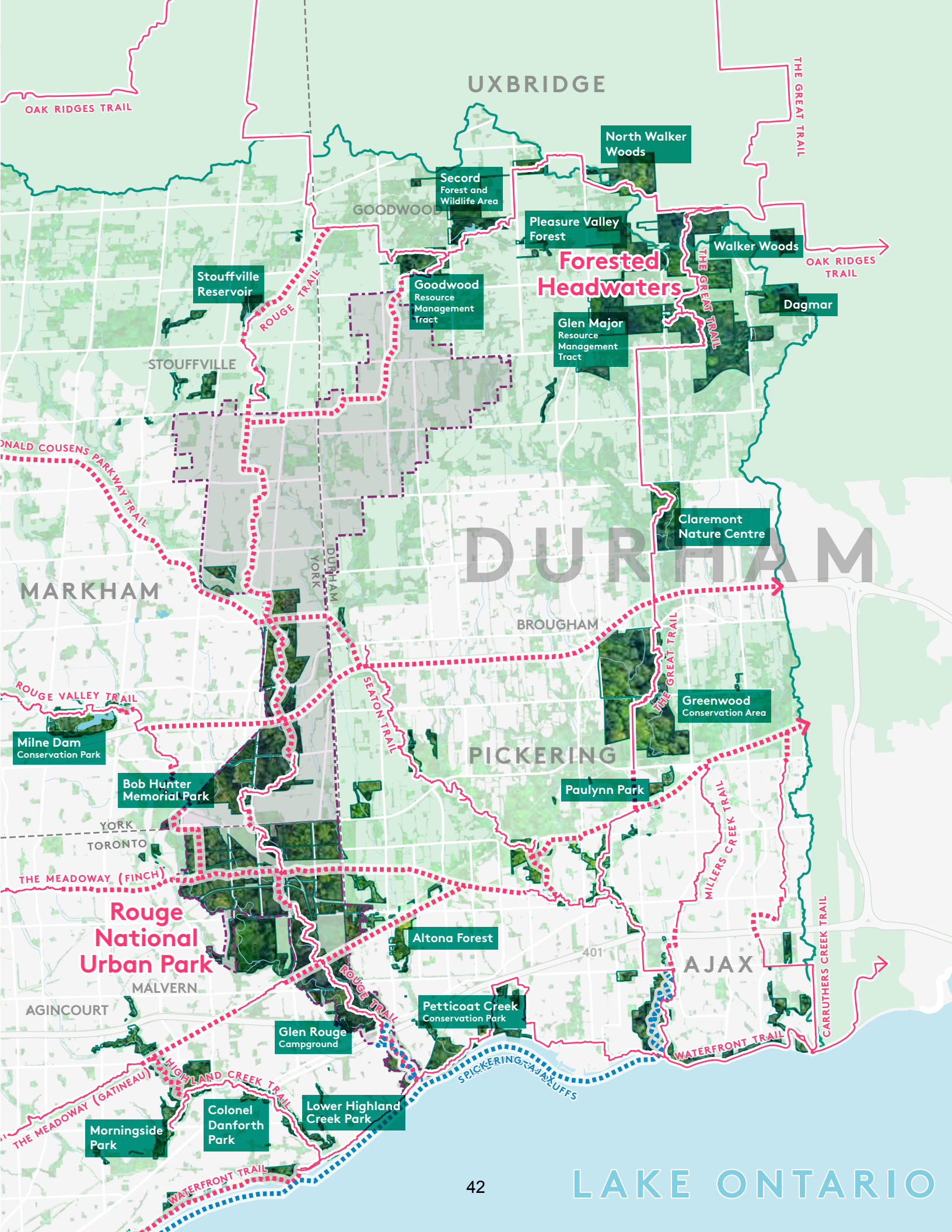
Proposed blue trail

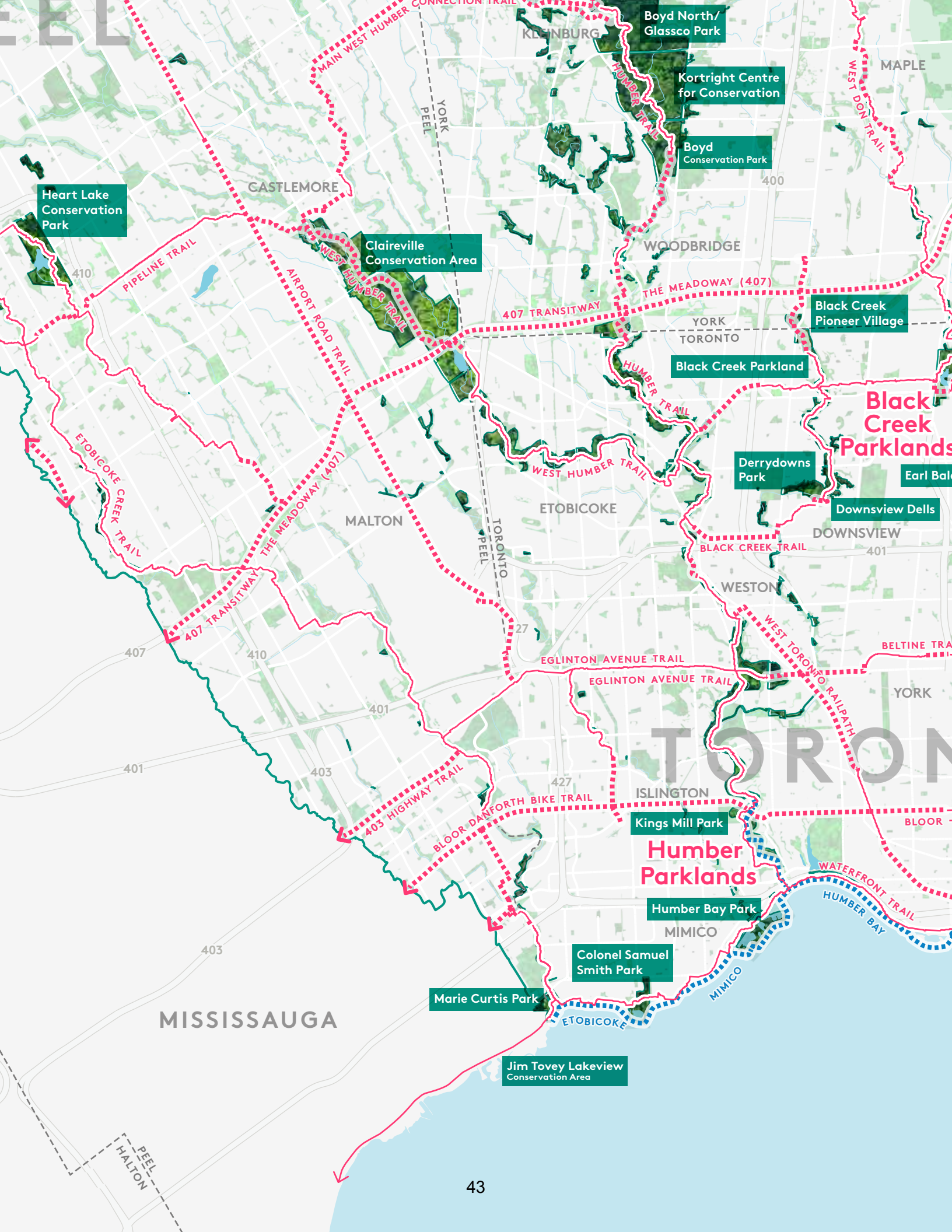
TRCA jurisdiction

TRCA owned or managed property

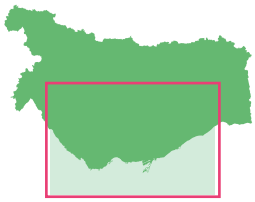
Rouge National Urban Park

Greenbelt


UXBRIDGE
OAK RIDGES TRAIL
THE GREAT TRAIL
North Walker Woods
Secord Forest and Wildlife Area
GOODWOOD
Pleasure Valley Forest
Walker Woods
Forested Headwaters
OAK RIDGES TRAIL
Stouffville Reservoir
ROUGE TRAIL
Goodwood Resource Management Tract
Dagmar
Glen Major Resource Management Tract
STOUFFVILLE
DONALD COUSENS PARKWAY TRAIL
Claremont Nature Centre
DURHAM
MARKHAM
YORK
DURHAM
BROUGHAM
ROUGE VALLEY TRAIL
SEATON TRAIL
Greenwood Conservation Area
Milne Dam Conservation Park
PICKERING
Bob Hunter Memorial Park
Paulynn Park
MILLERS CREEK TRAIL
YORK
TORONTO
THE MEADOWAY (FINCH)
Rouge National Urban Park
Altona Forest
401
AJAX
CARRUTHERS CREEK TRAIL
MALVERN
AGINCOURT
ROUGE TRAIL
Petticoat Creek Conservation Park
Glen Rouge Campground
WATERFRONT TRAIL
SPICKERING-AJAX CLIFFS
HIGHLAND CREEK TRAIL
THE MEADOWAY (GATINEAU)
Colonel Danforth Park
Lower Highland Creek Park
Morningside Park
WATERFRONT TRAIL
LAKE ONTARIO


Boyd North/ Glassco Park
Kortright Centre for Conservation
Boyd Conservation Park
Heart Lake Conservation Park
Claireville Conservation Area
Black Creek Pioneer Village
Black Creek Parkland
Black Creek Parklands
Derrydowns Park
Downsview Dells
Kings Mill Park
Humber Parklands
Humber Bay Park
Colonel Samuel Smith Park
Marie Curtis Park
Jim Tovey Lakeview Conservation Area
MAIN WEST HUMBER CONNECTION TRAIL
HUMBER TRAIL
WEST DON TRAIL
PIPELINE TRAIL
AIRPORT ROAD TRAIL
WEST HUMBER TRAIL
THE MEADOWAY (407)
407 TRANSITWAY
ETOBICOKE CREEK TRAIL
BLACK CREEK TRAIL
EGLINTON AVENUE TRAIL
WEST TORONTO RAILPATH
BELTINE TRAIL
BLOOR DANFORTH BIKE TRAIL
403 HIGHWAY TRAIL
WATERFRONT TRAIL
HUMBER BAY
MIMICO
ETOBICOKE
KLEINBURG
MAPLE
CASTLEMORE
WOODBRIDGE
YORK
TORONTO
ETOBICOKE
MALTON
DOWNSVIEW
WESTON
ISLINGTON
MIMICO
MISSISSAUGA
YORK PEEL
TORONTO PEEL
PEEL HALTON
400
401
403
407
410
427
27

YORK
MARKHAM
DURHAM
YORK
404
UNIONVILLE
LAKE TO LAKE TRAIL
ROUGE VALLEY TRAIL
ROUGE VALLEY TRAIL
SEATON TRAIL
Bakers Woods
Milne Dam
Conservation Park
Bob Hunter
Memorial Park
THORNHILL
YORK
TORONTO
G. Ross Lord Dam
THE MEADOWAY (FINCH)
THE MEADOWAY (FINCH)
Rouge
National
Urban Park
NORTH
YORK
404
LAKE TO LAKE TRAIL
WEST DON TRAIL
THE MEADOWAY (WARDEN)
MALVERN
AGINCOURT
ROUGE TRAIL
es Park
401
Glen Rouge
Campground
YORK MILLS
THE MEADOWAY (GATINEAU)
HIGHLAND CREEK TRAIL
Lower Highland
Creek Park
Morningside
Park
DON
MILLS
WATERFRONT TRAIL
Guild Inn
East Point Park
BELTLINE TRAIL
WEST DON TRAIL
Charles Sauriol
Conservation Area
SCARBOROUGH
WATERFRONT TRAIL
Bellamy Ravine
South Marine Drive Park
FOREST HILL
Crothers
Woods
Cudia Park
MASSEY CREEK TRAIL
LAKE TO LAKE TRAIL
Forks of
the Don
Bluffers Park
SCARBOROUGH BLUFFS
Scarborough
Bluffs
DANFORTH BIKE LANES
Fishleigh Park
EAST YORK
BEACHES
DON RIVER
HARBOURFRONT
Ashbridges Bay Park
Tommy Thompson Park
OUTER HARBOUR
Toronto
Harbour
LAKE ONTARIO



↑ Above

Figure 4.f: Concept Plan: South

Existing trail
Proposed trail
Proposed blue trail
TRCA jurisdiction
TRCA owned or managed property
Rouge National Urban Park
Greenbelt

N S 0 1 2 3 4 km
0 15 30 45 min walk

Guiding Principles

Five guiding principles form the foundation of the Trail Strategy, underpinning the vision of the document and informing the rationale and methodology for its implementation.

Lead

Our region is growing faster than ever before. We must establish our plan early to deliver our region's trails, destinations, and amenities to support this growth in accordance with our environmental planning policies and objectives. We must capitalize on the coming development opportunities to target our efforts to increase access to greenspace, while protecting and enhancing natural features.

Invest

Our trails are significant assets that require ongoing investment throughout their lifecycle. Changing trends in trail usage, climate change, and population growth have increased the pressures on our trail infrastructure. We must secure long-term and ongoing investment from a variety of sources that supports and sustains their existence and allows us to maintain our desired level of service.

Collaborate

Our trails are critical recreational and active transportation community infrastructure. By working together, we can grow our regional trail network legacy, while enriching the trail experience and enhancing ecological health. Through partnership and collaboration, we can sustainably and successfully expand and maintain our regional trail system in support of complete communities.

Celebrate

Our trails are a defining and valuable feature of our urban and rural landscapes. They bring neighbourhoods and communities together and provide access to unique destinations. They connect us to our rich history and present opportunities for reflection, self-awareness, and greater acceptance of diverse cultural origins. We must honour trails and the experiences they enable.

Steward

Our trails are predominantly located in our greenspace system, close to urban communities. Careful and collaborative planning is needed to make informed trail planning decisions that support stewardship of our natural and cultural heritage. We must continue to perform comprehensive site planning and utilize best management practices when planning, developing, and maintaining trails.

Context

The context of our regional trail system can be described through the landscapes that frame them, the destinations that define them, and the policies that guide their planning, development, and management. This context provides the necessary groundwork for an informed Trail Strategy.

Natural System

TRCA recognizes the natural system as the natural green infrastructure of the Toronto Region. Natural green infrastructure includes water resources, natural features and areas, natural hazards, restoration areas of potential natural cover, and buffers. Built green infrastructure also contributes to the health of the natural system and includes urban forests and woodlots, bioswales, rain gardens, engineered wetlands and stormwater ponds, agricultural lands, green roofs and green walls, urban agriculture, and open parklands. Together, natural and built green infrastructure reduces flooding and erosion, filters water and air pollutants, provides additional ecosystem services (such as moderating the urban heat island effect), and provides opportunities for recreation and community aesthetics. This integrated system is fundamental to the quality of life in our region and provides ecological functions and benefits known as Ecological Goods and Services (EG&S). EG&S provide the base resources that sustain our lives, including our health, social, cultural, and economic needs.

Land areas of natural cover most significantly contribute to the health of our natural system. They play a vital role in flood and erosion control, groundwater recharge and discharge, biodiversity, and the overall health and well-being of urban dwellers. The sustainability of communities and economies depends upon our ability to maintain or restore the ecological functions of natural cover in both urban and rural landscapes.

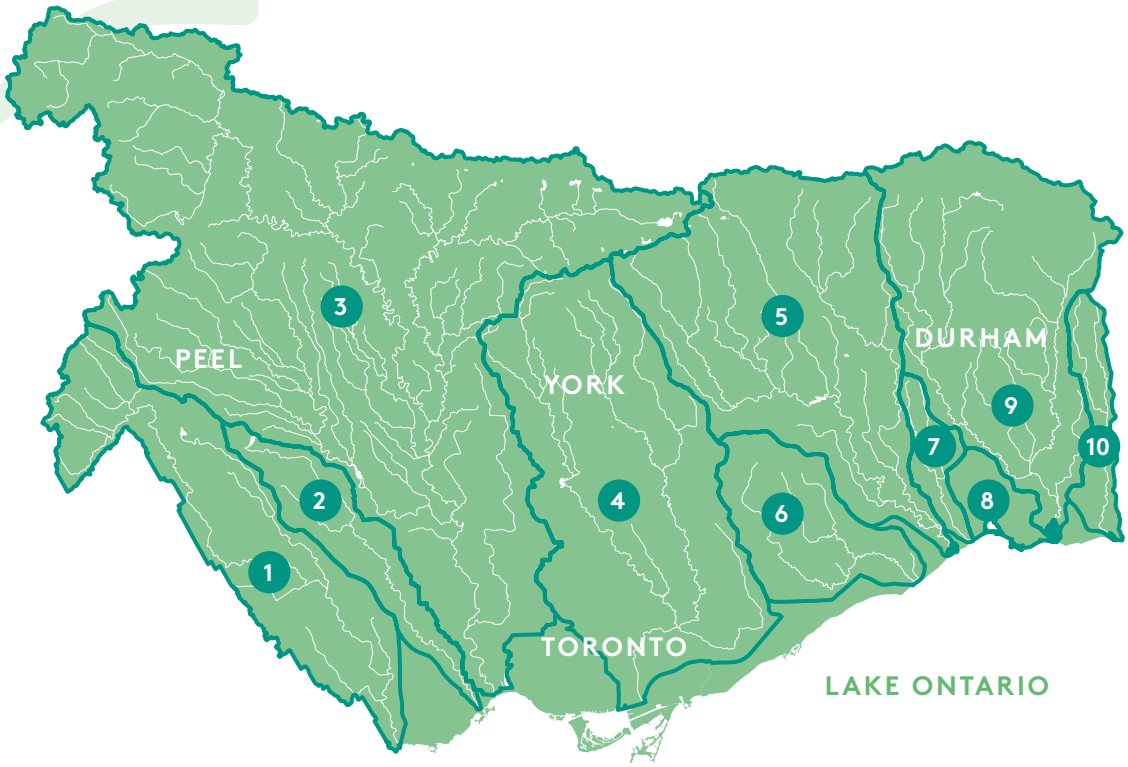
However, the quantity, quality, and connectedness of natural cover in our region is declining (TRCA, 2016). TRCA's *TNHSS* recommends a minimum of 30 per cent natural cover – including forests, wetlands, and meadows – to maintain healthy watersheds (TRCA, 2007). Currently, only 25 per cent of our regional landscape has natural cover – and only 17 per cent of that amount is forest and wetland cover, which provides the greatest ecological value. These natural spaces continue to be fragmented by expanding urban development, reducing their ability to function as meaningful habitat (TRCA, 2016).

It is in our urban and urbanizing areas where natural systems and the delivery of EG&S are under the greatest pressure. Achieving the *TNHSS* natural cover targets will require an expansion of the natural system. As the population of the GTA continues to increase and the demand for trails grows, it is imperative that the diverse greenspaces of our natural system are increased, protected, and enhanced.

Land acquisition for trail development can also provide a means to increase the natural system through concurrent ecological restoration and mitigation efforts. When sited within the natural system, trails should be located to minimize impacts to significant natural features.

Landscapes of the Toronto Region

The geological origins of the nine watersheds within the TRCA jurisdiction caused the unique geomorphic characteristics that define the landscapes of our region (see Figure 6.a: Context Map: TRCA Jurisdiction Watersheds). Approximately 12,000 years ago, advancing and retreating glaciers formed the ORM, a pair of large ridges composed of four elevated wedges. The ORM is bounded to the west by the Niagara Escarpment, which was critical to the formation of the Moraine, and contained in the east by the Trent River and Rice Lake. From these upland areas, water flows through our nine watersheds, from Etobicoke Creek in the west to Carruthers Creek in the east, eventually draining into the northwestern shores of Lake Ontario. These features, which are critical to our region's natural and built environments, can be characterized by four broad landscape types: **headwaters, river valleys, waterfront,** and **tablelands**.



1. Etobicoke
2. Mimico
3. Humber
4. Don
5. Rouge
6. Highland
7. Petticoat
8. Frenchman's Bay
9. Duffins
10. Carruthers

Figure 6.a: Context Map: TRCA Jurisdiction Watersheds

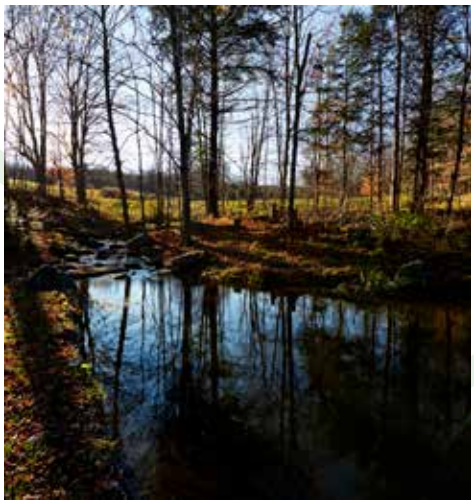
As the population of the GTA continues to increase and the demand for trails grows, it is imperative that the diverse greenspaces of our natural system are increased, protected, and enhanced.

Headwaters

Our region is framed by headwaters on the rugged Niagara Escarpment and the rolling hills of the ORM. The Niagara Escarpment is a UNESCO World Biosphere Reserve, designated for its unique characteristics, and a provincial land use plan guides development in its area. The landform is a largely forested ridge of fossil-rich sedimentary rock that extends through the northwest portion of TRCA's jurisdiction, where it is overlain by glacial drift of the ORM.

The Niagara Escarpment is an important area for groundwater recharge, and forms the headwaters of the main branch of the Humber River. The Niagara Escarpment encompasses wildlife habitats, farms, scenic views, mineral resources, and historic sites and towns.

The ORM is a geologic feature that encompasses 190,000 ha of land and water. It is 160 km in total length, located north of, and parallel to, the Lake Ontario shoreline. The ORM is an irregular ridge of sands, gravels, and tills towering up to 300 m higher than Lake Ontario. It was deposited by the melt waters between two receding glacier lobes some 13,000 years ago (TRCA, 2014). Within TRCA's jurisdiction, the ORM serves as the headwaters for the Duffins Creek and Rouge, Don, and Humber river watersheds. From the headwaters, water flows southward through our river systems, woodlands, meadows, wetlands, and farmlands towards Lake Ontario. Our headwaters require significant protection and enhancement to maintain their ecological function and the health of the downstream reaches.



Glen Haffy Conservation Park

The Niagara Escarpment and the ORM converge at Glen Haffy Conservation Park, forming high, forested hills, and deep, wooded dells (called dingles). Each year, Glen Haffy raises 60,000 rainbow trout at its on-site fish hatchery and releases them into the fishing ponds at Glen Haffy, the Glen Haffy Fly Fishing Club, and Heart Lake Conservation Park. Glen Haffy's hiking trails offer some of the most panoramic vistas in southern Ontario.

Boyd Conservation Park

Situated in the undulating Humber River Valley, Boyd is a quiet, green oasis. Framed by steep slopes, the heart of the open space is situated in the valley, offering a parkland setting with views of the meandering river for visitors to enjoy. From spring through fall, Boyd offers programmed outdoor activities and experiences in nature. Scouts and Guides often have their first overnight camping experience here, and it's a popular spot for picnics as well. In the fall, the park is used as a venue for cross-country running events, bringing together some of the best runners in the province. Rich in natural character, Boyd offers respite from fast-paced urban life.

River Valleys

The river valleys that carve through our watersheds provide lush, forested landscapes that vary in scale and terrain from steep, dramatic valleys to wide, open floodplains. Our river valley and stream corridors are the foundation of our greenspace system, creating a network of open spaces that is among the largest in the world. River valleys connect the ORM and Niagara Escarpment to Lake Ontario and act as a greenway for water, wildlife, and people through rapidly urbanizing communities. They also connect us with our region's rich Indigenous heritage and settler history. Ravines offer trails that lead through secluded natural areas in some of the most urbanized areas of our region.

Waterfront

All of the nine rivers and streams in our watersheds flow towards the Lake Ontario Waterfront, stretching over 70 km from Marie Curtis Park in Etobicoke to Lakeside Park in Ajax. Prior to the infilling and industrialization of the waterfront dating back to the 1800s, the shoreline existed as a marshland estuary in the west and central sections, and a beach bluff landscape in the east. Over the course of 200 years, the majority of the shoreline evolved from natural beaches, bluffs, wetlands, and marshes to man-made edges, harbours, industrial parks, and ports, with only some small remnants of natural beach, bluff shoreline, and wetland river mouths in the eastern waterfront.

In the 1970s, TRCA and the Municipality of Metropolitan Toronto developed a Lake Ontario Waterfront Plan to establish a series of waterfront parks and revitalize the shoreline. TRCA led the implementation of the plan by working to actively rehabilitate and restore the natural shoreline habitat, while providing water-based recreational opportunities and public access.

Despite these efforts, public dismay over the state of the waterfront properties led the Government of Canada to establish, in 1988, the Royal Commission on the Future of the Toronto Waterfront, with the Honourable David Crombie as Commissioner. Through this commission and the ongoing efforts of the Waterfront Regeneration Trust, Waterfront Toronto, the City of Toronto, and TRCA, the waterfront continues to undergo a dramatic revitalization to become a healthier and more vibrant destination for all.

Tommy Thompson Park

Toronto's urban wilderness is found at Tommy Thompson Park (TTP). Entirely human-made, TTP was constructed out of millions of cubic metres of concrete, earth fill, and dredged sand to create a 250 ha site of lagoons and sand peninsulas that now extends approximately five km into Lake Ontario. This accidental wilderness evolved through both natural processes and a concerted effort by TRCA to restore and enhance this aquatic park to support public access, nature interpretation, and wildlife.

Tablelands

Below the headwaters and outside of the river valleys are elevated, and generally level, plateaus called tablelands. Tablelands feature the greatest concentration of built features, including agricultural, residential, commercial, and industrial development. However, they also contain areas of natural features such as tableland, street, park, and yard trees which contribute to the beauty and ecological function of our natural system. The successful management of our natural system is dependent on good tableland management.

TRCA's jurisdiction is as diverse as it is large. Landscapes and land uses vary widely across our watersheds, from the headwaters to the Lake Ontario shoreline.

Cultural heritage plays a key role in building sustainable communities where residents enjoy a satisfying quality of life and sense of place.

Cultural Heritage

Our region exhibits a rich cultural heritage that intertwines the lives of Indigenous people, European settlers, and immigrants from all over the world. Each of these populations has had an impact on, and has in turn been influenced by, the natural environment. Exploring the history of the people who have lived here for over 10,000 years highlights their experiences and the importance of the natural environment in their daily lives. While our experiences and values may change over time, the connections between natural heritage and cultural heritage remain forever linked. These connections can be explored through cultural heritage resources, which comprise **archaeological sites, built heritage features,** and **cultural heritage landscapes.**

Cultural heritage builds upon the foundation of TRCA's mandated responsibilities of natural heritage management and is recognized as an integral component of building sustainable communities. As urban development rapidly expands throughout the GTA, intact cultural heritage resources are becoming increasingly rare. The preservation of these resources is regulated under the Ontario Heritage Act, which gives the Province of Ontario the authority to monitor archaeological assessments and preserve archaeological sites, and provides municipalities with the power to preserve built heritage and cultural heritage landscapes. Currently, there are more than 15,000 documented cultural heritage resources within our region.

Trails provide an ideal avenue for understanding our local history and enjoying continued connection to the natural environment. The trail experience enables the exploration of our cultural heritage, helps share experiences between past and present populations, and awakens an appreciation for the community in which we live.

Archaeological site: that part of the landscape, both terrestrial and aquatic, which can be identified by the presence of cultural (human-made or altered) remains. These remains can be artifacts or subsoil features of Indigenous and settler archaeological sites.

Built heritage feature: one or more significant buildings, structures, monuments, installations, or remains associated with architectural, cultural, social, political, economic, or military history and identified as being important to a community.

Cultural heritage landscape: a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites, and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts.

In our region, cultural heritage resources can be characterized by four common themes: **transportation, settlement, industry,** and **co-existence with nature**.

Transportation

The natural environment has influenced the mobility and settlement of people, as well as patterns of exploration and trade, across the landscape and over time. Natural features have dictated paths of cultural routes/roots, networks of connectivity, and channels of communication. Cultural heritage resources tied to transportation include trails, roadways, watercourses, railways, and bridges.

The Carrying Place Trail

Exploration and fur trade activities were carried out along well-established trails linking Lake Ontario to the Holland River, Lake Simcoe, and Lake Huron. The Passage de Taronto – also known as the Toronto Carrying Place Trail – was part of a series of interconnected trails with two main branches: the western branch along the Humber River and the eastern branch along the Rouge River. These trails originated thousands of years ago and were used by Indigenous bands travelling to seasonal camps along the Rouge and Humber Rivers. The routes consisted of a mix of overland and water travel and would have been introduced to early European explorers and traders by local Indigenous people.

Settlement

Areas of settlement, where people have established communities, inevitably leave a mark upon the landscape. Human settlement presents some of the most visible and recognizable types of cultural heritage resources, such as agriculture, historic buildings, heritage districts, and the remnants of Indigenous villages. They reveal clues to local history, relationships between communities, and how past people adapted to their local environments.

The Seed-Barker Site

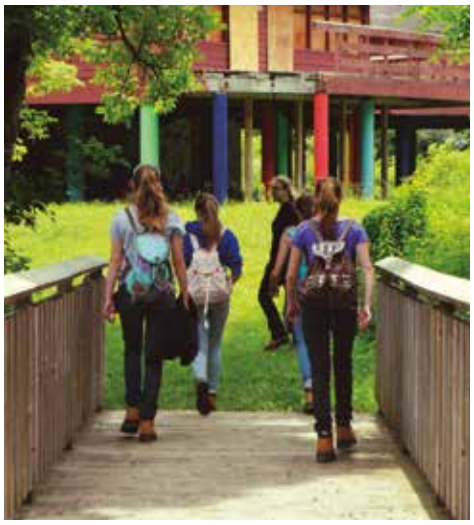
Situated on a steep-sided plateau, eight metres above the flood plain and surrounded by the deep valley walls of the East Humber River, can be found the remnants of a large Iroquoian village occupied approximately 475 years ago. The village, strategically located along the Carrying Place Trail, was in a highly defensible location with panoramic views of the surrounding landscape. Built during a period of heightened conflict, this farming village was a haven for up to 2,000 individuals whose smaller villages relocated and amalgamated in this location. A truly multicultural community, people in this village traded, hunted, fished, and grew crops in the rich valley.

The Haight Site

The site of a thriving textile industry in the late 1800s, this wool and carding mill complex would have required significant hydraulic power to run the machinery. This power was harnessed by damming nearby Duffins Creek to form a large mill pond and provide a steady supply of water to the mill along a constructed mill race. While the dam and mill pond are no longer present, the scars to the landscape remain visible to this day.

Industry

The development of industry led to technical innovation, economic development, and the expansion and evolution of villages into thriving towns and cities. The exploitation of natural resources, to feed and power mills, ultimately impacted the surrounding environment: forests were cut down for lumber and agriculture, gravel and clay were extracted for building materials, and waterways were modified for hydraulic power. An examination of past industrial processes and their environmental impacts highlights the need to balance economic progress and natural heritage today.



Bolton Camp

In 1922, Family Services Toronto opened Bolton Camp as a Fresh Air Camp for low-income, urban families to enjoy nature. During the Second World War, the site was also used as a training centre for the Oakville High School Cadet Corps. When the war ended, the facility continued to serve as a camp for underprivileged children. Although the camp shut its doors in 1999, the local community and municipal partners have since repurposed the camp into a community cultural hub. As part of this revitalization, Bolton Camp will feature a new Indigenous youth program for land-based learning with Elders and traditional knowledge keepers.

Co-Existence with Nature

Our co-existence with nature is a fundamental relationship for all people and a constant source of inspiration and wonder. Every culture has expressed this bond through various forms of traditional, spiritual, artistic, or cultural associations with the land.

Trails

Trails weave through every community, passing through a myriad of neighbourhoods and landscapes. They connect residents of Canada's largest city region and improve cohesion between our distinctive communities. Our jurisdiction is a key nexus point within the larger provincial trail system where significant inter-regional trails converge, including the Bruce Trail, The Great Trail, the Greenbelt Route, the Oak Ridges Trail, the Lake-to-Lake Trail, the Pan Am Path, and the Waterfront Trail. These larger regional trails facilitate conservation and co-existence with nature, while also serving as a major cultural and socio-economic force.

Context: Southern Ontario Provincial Trail Network

This surrounding context is illustrated in Figure 6.b: Context Map: Southern Ontario Provincial Trail Network. Many of these national and provincial trails form key connections in the Greater Toronto Region Trail Network.

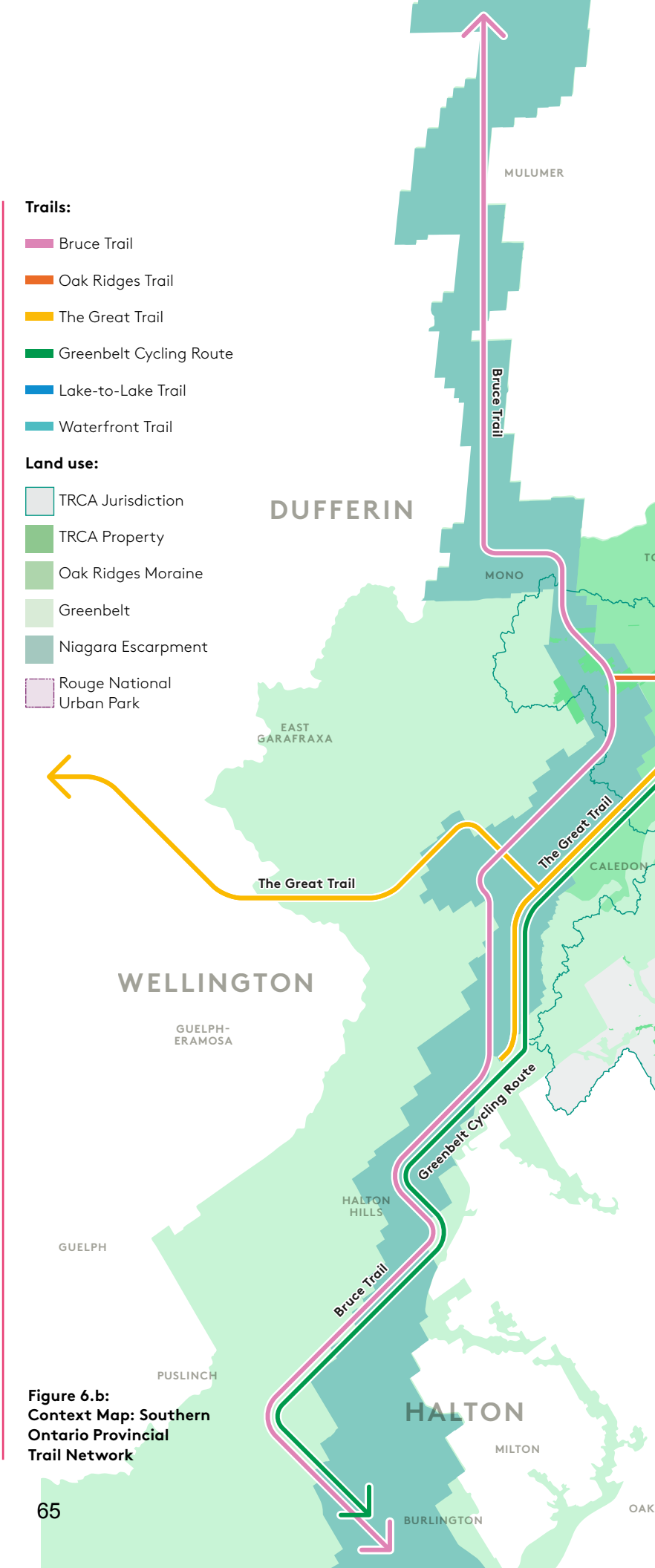
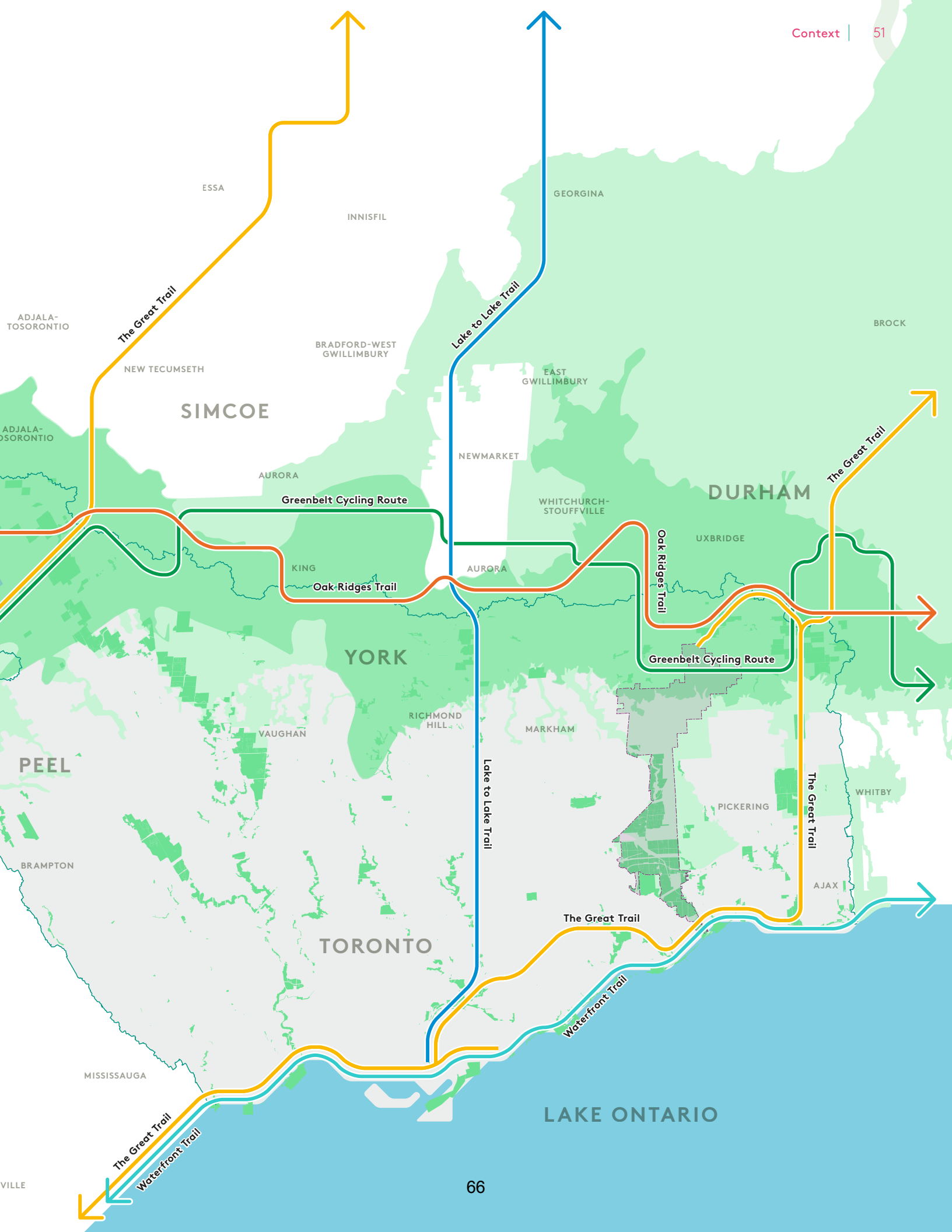


Figure 6.b: Context Map: Southern Ontario Provincial Trail Network


ESSA
INNISFIL
GEORGINA
ADJALA-TOSORONTIO
BROCK
BRADFORD-WEST GWILLIMBURY
NEW TECUMSETH
EAST GWILLIMBURY
SIMCOE
ADJALA-TOSORONTIO
NEWMARKET
AURORA
WHITCHURCH-STOUFFVILLE
DURHAM
UXBRIDGE
KING
AURORA
YORK
RICHMOND HILL
VAUGHAN
MARKHAM
PEEL
PICKERING
WHITBY
BRAMPTON
AJAX
TORONTO
MISSISSAUGA
LAKE ONTARIO
VILLE
The Great Trail
Lake to Lake Trail
Greenbelt Cycling Route
Oak Ridges Trail
Waterfront Trail

Typologies

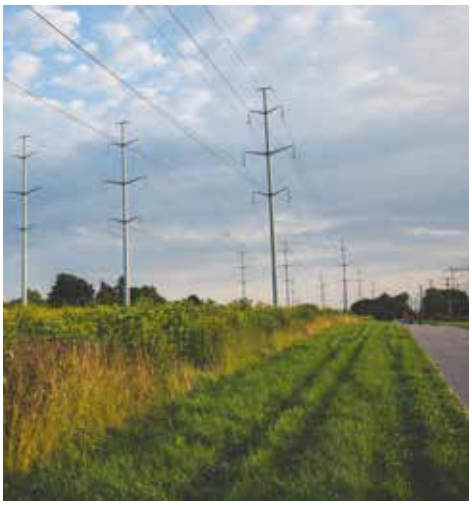
The Greater Toronto Region Trail Network features a wide palette of regional trails that reflect the landscape context in which they are situated. These five major recreational and active transportation regional trail typologies are **ridge, valley, corridor, waterfront,** and **blue.**

Ridge Trail

Ridge trails weave their way along the elevation profiles of the Niagara Escarpment and the ORM. These trails tend to follow rugged terrain and often require maneuvering around large obstacles, steep inclines, and sharp drop-offs. They generally have natural surfacing and smaller clearance widths. An example of a ridge trail is the Oak Ridges Trail, which traverses the ORM.

Valley Trail

Following the paths of major rivers and streams, valley trails fall within our valley corridors. Depending on their location within the terrain of the valley corridor, valley trails can be either undulating footpaths along forested slopes or flat, wide multi-use trails within open meadows or agricultural fields. In the GTA, the majority of valley trails flow in a north-south direction, connecting Lake Ontario to the upper reaches of our watersheds. An example of a valley trail is the Humber Trail, which follows the Humber River Valley.



Corridor Trail

Corridor trails are linear, multi-use pathways within or adjacent to roadways or infrastructure corridors. Infrastructure corridors can include hydro, pipeline, and railway land uses. Corridor trails provide active transportation-based greenways linking our watersheds from east to west. Where corridors align in a north-south direction, they provide additional connectivity between neighbourhoods in our municipalities and regions. An example of a corridor trail is The Meadoway, which is located within the Gatineau Hydro Corridor in Scarborough.

Waterfront Trail

In TRCA's jurisdiction, the Waterfront Trail parallels more than 70 km of shoreline along Lake Ontario. It is one section of a larger route that stretches more than 2,000 km along the Canadian shores of Lake Ontario, Lake Erie, Lake St. Clair, Lake Huron, and the Niagara, Detroit, and St. Lawrence Rivers. In our region, it connects hundreds of communities to TRCA's waterfront parks, such as Marie Curtis Park, Humber Bay Park, and Ashbridges Bay Park, as well as natural areas including wetlands, forests, and beaches. Linking waterfront communities, the Waterfront Trail is a multi-use path for recreational and active transportation use.

Blue Trail

Blue trails are a relatively new concept to the Greater Toronto Region Trail Network. These trails are the paddling routes on our navigable rivers and certain areas of the Lake Ontario Waterfront that allow paddling access. TRCA has a celebrated tradition of supporting water-based activities and recreation in harmony with the protection and enhancement of natural systems. This includes water access at various waterfront parks and water-based events that provide unique opportunities for people to explore our communities from a different perspective.

Descriptions

The Trail Strategy offers the following trail descriptions to reflect the variety of trail surface types and uses found in the Greater Toronto Region Trail Network. (see Figure 6.c: Trail Descriptions).

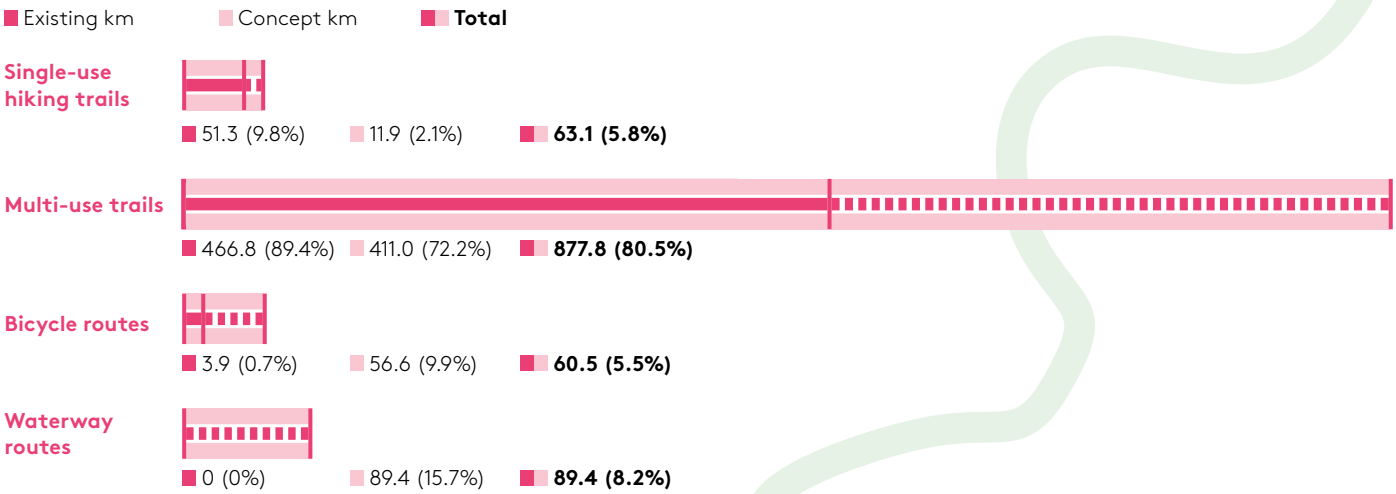
Single-use hiking trails with natural surfaces and/or manufactured surfaces

Dedicated **bicycle routes** within road right-of-ways

Multi-use trails with natural surfaces and/or manufactured surfaces

Waterway routes on navigable rivers and lakes

Figure 6.c: Trail Descriptions



Activities

The Greater Toronto Region Trail Network supports a diversity of activities throughout the seasons. Understanding activity use for specific trails informs appropriate trail planning, design, and maintenance so that impact to the environment is minimized. Trail activities supported by this Strategy include the following:

Active Transportation | Walking, jogging, cycling, or using a mobility device to travel to transit, workplaces, schools, and other daily destinations supports climate change mitigation, healthy living, and complete communities, while also addressing the first-and-last-mile regional transit issue.

Cross-Country Skiing and Snowshoeing | Cross-country skiing and snowshoeing allows people to embrace the elements and explore our magical winter landscape while being active and outdoors.

Cultural Experiences | Trails support the understanding and exploration of nature through art. Photography, painting, dance, and other arts can be enjoyed in the fresh air while on a trail.

Dog Walking | Dog owners enjoy numerous health and social benefits by walking their leashed dog on trails a few times a week. Benefits include improved cardiovascular fitness, lower blood pressure, stronger muscles and bones, and reduced stress.

Events | Trails and related facilities support community building, including social gatherings, community events, races, guided walks, sponsorship opportunities, cultural heritage programming, and public art.

Hiking, Running, and Walking | Single-use hiking and multi-use trails provide recreational access to the natural wonders of our region, thereby promoting appreciation and stewardship.

Horse Riding | Riding is a great way to get outdoors and observe the surrounding landscape, bringing the rider closer to nature and boosting well-being.

Mountain Biking and Road Cycling | Mountain biking and road cycling offer opportunities for both recreation and active transportation. Designated mountain biking trails provide mental and physical challenges for all skill levels, while paved cycling routes connect people and communities.

Observing Wildlife | Quietly observing bird species, such as songbirds, waterfowl, shorebirds, and raptors in their natural environment is a great way to relax and learn while on a trail. Small mammals, such as coyotes, deer, fox, and rabbits can often be safely observed from the vantage of a trail.

Paddling | Recreational water activities such as fishing, kayaking, canoeing, and stand-up paddle-boarding connect people to the water.

Trends

National trends overwhelmingly indicate a growing demand for trails. Residents and visitors to the GTA desire to use trails for recreation, active transportation, healthy living, community building, and eco-tourism. Some key trends related to trails are:

In Canada, the top five reasons for walking are:[1]

- Exercise/ health
- Pleasure
- Practicality/ convenience
- Saving money
- Environmental concerns

Almost ²/₃ of all Canadians live within a 30-minute walk (or 2.5 km) of a routine destination, like:[2]

- Work
- Leisure centre
- Shopping
- Friends/family
- School

Over 163,000 people commute to work every day using active transportation (walking, cycling) in our partner regional municipalities (Durham, Peel, Toronto, York).[3]

1. activeswitch.ca/files/docs//2015%20Walktober%20/Workplace/Workplace-Walktober-%20FactSheet.pdf
2. Summary Report, 1998 National Survey on Active Transportation, conducted by Environics International on behalf of Go for Green
3. Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016329
4. Bull FC, Armstrong TP, Dixon T, Ham S, Neiman A, Pratt M. Chapter 10: Physical inactivity. In: Ezzati M, Lopez AD, Rodgers A, Murray CJL, editors. Comparative quantifications of health risks. Global and regional burden of disease attributable to selected major risk factors. Volume 1. Geneva: World Health Organization, 2004
5. thestar.com/yourtoronto/2014/06/27/plans_to_shift_torontos_bicycle_strategy_into_high_gear_in_the_works
6. sharetheroad.ca/opinion-poll-data-s17022
7. Ibid.
8. Ibid.
9. rto12.ca/wp-content/uploads/2014/04/Ontario-Trail-Tourism-2014.pdf
10. Ibid.
11. Ibid.

Physical inactivity accounts for between 19% & 27% of new cases of heart disease, stroke, cancers, and other chronic diseases.[4]

182,000 people ride their bikes daily in Toronto.[5]

Nearly ⅓ of Ontarians would like to cycle to or from work. This means 3.5 million people could be on bikes and reducing traffic congestion.[6]

⅔ of Ontarians agree that the provincial government should invest in cycling infrastructure.[7]

Almost ½ of Ontarians are more likely to vote for a candidate if they make a public commitment to fund new cycling infrastructure.[8]

In 2014, residents of the GTA accounted for 3.81 million trail visits in Ontario.[9]

952,000 recreational trail visits took place in the GTA, accounting for 7% of all visits to trails in Ontario and 3.4% of all trips to the GTA.[10]

Trail visitors to Ontario spent $3.8 billion, accounting for 15.8% of total visitor spending in Ontario.[11]

Benefits

Trails are overwhelmingly beneficial to our lives. They improve our health, contribute to climate change adaptation and mitigation, boost the economy, and support environmental conservation. Some key benefits of trails are:

A **daily walk** in nature can be as effective in treating mild depression as taking an antidepressant.[1]

Regular use of nature for physical activity can **reduce the risk of mental health problems by 50%.**[2]

The experience of walking and bicycling helps us **connect people and places.** Walkers move at slower speeds and have more time to perceive and comprehend the details of the environment and the community.[3]

Trails are associated with **increased physical activity and improved public health**, especially in rural places without other safe places to exercise.[4]

From a social well-being perspective, trails in greenspace provide enormous benefits to neighbourhoods, communities, and individuals by **improving social cohesion and security,** while enhancing the enjoyment of the local environment and creating a sense of place.[5]

1 moodwalks.ca/about-mood-walks/infographic-the-benefits-of-nature

2 ecohealth-ontario.ca/files/Greenspace_and_Ecohealth_Toolkit_2.pdf

3 Active Living – Go for Green. 1995. Linkages: Built Environment Wellbeing and Active Living

4 headwaterseconomics.org/economic-development/trails-pathways/trails-research

5 ecohealth-ontario.ca/files/FO_8.5x11_EH_TOOLKIT_nocrops_FA.pdf

6 Andersen LB, Schnohr P, Schroll M, Hein HO. All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work. Arch Intern Med 2000; 160(11):1621-1628

7 Kahlmeier S, Cavill N, Dinsdale H, Rutter H, Gotschi T, Foster C et al. Health economic assessment tools (HEAT) for walking and cycling. Methodology and user guide. Copenhagen: WHO Regional Office for Europe, 2011

8 news.ontario.ca/mtc/en/2016/06/province-passes-act-to-support-ontarios-trails

9 Transport Canada, 2011, p.16

* Including gas, oil, maintenance, tires, insurance, license, registration, taxes, depreciation and finance charges

10 headwaterseconomics.org/economic-development/trails-pathways/trails-research

11 https://www150.statcan.gc.ca/n1/pub/11-008-x/2006004/9516-eng.htm

Cycling 3 hours a week to work reduces the risk of death from all causes by 28%.[6]

Walking 29 minutes 7 days a week reduces the risk of death from all causes by 22%.[7]

Trails tourism has made significant contributions to our economy. In 2014, hiking expenditures by Ontarians added $559 million to Ontario's GDP and created more than 18,000 jobs across the province, with an annual economic benefit of nearly $1.4 billion.[8]

Active transportation reduces the cost of living in the GTA. Walking and cycling costs approximately $0.03/km on average. In comparison, Transport Canada estimates the average mid-size car is driven 16,000 km in a year and costs about $0.46/km (or $7,574 for the year).* [9]

Trails are often associated with higher property value, especially when a trail is designed to provide neighbourhood access and maintain residents' privacy.[10]

More cyclists find their commute the most pleasant part of their day compared to their motorist counterparts. The probability that a driver would enjoy their commute was only 37%, compared with 59% for cyclists and 46% for pedestrians.[11]

Partnerships, Policies, and Plans

TRCA engaged its municipal partners and more than 20 NGOs with an interest in building trails in the GTA. All have developed policies and plans in support of trail planning, development, and maintenance. Partnership between these entities is critical for prioritized trail investment.

Conservation Authority

TRCA approaches trail building in collaboration with all partners, including trail organizations, municipal and regional partners, the provincial and federal governments, and the public. In addition to partnering on the realization of regional-level trails, TRCA plans, implements, and manages recreational trail networks within its own conservation parks.

In 1992, TRCA released the *TRCA Trail Planning and Design Guidelines: A Handbook for an Inter-Regional Trail System in the Greater Toronto Area*. Over the years, this technical handbook has successfully assisted TRCA and partners in the planning, design, and maintenance of trails in our region. TRCA continues to adopt best practices in trail construction and management.

In 2014, TRCA released *The Living City Policies* document to guide the implementation of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. *The Living City Policies* introduced several trail-focused policies and goals, such as supporting recreational and sustainable active transportation trails, promoting increased public access to greenspace through trails, developing a continuous regional trail network, and collaborating with partners to develop trail networks that connect communities, parks, and greenspace. In particular, recreational use policies outline TRCA's environmental planning objectives, goals, and policies for non-motorized trails. Existing and proposed trail alignments within TRCA-owned and regulated areas will be developed and maintained in a manner consistent with *The Living City Policies*.

Local and Regional Municipalities

Local and regional governments recognize trails as essential green infrastructure through the inclusion of recreational and active transportation trail policies in strategic plans, official plans, and transportation master plans. These policies set out standards for new communities, managing growth and development, and protecting the environment. All of the municipalities in the GTA make recommendations to prioritize walking, cycling, and transit to meet the needs of residents and develop complete communities. Several official plans also include policies to improve connectivity between greenspaces and cover the role of trails in active transportation, recreational service delivery, community engagement, and ecological enhancement.

In response to population growth and changing community needs, municipalities are constructing significant regional trail routes. For example, York Region, the City of Toronto and the City of Richmond Hill are implementing the Lake-to-Lake Cycling Route and Walking Trail. New trail segment construction along the Humber Trail, the Etobicoke Creek Trail, and the East Don Trail are also recent examples of successful trail-building partnership projects between TRCA and its government partners.

TRCA works with our municipal partners to encourage trail connections to streets, sidewalks, and bicycle lanes.

In addition to helping plan, build, and maintain trails, volunteers are valuable partners in grant applications, hosting trail building events, and leading stewardship activities.

Trail Organizations

Volunteer trail organizations were instrumental in formalizing some of the primary trails in the Greater Toronto Region Trail Network, including the Oak Ridges Moraine, Humber Valley Heritage, and Bruce Trails. In addition to helping plan, build, and maintain trails, volunteers are also valuable partners in grant applications, hosting trail-building events, and leading stewardship activities. Most recently, a partnership between TRCA, Green Durham Association, and Parks Canada has established the foundation for a key link and gateway to Rouge National Urban Park, near the Town of Uxbridge.

A number of national organizations are working to advocate for, fundraise for, and contribute to the establishment of trails in our region. These include The Trans Canada Trail Foundation, National Trails Coalition, Canadian Trails Federation, International Mountain Bike Association Canada, Hike Canada, and Transportation Association of Canada.

Provincial-based groups advocating for trails in Ontario include Ontario Trails Council, Hike Ontario, Trails for All Ontarians Collaborative, Cycle Ontario Alliance, Cross Country Ontario, Ontario Heritage Trust, Oak Ridges Trail Association, Bruce Trail Conservancy, Friends of the Greenbelt Foundation, and Waterfront Regeneration Trust.

Local groups that support trails in the GTA include Humber Valley Heritage Trail Association, Durham Outdoors Club, Outdoor Club of East York, Durham Mountain Biking Association, York Hiking Club, Durham Trails Coordinating Committee, Green Durham, Toronto Bruce Trail Club, Cycle Toronto, the Toronto Field Naturalists, Toronto Outdoor Club, Toronto Off-Road Bicycling Association, City of Toronto's Crothers Woods Stewardship Team, and The Wild Bettys.

Provincial Agencies

Throughout the latter half of the 20th century, the Government of Ontario played an instrumental role in developing a legacy of provincially significant trails in the GTA. In the 1970s, the Seaton Trail was created by the Government of Ontario in partnership with the Metropolitan Toronto and Region Conservation Authority (now TRCA). Built by high school and university students, the trail was maintained for many years by local Scouts. In 1992, the Government of Ontario established the Waterfront Regeneration Trust to implement 80 recommendations from *Regeneration*, a Royal Commission report produced with the Honourable David Crombie as Commissioner. One of these recommendations was to create a continuous waterfront trail along the Lake Ontario shoreline. Now known as the Waterfront Trail, this route has expanded to reach all of the Great Lakes.

In 2005, the Ministry of Tourism, Culture and Sport produced the Ontario Trails Strategy to formulate a long-term proposal for the planning, management, promotion, and use of trails in Ontario. That strategy envisioned a coordinated approach to meeting the challenges facing the trails community. The province increased its commitment to the improvement of trails by enacting

the Ontario Trails Act, 2016 (S.O. 2016, c.8, Sched. 1) to permanently protect trails. The act also established an annual Trails Week to coincide with International Trails Day. Both events strive to promote public access to Ontario's world-class trails system for recreation, tourism, and active transportation, while building a network of trail stewards.

In 2008, Metrolinx published *The Big Move,* a plan to transform regional transportation through nine big moves and 10 strategies aimed at implementing an integrated, multi-modal transportation plan for the Greater Toronto and Hamilton Area (Metrolinx, 2017). One of Metrolinx's big moves is to advance active transportation initiatives. In 2017, Metrolinx released the *2041 Regional Transportation Plan*, which includes additional recommendations to improve active transportation options, including the completion of a regional commuter cycling network.

In 2014, the Ministry of Municipal Affairs published the Provincial Policy Statement, which provided policy direction on matters of provincial interest relating to land use planning and development. The Provincial Policy Statement included policies relating to healthy, active communities, which should be promoted by facilitating active transportation, providing natural settings for recreation (including trails and linkages), providing opportunities for public access to shorelines, and recognizing conservation reserves and other protected areas, while minimizing negative impacts on these areas.

In 2017, the Ministry of Municipal Affairs published *The Growth Plan for the Greater Golden Horseshoe*. The goals of the plan are to manage growth, build complete communities, curb sprawl, and protect the natural environment. To achieve these goals, policies are aimed at expanding access to trails and greenspace and coordinating our approach to trail planning and development. Furthermore, the plan cites trails as key elements of our cultural heritage landscape for recognition. *The Growth Plan for the Greater Golden Horseshoe*, together with the *Greenbelt Plan*, *Oak Ridges Moraine Conservation Plan,* and the *Niagara Escarpment Plan*, build on the Provincial Policy Statement to establish a unique land use planning framework for the Greater Golden Horseshoe region that supports the achievement of complete communities, a thriving economy, a clean and healthy environment, and social equity.

Ontario Parks, a branch of the Ministry of the Environment, Conservation and Parks, manages trails within our provincial parks. Other ministries that support trail projects include the Ministry of Infrastructure and the Ministry of Health and Long-Term Care.

Plans for Rouge National Urban Park include approximately 50 km of trails connecting to the Lake Ontario Waterfront, the Oak Ridges Moraine, and neighbouring municipal trail systems.

Federal Agencies

Parks Canada manages trails within our National Parks. In the GTA, Parks Canada oversees the trail network in Rouge National Urban Park (RNUP). RNUP is the result of decades of effort and collaboration among various governments, organizations, and community leaders. In 1994, the Rouge Park Alliance was formed and an $8.5 million federal endowment fund was created to initiate the park. Through a collaborative effort between the federal and provincial governments and the municipal governments of Toronto, Markham, Pickering, York, and Durham, Rouge Park was initially formed in 1995. In 2011, the Government of Canada committed to work towards the creation of a national urban park in the Rouge Valley. The passage of the Rouge National Urban Park Act in 2015 officially created the largest urban wilderness park in North America.

The Federal Government has also contributed funding to The Great Trail and a number of municipal active transportation projects. For example, the *Economic Action Plan* (2009) funded some 500 recreational trail projects across the country. Infrastructure Canada launched the National Recreational Trails Program in 2014, a $10 million initiative to expand and rehabilitate Canada's non-motorized, snowmobile, and all-terrain vehicle trail system (National Trails Coalition, 2009). The Federal Government has also provided significant support to trail building in Canada through funding for the National Trails Coalition.

Challenges and Opportunities

The Greater Toronto Region Trail Network community must address a number of challenges and take advantage of opportunities to successfully achieve the vision of the Trail Strategy.

Resolve Trail Network Disconnection | While there are many trails in our region, they often fall short of operating as an integrated system that connects communities and destinations. Trails require space for the trail, its supporting infrastructure, and the experience of escape the trail is providing. If this space is lost to development or private ownership, the trail can become exponentially more difficult and expensive to build, potentially resulting in a lost connection. Opportunities for trail connections in the greenspace system must be protected through development and environmental assessment processes so that investments can be leveraged to deliver a comprehensive trail network as quickly and effectively as possible.

Meet Growing Demand for Trails | Trail use is on an upward trend. People are seeking trails that offer opportunities for recreation and active transportation in their communities. Land use planning must accommodate integrated, multi-modal trail networks in existing and future community design. This planning should also strive to provide a variety of quality trail experiences.

Ensure Long-term Funding | Trails are essential public infrastructure that support healthy living, active transportation, climate change mitigation, and complete communities. They require ongoing funding to account for their full lifecycle costs. This investment in the regional trail network must be coordinated between all levels of government and trail building partners to make the most effective use of limited trail funding to deliver the network.

Foster Effective Relationships and Partnerships | Regional trail networks are achieved through partnership. Fostering relationships with the trail community requires ongoing investment. Innovative partnerships must be advanced to maximize budgets, resources, and opportunities to make shared trail connections.

Build Capacity | Trails operate successfully when there are dedicated local stewards and volunteers who care for them. Cultivating a robust stewardship mentality in the trail community requires investment, time, and support from all partners.

Promote Active Living | With our increasingly car-oriented lifestyles, opportunities for physical activity are diminishing. Principal barriers to walking to a destination include distance, time, weather, inconvenience, and disability. To support active living, integrated trail and transit networks must be designed to address these obstacles and provide enjoyable trail experiences.

Enhance Overall Trail Experience | Trails and the places to which they connect are destinations and can draw people from outside their immediate communities. This results in increased demand for supporting infrastructure such as wayfinding, parking, washrooms, and other amenities to enhance the overall trail experience. An opportunity exists to develop further relationships between trail managers, economic development programs, and tourism operators to provide these supports at key locations in a coordinated manner.

Ensure Trail Accessibility and Inclusive Design | Diverse trail experiences should be available for persons of all abilities. An exception to accessibility is defensible only where accessible design would require modifications that would cause substantial harm to natural or cultural resources, fundamentally alter the nature of the setting or the purpose of the trail, require construction methods prohibited by local laws, or would simply not be feasible due to terrain or prevailing construction practices.

Address Trail Safety and Maintenance | Trail maintenance is critical to delivering a safe and enjoyable trail experience. An ongoing feedback loop of inventory, monitoring, and maintenance is required to adaptively manage for risks, hazards, safety, and aesthetics. This responsibility for monitoring and maintenance will increase with more trail users.

Manage Trail User Conflicts | Conflicts between different activities on trails pose issues for trail planning, design, and management. These conflicts can undermine the trail experience for all users. The demands of different activities must be balanced both on individual trails and across the broader network.

Deter Environmental Degradation | The stresses on our ecological systems will only increase as our population grows and urbanization increases. Many well-loved trails are currently exceeding the carrying capacity for which they were designed. In addition, trails that bisect critically sensitive habitats, areas of species at risk, and/or natural hazards negatively impact our natural system. Keeping trails out of the most ecologically sensitive locations through careful planning will help prevent environmental degradation.

Prevent Degradation of Built Heritage | Trails offer avenues to explore and preserve archaeological sites, built heritage, and cultural heritage landscapes. Conversely, trails can increase the risk to these resources through overuse and vandalism. Without a proper balance between recognition and protection, these valuable destinations will disappear from our collective history.

Increase Communications and Marketing | Our regional trail network is one of our greatest green infrastructure assets. We must increase communications and marketing efforts to generate greater use and awareness, while improving orientation, wayfinding, and trail etiquette. We must convey the value of our network and support appreciation for the stewardship of nature. Improved communication also encourages responsible trail use and protects the environmental health of the trail network.

Destinations

The Greater Toronto Region Trail Network features an abundance of significant regional destinations. Ten areas, in particular, provide the essential combination of conservation area properties, regional trails, places of interest, amenities, and transit access. Investment in these destinations will further enrich the trail experience.

Hills of the Headwaters

At the convergence of the ORM and the Niagara Escarpment, the Hills of the Headwaters are the source of all rivers in the Humber watershed in Peel Region. Glen Haffy and Albion Hills Conservation Parks, and the Bolton Resource Management Tract are linked by the iconic Bruce, Oak Ridges, and Humber Trails. Rugged nature is contrasted with charming restaurants, shops, and amenities in the nearby communities of Palgrave and Bolton in the Town of Caledon. The area is supported by The Hills of the Headwaters Tourism Association, a regional non-profit organization that supports local tourism.

Forested Headwaters

A trail lover's paradise, the Forested Headwaters contain over 100 km of trails in the largest interior forest habitat in the GTA. This destination, in Durham Region, comprises a cluster of conservation lands, known as the East Duffins Headwaters, totalling over 1,400 ha. As Durham's most popular destination for hiking and mountain biking, the internal trail system is well-established and carefully maintained by several trail organizations. The Town of Uxbridge, "Canada's Trail Capital," features amenities and services that support the high-quality trail experience of the area.

Kettle Lakes

Encompassing over 600 ha of open space, parks, and conservation lands straddling the Humber and Rouge watersheds, the Kettle Lakes are one of the most picturesque destinations in York Region. Formed by retreating glaciers more than 13,000 years ago, this destination features a distinctive undulating topography known as kame-and-kettle. Centred around the Oak Ridges Corridor Conservation Reserve, this landscape is dotted with wetlands, ponds, and lakes, including Wilcox Lake and Bond Lake. Hiking or cycling along the Oak Ridges Trail allows people to experience this rich moraine landscape in Richmond Hill.

Humber Valley Wilderness

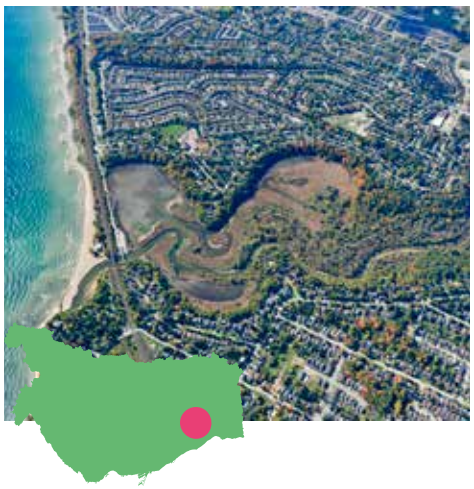
In the wide valley of the Humber River, a magnificent corridor of forests, valleys, and meadows is formed by the Nashville Resource Management Tract, Kortright Centre for Conservation, and Boyd Conservation Park in York Region. This landscape features upland and bottomland forests, meadows, former agricultural fields, wetlands, and small tributaries that feed the main stem of the upper Humber River. The historic town of Kleinburg and the renowned McMichael Canadian Art Collection draw residents and visitors to the community of Woodbridge to experience this iconic scenery, connected by the celebrated Humber Trail. Significant investment in this destination area is currently underway.

Black Creek Parklands

Located within the naturalized section of the 45 km Black Creek Ravine System, the Black Creek Parklands are a greenway of trails, forests, parks, and open space. Bisecting industrial lands and residential neighbourhoods, the parklands are located within easy walking distance of Black Creek Pioneer Village Station, eight schools, and thousands of local residents in one of the most densely populated neighbourhoods in Canada's largest city. The Black Creek Trail provides a well-established multi-use trail connection through the parklands to York University, Tennis Canada, Black Creek Farm, Black Creek Pioneer Village, and the future head office of TRCA.

Forks of the Don

Situated within the Don River Valley in the City of Toronto, the Forks of the Don is an oasis of water and wildlife carving through the urban landscape. The forested ravine slopes feature a mature canopy of oaks, maple, birch, and cedar. The Lower Don Trail, the Pan Am Path, and Taylor Creek Trail wind through the ravine, connecting communities around the Don Valley to a network of greenspace linking Sunnybrook Park, Taylor Creek Park, and Crothers Woods. Located within walking distance of Broadview Station and the future Sunnybrook Park stop, this destination also features cultural attractions, including Todmorden Mills, the Ontario Science Centre, and the Evergreen Brick Works community hub.



Rouge National Urban Park

Canada's first national urban park and the largest urban park in North America, Rouge National Urban Park (RNUP) is a unique mosaic of natural, cultural, and agricultural landscapes in York and Durham Regions and the City of Toronto. Over 7,000 ha, the park stretches from Lake Ontario to the ORM and features working farms, Carolinian forests, marshes, and beaches that may be explored along the Rouge Trail and the blue trail through the Rouge Marsh. In close proximity to RNUP, the historic Seaton Trail and the active transportation corridor of The Meadoway provide linkages to the growing communities of Scarborough, Markham, Pickering, and Uxbridge. At its southern extent, the Waterfront Trail connects into RNUP and is easily accessed by the Rouge Hill GO.

Lake Ontario Waterfront

The Lake Ontario Waterfront is a wondrous linear destination featuring dynamic waterfront parks that are like jewels along the shoreline.

The Waterfront is undergoing natural habitat restoration and revitalization to support public access and recreation. While the Waterfront Trail extends across the Lake Ontario shoreline, the trail links over 70 km of lake frontage in our jurisdiction. It connects the western reaches of the Arsenal Lands and Marie Curtis Park through Humber Bay Parks across the Central Waterfront, the Beaches, and Tommy Thompson Park, past Ashbridges Bay, the Scarborough Bluffs, and East Point Park to the eastern reaches of Port Union Waterfront Park, Rotary Frenchman's Bay, and Paradise Park. Within this waterfront experience, three areas stand out as remarkable regional destinations: **Humber Parklands, Toronto Harbour,** and **Scarborough Bluffs**

There are also a number of new and evolving destinations in our growing region. The New Seaton community in Pickering, Claireville Conservation Area in Brampton, Bolton Camp in Caledon, and the northern reaches of Rouge National Urban Park in Markham are all destination development hot spots experiencing current or coming intensification. In the near future, these locations will require investment in trails and amenities to support the increasing nature-based recreational needs of the surrounding communities.

Humber Parklands

Formed by a corridor of greenspace in the Humber River floodplain that culminates in two peninsulas along the river mouth, Humber Parklands provide an idyllic greenspace in the west end of Toronto. The parklands stretch from the parks and sports fields of Eglinton Flats in the north, through the wildlife-rich Humber Marshes, towards the constructed headlands of Humber Bay Park, along the urban waterfront of Lake Ontario. Easily accessed by Mimico GO, Old Mill Station, or the future Mount Dennis Station along the Eglinton Crosstown, this urban destination offers places to picnic and recreate in nature. The Humber Parklands are enjoyed by thousands who traverse the picturesque routes of the Waterfront Trail and the Humber Trail, part of the official route of the Pan Am Path. In addition to land-based recreation opportunities, the area also offers water-based activities including boating, canoeing, kayaking, and fishing.

Toronto Harbour

Protected by the Toronto Islands in the downtown core of Toronto, Toronto Harbour is a bustling marine landscape. The Waterfront Trail, The Great Trail, the Lake-to-Lake Trail, and sections of the Pan Am Path carry thousands of residents and visitors to major natural and cultural attractions along the harbourfront. Fort York National Historic Site, Harbourfront Centre, Queens Quay, Sugar Beach, The Distillery District, and Corktown Common animate the lakefront harbour and beachscape with endless opportunities for cultural engagement. Extending into Lake Ontario, the Toronto Islands and Tommy Thompson Park connect us to nature and some of the best opportunities in the city to view wildlife.

Scarborough Bluffs

The Scarborough Bluffs are a natural wonder located on the doorstep of Canada's largest city. Soaring up to 90 m above the Lake Ontario Waterfront, they offer strikingly beautiful natural greenspaces and support increasingly rare habitats for a wide variety of fish, birds, and other wildlife. Linking more than 11 waterfront parks across 15 km of bluffs, the Waterfront and Highland Creek Trails offer opportunities for people to safely explore this unique segment of the Lake Ontario shoreline. Atop the Bluffs is situated the newly restored Guild Park and Gardens, featuring an historic sculpture garden, restaurant, and event centre. Accessed by Eglinton and Guildwood GO stations, the Scarborough Bluffs offer some of the best beaches, gardens, sports and recreation facilities, and parklands for trail users, including paddlers, to enjoy.

Making It Happen

Our future decisions related to the Greater Toronto Region Trail Network will be based on this Strategy. It is our goal to empower the regional trail community with a vision to catalyze implementation.

Strategic Objectives, Initiatives, and Actions

The context for TRCA's trail work is complex and continuously evolving. Therefore, it is important to adapt our strategic direction so that it remains relevant and linked to those of our trail partners. Strategic objectives translate our vision into specific plans and projects to meet the challenges and seize upon opportunities associated with trail development in the GTA.

Seven strategic objectives have been developed in support of the guiding principles. The following objectives, along with their associated initiatives and actions, express TRCA's policy on regional trails, and will guide TRCA and its partners towards achieving the overarching vision of the Trail Strategy.

Strategic Objective #1:

Prioritize trail and destination area capital projects

Fully connecting the Greater Toronto Region Trail Network and establishing a standard level of trail amenity will make the trail experience safer, more enjoyable, and accessible.

Trail and destination infrastructure investment at a regional scale involves accounting for a complex, and often shifting, range of priorities. Investment includes greenspace securement, trail construction, and the delivery of trail facilities and amenities to enhance destinations.

We must ensure that greenspace connections are not lost to development and then build our capacity to strategically deliver these projects.

Initiative 1.1: Secure more greenspace to provide trails, grow our natural system, and accommodate growth

The acquisition, planning, development, and adaptive management of greenspace is critical to growing our natural system, accommodating growth, and providing trails in the current landscape of urban intensification. The Trail Strategy's concept should be used to guide securement of lands for a connected regional trail network that is large enough to accommodate trails, destination areas, and enhancement of the natural system.

Where possible, TRCA and partners should seek to expand and enhance the natural system in conjunction with trail, development, and other infrastructure projects. Development and infrastructure projects provide the opportunity to integrate community benefits such as trails in to their scope of work, thereby capitalizing on development disturbance by limiting negative environmental impacts and reducing trail development costs.

TRCA's Greenlands Acquisition Project provides the implementation tools for the securement of greenspace where property acquisition and subsequent ecological enhancement would be beneficial to the natural system. This includes securement through the development and environmental assessment process, donations, purchases, and agreements.

Actions:

A. Secure additional greenspace required for the trail corridors identified in the Trail Strategy through the development and environmental assessment (EA) process in coordination with our government partners

B. Employ the Trail Strategy to identify and support land acquisition opportunities through TRCA's Greenlands Acquisition Project

C. Incorporate expansion and enhancement of the natural system into all trail projects, where possible

Initiative 1.2: Develop a business plan to deliver trail and destination capital projects in partnership with our government partners

TRCA in collaboration with its government partners will develop a business plan to complete priority trail and destination area capital projects identified through the Trail Strategy consultation process. This plan will involve performing high-level cost analysis for capital projects and developing a financial plan to obtain funding and implement these projects with our partners. TRCA will also pursue funding through its municipal budgeting process including adding prioritized capital projects to its list of unmet needs.

Actions:

A. Perform high-level cost analysis for candidate capital projects

B. Develop a corporate-wide work plan to deliver capital projects across divisions

C. Develop a financial plan to obtain funding to deliver capital projects

D. Pursue and obtain capital funding to deliver trail projects in partnership with government partners

Strategic Objective #2:

Promote greater trail use and awareness

Improved awareness for our regional trail network, its value, and benefits will improve the trail experience and retain and attract trail users. The City of Toronto recently completed a business case outlining the benefits of their TO360 wayfinding system. For every dollar invested, almost four dollars would be returned in transportation benefits over the 25-year lifecycle of the project.

A similar wayfinding plan and communications plan for the Greater Toronto Region Trail Network would also deliver additional benefits, such as increased tourism spending, emissions reductions resulting from reduced auto use, a more attractive public realm, and improved health due to increased walking.

Initiative 2.1: Implement a wayfinding plan for the Greater Toronto Region Trail Network

Informing the public about how to access and properly use our regional trail network is essential to successful trail management. Information should include directions to trailheads and access points, descriptions of trails and features as well as accessibility, etiquette, and educational and safety information. This information helps protect trail users and the trails themselves.

To kick-start this initiative, a digital map will be developed as a complement to this Strategy; A comprehensive wayfinding plan for the Greater Toronto Region Trail Network, prepared in consultation with municipal partners, should follow to facilitate improved use of the network.

Actions:

A. Develop a digital map of the Greater Toronto Region Trail Network to provide clear wayfinding information for improved safety and user experience

B. Implement a comprehensive wayfinding plan for the Greater Toronto Region Trail Network

C. Explore new forms of technology to improve natural and cultural interpretation on trails

D. Engage in a pilot project to test the Provincial trail classification system, upon its release

Initiative 2.2: Implement a communications campaign for the Greater Toronto Region Trail Network

A communications plan is a key component to raising awareness about the value of the Greater Toronto Region Trail Network. It will help to secure ongoing funding, generate support, promote the network, and support local municipalities and businesses. This Strategy recommends TRCA partner with municipalities to fund a communications campaign for the Greater Toronto Region Trail Network that builds on existing trail promotion efforts. This campaign should highlight trip-planning opportunities for a range of abilities and experiences, including options for unique, exciting, and well-serviced single-and multi-day trail itineraries across the network that accommodate a range of abilities and experiences. Partnering with private businesses that support amenities (such as lodging, restaurants, and equipment rentals) and tourism organizations would further support this initiative.

Actions:

A. Implement a communications campaign for the Greater Toronto Region Trail Network that builds on existing trail promotion efforts by TRCA and partners

B. Where needed, partner with municipalities, tourism agencies, and private businesses to promote destinations (see **Destinations** page 72) within the Greater Toronto Region Trail Network

Strategic Objective #3:

Build a sound knowledge base

The way people use trails is changing and evolving. Our regional trails are often used for both recreational and active transportation-based purposes in greenspace and in our transportation networks. The relationship between these uses and their cumulative impact must be better understood to improve trail network planning and design. Studying broader usage patterns across our regional transportation network, including the association between trail, road, and transit systems, will provide a more comprehensive understanding of how people are moving about during their daily lives.

Our knowledge base also depends on up-to-date terrestrial monitoring, including biological inventories and assessments. Continued and enhanced ecological data collection and monitoring will provide critical existing conditions information to inform trail planning and management within the context of our urbanizing environment. This comprehensive analysis is critical to planning a sustainable, multi-modal regional trail network that is both integrated into the larger regional transportation network and consistent with The Living City Policies.

Initiative 3.1: Invest in a comprehensive regional trail data program

Currently, TRCA's trail monitoring and assessment program provides data collection for TRCA-owned and managed trails within its jurisdiction. Standardizing data collection, administration, and analysis, as well as sharing this information between regional recreation and transportation delivery partners, will improve the design and quality of the Greater Toronto Region Trail Network. Digital assessment tools and measurement devices are utilized to collect the following trail data: alignment, conditions, slope, cross-slope, surface type, surface hardness, obstacles, and hazards. This data is utilized to inform the planning, design, and management of our trail network and infrastructure.

The TRCA trail monitoring and assessment program must be expanded to have the capacity to collect and assess the growing volume of trail data. Additionally, data regarding trail, road, and transit networks, including mobility hubs, must be shared and analyzed comprehensively to understand the relationships and connection opportunities within our larger transportation system.

We must continue to invest in and expand this program, as well as complementary GIS resources and capacity, to monitor, assess, and report on current trail conditions and to facilitate strategic planning and adaptive management. Developing a standardized methodology among regional transportation partners will improve effective use of trail data.

Actions:

A. Expand TRCA's trail monitoring and assessment program and explore integration with TRCA's terrestrial monitoring program

B. Develop a standardized system of data collection, administration, and analysis for TRCA and regional trail partners to collect and communicate trail and terrestrial data

C. Study broader usage trends and connections between local and regional trail, road, and transit systems to design a comprehensive and resilient regional trail network that supports complete communities

D. Provide the Greater Toronto Region Trail Network concept plan in TRCA, partner municipality, and agency spatial databases as a reference to inform and assist trail planning initiatives. Refresh on a regular basis with updates

Initiative 3.2: Partner with domain experts and educational institutions to better understand trails

New and exciting ways in which people are using trails has made it necessary to rethink how trails are planned, developed, and managed. In order to be resilient and capitalize on the opportunities presented by these changes, innovative research is needed to ensure that trail managers can more effectively guide trail development and facilitate maintenance. The success of our trail system depends on our ability to understand environmental, economic, and social impacts of trails and to adaptively manage our trail network.

Additionally, there is a need to research the impact of trails on the biodiversity of natural areas, cultural features, and nearby communities. Sound data and a better understanding of how trails impact the complex systems through which they pass will help us access our natural spaces in a more sustainable way. Possible collaborative research areas could include how design factors (including trail width, trail configuration, trail density, and user numbers) affect measures of biodiversity, user experience, and the economics of trails. Further research could investigate different trail management techniques to optimize trail design and operation within natural areas.

To accomplish this, partnerships should be established to share resources and capitalize on investigations that improve the development and management of trails as they relate to supporting biodiversity.

Actions:

A. Undertake a targeted trail ecology study to help inform the relationship between trail use and ecological health over time

B. Map future growth projections against the proposed Greater Toronto Regional Trail Network to identify potential development opportunities and carrying capacity hot spots

C. Continue to implement sustainable trail planning, design, construction, and management best practices

D. Explore partnerships with educational institutions to assist in trails research

Strategic Objective #4:

Integrate community enjoyment and protection of our heritage

We must seek to integrate community enjoyment and protection of our natural and cultural heritage through trail siting, design, construction, programming, and operations that prioritizes ecological health integrity. Existing and proposed trails within TRCA-owned and regulated areas should be planned, developed, and maintained in a manner consistent with The Living City Policies and best practices. Maintaining this integration also requires growing our natural system in tandem with the projected urban growth of our region.

Initiative 4.1: Protect, restore, and enhance habitats through sustainable trail development and management

TRCA staff should be engaged throughout the trail project lifecycle to provide input on ecological protection and enhancement of surrounding habitat. Siting, design, and operation of trails should avoid, mitigate, and/or compensate for impacts to the natural system. Trails should be routed to avoid critically sensitive habitat, as well as natural features and areas where flooding or soil conditions prohibit sustainable trail design. Trail projects should integrate habitat restoration and environmental enhancement initiatives and should also be used as opportunities, where possible, to restore degraded and fragmented ecosystems through trail consolidation and surface area reduction. Trail construction should be undertaken in a way that minimizes environmental impact and maximizes long-term sustainability. Sound technical design, site planning, scoped environmental studies, and the incorporation of best management practices can generally minimize impacts of trails to negligible levels.

Actions:

A. Plan, develop, and maintain existing and proposed trails within TRCA-owned and regulated areas in a manner consistent with *The Living City Policies*

B. Identify "no-go" zones for critically sensitive ecological areas based on the *Trail Ecology Study*

C. Consolidate and regularly update TRCA policies, procedures, and guidelines relating to trail planning, design, construction, and management to reflect best practices

Initiative 4.2: Document and interpret cultural heritage resources through the trail development process

The conservation of cultural heritage is a key component of trail management. Through identification of archaeological sites, cultural heritage landscapes, and artifacts, the history of the region may be documented, interpreted, and explored. TRCA staff should be engaged throughout the trail project lifecycle to provide input on cultural heritage resource protection and management. An archaeological assessment will define the limits of significant heritage locations and archaeologically sensitive areas so that recommendations for avoidance, protection, or mitigation may be developed.

Actions:

A. Plan, develop, and maintain existing and proposed trails within TRCA-owned lands in a manner consistent with TRCA's *Archaeology and Cultural Heritage Policy* (2019)

B. Identify significant cultural heritage resources and develop appropriate management and stewardship strategies

Initiative 4.3: Identify opportunities for trail-based cultural heritage programming

Trails can connect us to our rich Indigenous and settler history and present opportunities for reflection and self-awareness. This awareness can help foster relations and greater acceptance of diverse cultural origins. Celebrating the vibrant cultural heritage of our region will engage and educate trail users about our past, present, and future.

Actions:

A. Invest in cultural heritage interpretation of the Humber River as a Canadian Heritage River and its connection to the Carrying Place Trail (The Humber Trail)

B. Collaborate with Indigenous communities to develop cultural heritage programs that respect and share traditional Indigenous ways and beliefs

C. Support event programming, storytelling, and educational opportunities to engage all communities in celebration of our rich Indigenous and settler history

Strategic Objective #5:

Promote meaningful community engagement

Indigenous peoples, volunteers, and grassroots organizations are key partners in creating and managing our regional trail network. Working in partnership, we can create meaningful places within our regional trail network to respect and celebrate Indigenous ways and beliefs, improving the quality of life for present and future generations. We must support all community members as leaders in trail and greenspace stewardship.

The Community Engagement Strategy (CES) outlines TRCA's civic engagement objectives, goals, and policies for facilitating community and partner engagement. All engagement initiatives proposed in this Strategy should be developed and refined in a manner consistent with the CES.

Initiative 5.1: Develop and support trail community stewardship programs to support trail building, monitoring, maintenance, and programming

Volunteers make key contributions to trail planning, construction, maintenance, oversight, and promotion. We must continue to foster relationships with our robust network of volunteers to support and grow trail stewardship in local communities. This Strategy recommends that TRCA support the Toronto and Region Conservation Foundation (TRCF) and trail organizations in the development of trail ambassador programs relating to trail monitoring, maintenance, and event programming.

Actions:

A. Work with existing volunteer organizations to develop a trail ambassador program

B. Work with the TRCF to offer trail monitoring and maintenance programs to volunteers

Initiative 5.2: Design community engagement programs that enhance the trail experience

Using trails as venues for activities and programs that promote community health, cultural and landscape appreciation, and togetherness positively animates our natural public realm. Encouraging community groups to take advantage of trail networks for their activities and programs cements the recognition of trails as key infrastructure assets, fostering broad-based community appreciation for trails.

Facilitating environmentally responsible ways for people to engage with our streams, rivers, and lakes will also enable a wider range of people to enjoy outdoor water-based activities. The establishment of waterfront recreational nodes at significant City of Toronto waterfront parks has already improved how people access Lake Ontario and take part in various water-based recreational activities such as fishing, kayaking, canoeing, and paddle boarding. These nodes incorporate launches appropriate for small vessels and allow the public to safely explore the waterfront, while discouraging shoreline trampling and permitting significant shoreline regeneration. TRCA will work with our municipal partners to establish additional recreational nodes and safe paddling areas in our lakes and rivers where possible.

Actions:

A. Collaborate with Indigenous communities to develop engagement programs that celebrate and promote Indigenous ways and beliefs

B. Partner with community organizations in developing trail-based engagement programs that support active living and social inclusion

C. Invest in the expansion and programming of the blue trail network

St. Joseph

Strategic Objective #6:

Support complete communities

In order to support complete communities, our region needs a trail network capable of providing convenient access to both recreational experiences and transportation options.

Initiative 6.1: Better integrate land use and trails planning

Complete communities meet people's needs for daily living, providing convenient access to jobs, transit, local services, local food centres, and a full range of community infrastructure, including affordable housing, schools, recreation, and open space for residents. Trails link people to recreational experiences, as well as to schools, workplaces, and other destinations. Trail planning is as essential as traffic planning to building complete communities, and requires a similar level of priority in municipal planning. Integrating trail development into community land use planning will help build local and neighbourhood connections into the regional trail network.

Studying broader usage patterns across our regional transportation network, including the association between trail, road, and transit systems, will support more integrated land use planning in support of complete communities. This Strategy recommends representing and incorporating the proposed Greater Toronto Region Trail Network into regional transportation plans, individual EAs, municipal official plans, transportation master plans, recreational trail master plans, and other projects to align land use and planning efforts and capitalize on development opportunities in support of trails. In addition, this Strategy recommends connecting the Greater Toronto Region Trail Network with Metrolinx's 36 mobility hubs in our region. Metrolinx defines these mobility hubs as places of connectivity between regional and rapid transit services, where different modes of transportation come together seamlessly.

There are two types of mobility hubs identified in *The Big Move*: anchor hubs and gateway hubs. Anchor hubs are major transit station areas associated with an urban growth centre (as defined in the Province's *Growth Plan for the Greater Golden Horseshoe*). Gateway hubs are major transit station areas located at the interchange of two or more current or planned regional rapid transit lines with anticipated high levels of ridership. As some of these mobility hubs exist in areas of environmental sensitivity,

we must strive to identify opportunities for trail development as a means to mitigate their impact to the natural system through the EA and land use planning processes.

Actions:

A. Work with regional trail partners to implement the proposed Greater Toronto Region Trail Network through regional transportation plans, municipal official plans, transportation master plans, and recreational trail master plans

B. Strive to identify opportunities to connect the Greater Toronto Region Trail Network with proposed mobility hubs as a means to mitigate impacts on the natural system through the EA and land use planning processes

C. Co-locate trails with infrastructure design through the planning and development approvals process

D. Work with approval agencies to ensure that permitting and development approvals support the realization of the Greater Toronto Region Trail Network

E. Regularly review and adaptively update implementation plans to reflect current land use conditions, including property acquisition updates to identify potential connection opportunities early in the planning and development process

Initiative 6.2: Promote the top 10 destinations in the Greater Toronto Region Trail Network

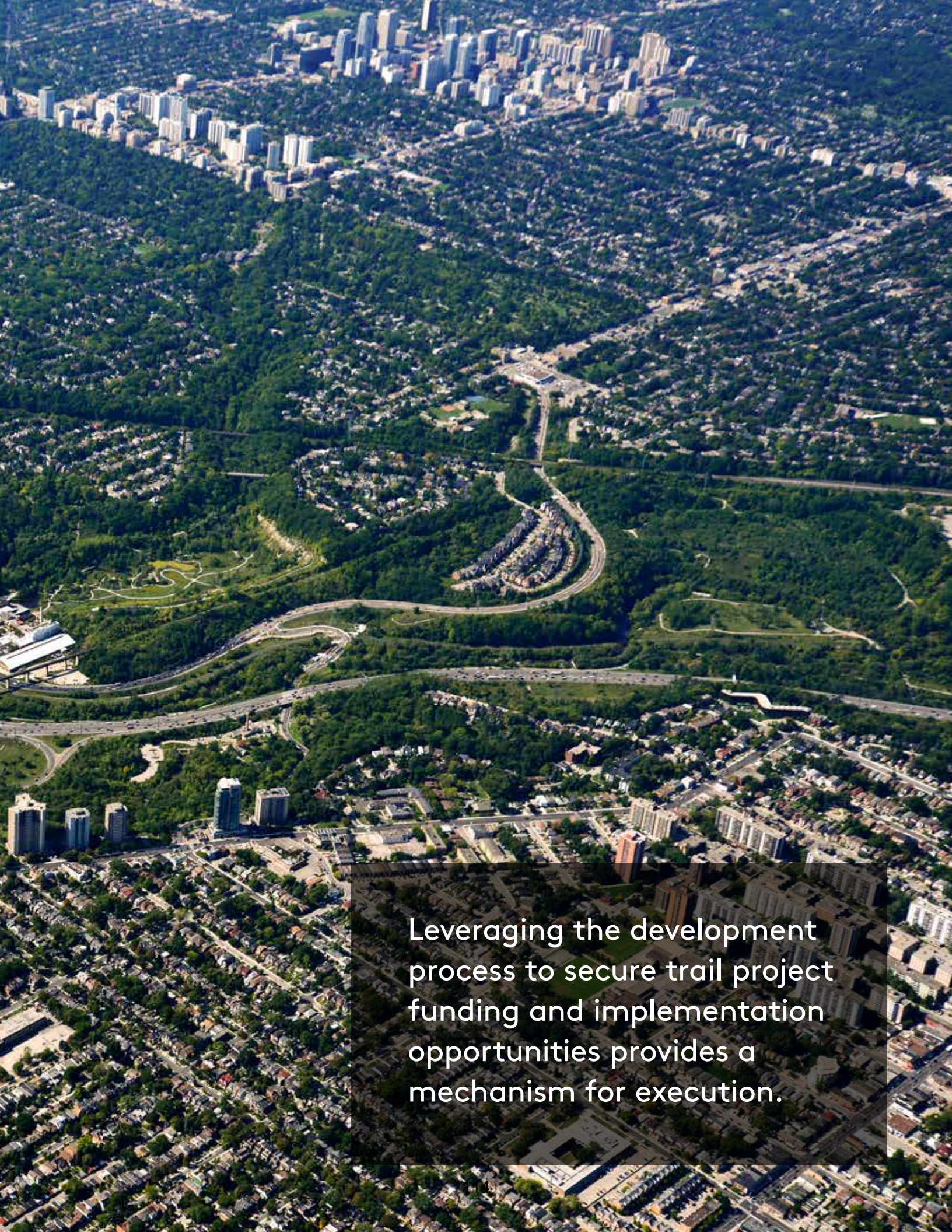
The top 10 destination areas in the Greater Toronto Region Trail Network offer distinctive experiences within our natural and cultural environments and provide the amenities critical to a successful trail system. The establishment of these destinations provides exposure for communities, promoting visitor and local activity and catalyzing development that further supports complete communities.

Destinations could be further enhanced through the establishment of trail centres. A trail centre is a regional trails convergence point that offers a well-serviced, actively managed trail amenity area with dedicated trail user and visitor services. Within our existing trail network, several locations have organically become trail centres. This Strategy recommends that a trail centre be identified and promoted within each of the top 10 destination areas.

Actions:

A. Partner with interested municipalities, communities, tourism agencies, private businesses, and trail organizations to promote destinations

B. Establish and invest in trail centres within destination areas



Leveraging the development process to secure trail project funding and implementation opportunities provides a mechanism for execution.

Strategic Objective #7:

Secure adequate and sustainable investment

Trails are essential recreational and active transportation green infrastructure assets. They require sustainable and regular investment to guarantee their future. Regional trail projects are funded from a variety of sources, as outlined in Figure 7.a. Funding for Regional Trail Projects. At TRCA, these sources include TRCA revenues and occasional donations and/or government grants.

While capital funding is sourced from all three channels, operating funding is sourced solely from TRCA revenues linked to municipal sources. Financial resilience will require a greater range of eligible funding sources as well as leveraging the revenue-generating potential of trails and related facilities. In addition to these sources, TRCA will continue to engage with regional trail partners to capitalize on future development opportunities that maximize budgets, time, and resources.

Figure 7.a: Funding for Regional Trail Projects

	Source of Funds	Description
Current Sources	Development charges	Fees collected from land developers at the time a building permit is issued
	Development plan approvals and municipal infrastructure EA approvals	Co-operative funding agreements obtained through planning and development approvals processes
	Donations/Sponsorships	Funds received through TRCF and/or from trail donation boxes; donations and sponsorships received from volunteer trail associations, the general public, and the private sector; and donations directed through municipalities
	Federal Gas Tax Fund	Local infrastructure priority funding
	Government grants	Municipal, provincial, or federal funding
	Government infrastructure programs	Provincial or federal funding programs
	Municipal taxes	Municipal operating and/or capital budgets
	Revenues	Municipal levies, capital, and special projects
Potential Future Funding Sources	Public–private partnerships	Co-operative funding arrangements and site-specific developer agreements
	Pay-per-use	Trail user fees (parking and membership fees)

Initiative 7.1: Secure sustained funding for the Greater Toronto Region Trail Network

Trails require sustained investment from both public operating and capital budgets to address planning, design, construction, operation, monitoring, maintenance, programming, and promotional costs. They also require ongoing funding to attain and maintain a state of good repair to preserve their recreational and active transportation functions. We must strive to adopt the principles of asset management in accounting for the full lifecycle of the natural heritage monitoring, planning, design, implementation, and maintenance of trails. This Strategy recommends developing a trail lifecycle costing tool to fully account for these activities in order to improve trail cost analysis. In addition, this Strategy recommends the creation of a trail maintenance reserve fund for ongoing trail operations and maintenance expenditures to improve our ability to adequately maintain our existing and proposed trail assets in a state of good repair. Ongoing operating funding is also required to execute the initiatives and actions outlined in this Strategy.

Actions:

A. Develop a trail lifecycle costing tool to improve trail full-cost analysis

B. Create a TRCA trail maintenance reserve fund for ongoing trail operations and maintenance costs

C. Continue to pursue existing funding sources and explore future funding sources to establish and maintain sustained investment in the Greater Toronto Region Trail Network (see Figure 7.a: Funding for Regional Trail Projects)

Initiative 7.2: Capitalize from investment in new and redeveloping communities in support of trails and greenways

Many of the proposed trail and greenway connections in the Greater Toronto Region Trail Network require partnerships with municipalities, NGOs, and the development industry. Leveraging the development process to secure trail project funding and implementation opportunities provides a mechanism for execution. The inclusion, siting, and design of trails should be considered at the initiation of the development process. With proper planning from project outset, trails can be situated in the most appropriate location for a particular development area.

As secondary plans, master environmental servicing plans, and individual projects in new communities are developed, TRCA and partner municipalities should be looking at opportunities to connect the Greater Toronto Region Trail Network to municipal parks and our greenspace system. Redevelopment and intensification projects should also be looked at for opportunities to close gaps and increase trail connectivity. Negotiations through the development process would also include acquisition of major land holdings to facilitate inter-regional trails and community connections. Municipalities should work with trail partners to ensure that short-term trail routes and restoration opportunities are implemented with development funding, including development charges and Section 37 Agreements. Long-term trail connections should be planned through infrastructure EAs and through the draft plan of subdivision process where these can be registered on title.

Negotiations for trail funding and trail maintenance reserves should also be part of the growth area planning for local and regional trails and greenways. Opportunities exist to pursue this in the 12 urban growth centres, the 36 mobility hubs, and the numerous intensification projects identified in the Toronto Region.

In existing neighbourhoods, or in areas that do not have upcoming development opportunities, trail partners should leverage existing budgets and new funding opportunities through federal, provincial, and municipal budget processes and funding programs that support active transportation, climate change adaptation, and the creation of green infrastructure.

Actions:

A. Through the development planning process and infrastructure EAs, look to site-specific agreements, development charges, and Section 37 agreements, to obtain funding and to ensure new and upgraded infrastructure investment supports the provision of trails

B. Investigate federal, provincial, and municipal infrastructure funding programs in support of trails and greenways

C. Develop and negotiate trail maintenance reserves as part of growth area planning for new communities

Regional trails extend beyond municipal boundaries, involving many partners. To build the Greater Toronto Region Trail Network, we must organize and undertake a coordinated internal and external approach.

Organizing for Success

The collaboration necessary to deliver the vision of this Strategy in a prioritized and coordinated manner will require efforts on multiple fronts (see Figure 7.b: Collaborative Framework). TRCA is committed to working with our partners to execute the actions.

Toronto and Region Conservation Authority

TRCA will form an internal working group (the TRCA Trails Working Group) to guide the phased implementation of the Strategy, to prioritize trail capital projects, and to ensure that trail-related activities are coordinated within TRCA and with our municipal partners and partner agencies. These activities include preservation of greenspace for and development of trails through development planning and permitting, environmental assessment planning and permitting, land securement, capital infrastructure delivery, habitat restoration and enhancement, and cultural heritage preservation and interpretation.

The TRCA Trails Working Group will coordinate the Strategy across the organization, including developing a work and financial plan to deliver the Strategy that is supported by TRCA's strategic business planning and budget processes. Where appropriate, TRCA will utilize its budget process to pursue and assign funds to priority trail projects and seek to leverage its funds with its government and other partners on collaborative trail projects. TRCA will utilize its grant centre to apply for funds to amplify the impact of TRCA and partner funds.

Toronto and Region Conservation Foundation

The mission of the TRCF is to raise funds for the initiatives undertaken by TRCA. The TRCF will continue to support TRCA's trail efforts by funding projects that encourage people to enjoy the natural environment. Fundraising campaigns and advocacy for priority trail projects can be administered through the TRCF. These campaigns can support the planning, construction, management, and programming required to deliver the regional trail system. The TRCF's charitable status can provide tax receipts for those who are looking to make donations to TRCA's trail initiatives and allow TRCA to secure funds through grant programs restricted to charitable organizations.

Government and Agency Partners

TRCA will foster relationships with our government and other trail partners. Working Group members will coordinate regular implementation meetings with these partners to develop, prioritize, and manage collaborative trail projects. This will allow TRCA and its trail partners to maximize budgets, resources, and opportunities to make shared trail connections. These efforts can be supported through agreements such as Service Level Agreements and Memorandums of Understanding that allow TRCA and its partners to quickly and effectively deliver trail projects of mutual interest.

Trail and Community Leaders

Community members also have a role to play in implementing the Strategy. In 2017, TRCA adopted the Community Engagement Strategy, along with a new citizen governance model, including the establishment of the Regional Watershed Alliance (RWA). The RWA is an advisory and action-based committee comprising diverse community members from across TRCA's area of jurisdiction who contribute their unique perspectives and capabilities. The RWA will work to collaborate with the Working Group, as well as our

regions' trail and community leaders, to create opportunities for all groups, particularly Indigenous communities. Coordinating public consultation efforts through a geographically representative body such as RWA will support consensus-building and ensure trail-based decisions with regional impact are made equitably.

NGOs and private citizens can support the delivery of the Strategy by advocating for trail projects during consultations on government budgets and on development and infrastructure projects. They can become trail stewards by volunteering their time and expertise to plan, build, maintain, and program trails-efforts that can often be calculated as in-kind services for grant programs. TRCA will continue to work with its partners to cultivate a robust stewardship mentality in the trail community.

Figure 7.b: TRCA Collaborative Framework

VISION

A complete regional trail network in greenspace and along the Lake Ontario shoreline that connects our growing communities to nature, to culture, and to each other, contributing to active living and enhancing our conservation legacy.

PEOPLE

- Toronto and Region Conservation Authority
  - Board of Directors
  - Trails Working Group
- Toronto and Region Conservation Foundation
- Regional Watershed Alliance
- Government and agency partners
- Trail and community leaders

TOOLS

- Development and environmental assessment review
- Agreements
- Capital budgets
- Grants and donations
- Land securement strategies
- Municipal Official Plans
- Trail and transportation strategies, plans, and policies

PROCESSES

- Development and environmental assessment planning
- Partnership development
- Strategic business planning and budgeting
- Fundraising
- Greenspace securement
- Restoration opportunity planning
- Erosion hazard mitigation
- Integrated transportation planning

Investment Criteria

This Strategy uses the following criteria to identify priority areas for investment in the Greater Toronto Region Trail Network (see **Trail Gap Investment Criteria** and **Destination Investment Criteria**), and recommends that the TRCA Trails Working Group maintain a current prioritized project list based on this investment criteria.

Trail Gap Investment Criteria

Greenspace
Where there is an opportunity to connect to and/or acquire greenspace

Population
Where there is an opportunity to connect to neighbourhoods, growth areas, and/or employment lands.

Transit
Where there is an opportunity to connect to the regional transportation network

Trails
Where there is an opportunity to connect to the existing regional trail network

Destination Investment Criteria

Amenities
Where additional amenities are needed to provide a positive recreational experience

Management
Where increased management is needed to support sustainable recreational use

Partnership
Where partnership would provide investment to support destination enhancement

Programming
Where programming would connect people with culture, nature, and to each other

Preliminary Costing

Basic unit costs per linear metre for the various trail descriptions and types implemented in the concept for the Greater Toronto Region Trail Network are shown in Figure 7.c: Trail Unit Costs. This costing is based on collaborative analysis with our municipal partners.

Figure 7.c: Trail Unit Costs

Trail Description (Type)	Unit	2019 Dollars
Single-use		
Construct new hiking trail in valley/ridge areas	Linear Metre	$ 130.00
Multi-use		
Construct new asphalt waterfront trail	Linear Metre	$ 1,240.00
Construct new asphalt trail in valley/ridge areas	Linear Metre	$ 702.00
Construct new asphalt trail in road right-of-ways	Linear Metre	$ 555.40
Construct new asphalt trail in utility corridors	Linear Metre	$ 372.40
Bike-only		
Construct new cycle-track trail along roadways	Linear Metre	$ 450.00
Other Costs		
Planning	Percentage	10.0%
Design and Engineering	Percentage	10.0%
Permitting	Percentage	10.0%
Contingency	Percentage	25.0%
Natural Heritage and Tree Compensation	Percentage	5.0%

The Trail Unit Costs were used to calculate the preliminary order of magnitude estimates for trail construction project costs per region shown in Figure 7.d: Trail Project Costs.

Figure 7.d: Trail Project Costs includes trail construction project costs per region, according to the high, medium, or low implementation priority phase of work categorized in the Trail Strategy. The chart further itemizes trail project costs according to land ownership, by TRCA and other lands, per region and identifies corresponding expenditures.

Figure 7.d: Trail Project Costs ($ millions)

Region	High Priority	Medium Priority	Low Priority	TOTAL
Durham	**$2.24**	**$9.53**	**$18.88**	**$30.65**
Durham (TRCA lands)	$1.26	$0.24	$0.22	$1.72
Durham (Other lands)	$0.98	$9.29	$18.67	$28.93
Peel	**$10.67**	**$10.28**	**$40.28**	**$61.23**
Peel (TRCA lands)	$7.56	$0.19	$0.00	$7.76
Peel (Other lands)	$3.10	$10.09	$40.28	$53.47
Toronto	**$46.14**	**$34.61**	**$7.72**	**$88.47**
Toronto (TRCA lands)	$18.34	$3.07	$0.00	$21.41
Toronto (Other lands)	$27.80	$31.55	$7.72	$67.06
York	**$47.80**	**$17.33**	**$69.93**	**$135.07**
York (TRCA lands)	$16.43	$2.80	$1.99	$21.22
York (Other lands)	$31.38	$14.53	$67.94	$113.84
Total (TRCA lands)	$43.60	$6.30	$2.21	$52.10
Total (Other lands)	$63.26	$65.45	$134.60	$263.32
GRAND TOTAL	**$106.86**	**$71.75**	**$136.81**	**$315.42**

Due to rounding, numbers presented throughout this report may not add up precisely to the totals.

Based on preliminary high-level costing of the proposed trail connections, the total cost to construct the proposed 480 km of trails to complete the Greater Toronto Region Trail Network is **$315.4 million. Of this amount, the total cost of these new trail construction projects on TRCA-owned lands is $43.6 million.** This estimate is considered to be **+/- 20 to 30 per cent accurate**. The cost is expected to increase annually according to projected inflation. Trail construction project costs include planning, design and engineering, permits and agreements, construction, and contingencies. They exclude crossings, lighting, engineering features, site servicing, and trail amenities.

TRCA is already undertaking trail and destination capital project work in support of the concept for the Greater Toronto Region Trail Network within approved capital budgets of multiple TRCA and municipal partner programs. Much of this work occurs on lands owned and/or managed by TRCA.

Funding

Many of the proposed trail and greenway connections in the Greater Toronto Region Trail Network require partnerships with government, NGOs, and the development industry. Leveraging the development process to secure trail project funding and implementation opportunities provides a mechanism for execution. The inclusion, siting, and design of trails should be considered at the initiation of the development process. With proper planning from project outset, trails can be situated in the most appropriate location for a particular development area. Municipal departments need to coordinate these potential routes with TRCA and landowners as plans evolve for new community growth areas. Upgrades to existing connections should also be considered with wayfinding, parking, and rest areas, as needed.

As Secondary Plans, Block Plans and Master Environmental Servicing Plans are developed, TRCA and partner municipalities should look to opportunities to implement the Greater Toronto Region Trail Network to ensure that new neighbourhoods are well connected to municipal parks and the overall greenspace system. Negotiations through the development process should include acquisition of major land holdings to facilitate inter-regional trails and community connections. Municipalities should work with trail partners to ensure that trail routes and restoration opportunities are implemented with development funding, including Development Charges and Section 37 Agreements where opportunities exist to do so. Trail connections should be confirmed through the draft plan of subdivision process, agreements, and infrastructure EAs. Transit and transportation infrastructure also provides key opportunities for implementing active trail linkages to the larger community systems and transit hub stations. TRCA will advocate for government projects to include funds for trail investment as part of their project funding envelopes.

Ongoing maintenance of trail routes can be challenging for only one agency with limited budget flexibility. In existing neighbourhoods, or in areas that do not have upcoming development opportunities, trail partners should leverage existing budgets and new funding opportunities through federal, provincial, and municipal infrastructure funding programs that support active transportation, climate change adaptation, and the creation of green infrastructure. Past applicable provincial funding programs have included the Climate Change Action Plan, the Ontario Municipal Commuter Cycling Program, the Ontario Sport and Recreation Communities Fund, Ontario Trillium Foundation grants, and Greenbelt Foundation grants. Current applicable municipal funding programs include York Region Pedestrian and Cycling Municipal Partnership Program. TRCA and municipal trail partners should also seize opportunities to align upcoming major infrastructure projects with the

inclusion of trail corridors. By capitalizing on complementary regional infrastructure project opportunities to build trails, we can maximize our infrastructure, leverage funding opportunities, and help to complete the remaining gaps that exist.

Trail costs do not end after trails are built. They must be managed in a manner that maintains their recreational and active transportation functions, provides safe, enjoyable trail experiences, and continues to protect nearby natural and cultural heritage resources. This requires sustained investment to maintain a state of good repair and an asset management approach to account for the full lifecycle of trails. The trail lifecycle costing tool and trail maintenance reserve funds recommended in the Trail Strategy will improve our ability to adequately manage existing and proposed trail assets in a state of good repair.

Performance

Performance speaks to how well something is being accomplished. As we move forward with the delivery of the Strategy, TRCA will track its progress by reporting on performance measures (see Figure 7.e: Performance Measures). These performance measures are aligned with TRCA's Strategic Plan to facilitate consistent reporting across corporate strategic initiatives.

The TRCA Trails Working Group will be responsible for developing baselines and targets for each performance measure. Baselines and targets will be used to demonstrate our progress towards completing strategic objectives, and to report on our collective impact. This information will also enable evidence-based and informed decision making to adaptively achieve our vision.

7.e: Performance Measures

Output/Metric	Performance Measure	Key Performance Indicators
CONNECTED		
1. # of km of the Greater Toronto Region Trail Network built a. # of km of the Greater Toronto Region Trail Network built on TRCA lands b. # of km of the Greater Toronto Region Trail Network built on other lands	% completeness of the Greater Toronto Region Trail Network	• Stakeholder Collaboration • Service Excellence • Transparency and Completeness
2. $ leveraged for Greater Toronto Region Trail Network capital projects a. $ raised through grants for Greater Toronto Region Trail Network capital projects b. $ secured through agreements for Greater Toronto Region Trail Network capital projects c. $ value of volunteer labour contributed to Greater Toronto Region Trail Network capital projects	% increase of overall TRCA trail budgets spent on Greater Toronto Region Trail Network capital projects	• Business Innovation • Financial • Service Excellence • Transparency and Completeness
ACTIVE LIVING		
3. # of trail users at Destination Area Trail Centres identified as part of the Trail Strategy	% increase in repeat trail use at Destination Area Trail Centres identified as part of the Trail Strategy	• Healthy Lifestyle • Service Excellence
CONSERVATION LEGACY		
1. # of properties secured that protect Greater Toronto Region Trail Network corridors a. # of properties secured through the planning and development process that protect Greater Toronto Region Trail Network corridors	% completeness of secured Greater Toronto Region Trail Network corridors	• Protect and Restore Natural System
2. # of volunteer hours contributing to the Greater Toronto Region Trail Network	% increase of volunteer hours contributing to the Greater Toronto Region Trail Network	• Community Action

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Item 8.2

Section I – Items for Board of Directors Action

TO: Chair and Members of the Board of Directors
Meeting #8/19, Friday, September 27, 2019

FROM: Chandra Sharma, Director, Community Engagement and Outreach

RE: **CARRUTHERS CREEK WATERSHED PLAN**
September 2019 Update

KEY ISSUE
Annual update to the Board of Directors on the Carruthers Creek Watershed Plan

RECOMMENDATION

WHEREAS TRCA Board Resolution #A106/15 requires staff to report on the progress of the Carruthers Creek Watershed Planning process to the Board of Directors annually, or more frequently as needed, and at the completion of the Watershed Plan;

THEREFORE IT IS RECOMMENDED THAT the Carruthers Creek Watershed Plan update be received.

BACKGROUND
On April 1, 2015 Durham Region Council authorized staff to engage Toronto and Region Conservation Authority (TRCA) to update the 2003 Carruthers Creek Watershed Plan (CCWP) on the Region's behalf. The CCWP will be completed in two phases. Phase 1 was completed in October 2017 and culminated in the preparation of seven peer reviewed technical reports that characterized the watershed's existing conditions.

TRCA staff updates the Board of Directors annually, or more frequently as needed, in keeping with Authority Resolution #A106/15.The history of reporting to the Authority on this project includes the following resolutions:

- Authority Meeting #6/15, held on June 26, 2015, Resolution #A106/15
- Authority Meeting #6/16, held on July 22, 2016, Resolution #A128/16
- Authority Meeting #8/16, held on October 28, 2016, Resolution #A169/16
- Authority Meeting #8/17, held on October 27, 2017, Resolution #A194/17
- Authority Meeting #5/18, held on June 22, 2018, Resolution #A102/18

The last update to the Authority in June 2018 gave a detailed overview of the work involved in Phase 2 of the CCWP that was initiated in October 2017 and scheduled for completion in late 2019. The *CCWP Phase 2 Workplan (Updated April 2019)* (Attachment #1) provides detail on all tasks associated with Phase 2 of the CCWP.

Technical Work
The Phase 2 technical work completed to date includes:

- Establishing the updated Goals and Objectives of the Watershed Plan
- Development of five land use scenarios for the watershed consisting of:
    - Historical – Historical land use conditions from 1999
    - Current – Existing land use conditions from 2015
    - Scenario 1 (+OP) – Refines "Current" conditions by assuming all lands south of

the Greenbelt are developed as approved up to 2031 in the Official Plans
  - Scenario 2 (+NHS) – Refines "Scenario 1" by adding an enhanced Natural Heritage System
  - Scenario 3 (+ Potential Urban) – Illustrates prospective development in the headwaters outside of the enhanced Natural Heritage System identified in "Scenario 2"
- Evaluation and modelling of the land use scenarios including hydrology, hydrogeology, water quantity and quality, fluvial geomorphology, aquatic response, and terrestrial response.
- Development of the Table of Contents of the CCWP
- Development of Management Framework (including Goals, Objectives, Indicators, Targets and Management Recommendations) based on integration of all peer reviewed technical work from Phase 1 and Phase 2.

Consultation
All consultation is completed in accordance with the *CCWP Communications and Consultation Strategy* (Attachment #2) as approved by Region of Durham in May 2018. In support of the Phase 2 technical work, TRCA is undertaking extensive stakeholder and public consultation. The Phase 2 consultation is occurring in three stages:

- Stage 1 – Consultation on updating the Vision Statement and promoting the CCWP process to the public.
- Stage 2: Consultation on the draft Management Recommendations
- Stage 3**:** Consultation on the draft Watershed Plan.

The first stage of consultation was initiated in December 2017 and was completed in October 2018. The *CCWP Communications and Consultation Summary Phase 2, Stage 1* (Attachment #3) provides a detailed summary of Stage 1 activities and results and was approved by Region of Durham Planning and Development Committee on May 7, 2019. The second stage of consultation is currently underway and has the objective of gathering feedback on the draft Management Framework including Goals, Objectives, Indicators, Targets, and Management Recommendations from all stakeholders. To date, TRCA and municipal partner staff have been engaged to provide feedback on the draft Management Framework in July 2019. Stage 2 will culminate in Fall 2019 with Public Open Houses being hosted in both Ajax (October 8, 2019) and Pickering (October 10, 2019).

RATIONALE
TRCA staff updates the Board of Directors annually, or more frequently as needed. This report to the Board comprises the annual update on the CCWP.

Relationship to Building the Living City, the TRCA 2013-2022 Strategic Plan
This report supports the following strategies set forth in the TRCA 2013-2022 Strategic Plan:
Strategy 2 – Manage our regional water resources for current and future generations
Strategy 3 – Rethink greenspace to maximize its value
Strategy 4 – Create complete communities that integrate nature and the built environment
Strategy 8 – Gather and share the best sustainability knowledge
Strategy 12 – Facilitate a region-wide approach to sustainability

FINANCIAL DETAILS
The CCWP is a multi-year project with a total budget of $1,089,431 funded by the Region of Durham through a service agreement with TRCA.

DETAILS OF WORK TO BE DONE
Phase 2 of the CCWP will continue to proceed in accordance with the approved workplan and consultation strategy. The remaining high-level tasks to be completed are as follows:

- Phase 2, Stage 2 consultation will focus on the CCWP Management Framework and will be completed in Fall 2019. A Public Open House will be hosted in both Ajax and Pickering in October 2019 to solicit feedback on the Management Framework from all stakeholders.
- Indigenous partners will be engaged as part of Stage 2 consultation prior to the Public Open Houses.
- All feedback from Phase 2, Stage 2 will be integrated to draft the final CCWP and is scheduled for completion in December 2019.
- Phase 2, Stage 3 consultation will focus on soliciting feedback on the draft CCWP.

Staff will continue to consult monthly with municipal staff and update both the Board and the Region of Durham on the status of the study, as needed, as it progresses towards completion.

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Emails: Cameron.Richardson@trca.ca
Date: September 13, 2019
Attachments: 3

Attachment 1: CCWP Phase 2 Workplan (Updated April 2019)
Attachment 2: CCWP Communications and Consultation Strategy
Attachment 3: CCWP Communications and Consultation Summary Phase 2, Stage 1

Toronto and Region Conservation Authority

Carruthers Creek Watershed Plan Phase 2 – Updated April 2019

STEP 1: Establish Goals and Objectives for the Watershed

TIMING

January to June 2018

PURPOSE

Review the fundamental building blocks provided in the 2003 Watershed Plan and supporting documents in the context of advancements in scientific approaches and language since the last Watershed Plan was completed. The goals and objectives will be revisited throughout the plan development process to ensure implementation of the new management actions can meet these goals.

WORK TO BE DONE

TECHNICAL

- Review Goals, Objectives, Management Actions from 2003 Watershed Plan, 2004 Fisheries Management Plan, other supporting documents: assess gaps, add new information, update/remove elements which are no longer relevant; ***Status*: Complete**

CONSULTATION

- Consult public and stakeholders on vision and management philosophy from 2003 Watershed Plan which will form the principles of the new plan; ***Status*: Complete**

STEP 2: Current Watershed Conditions

TIMING

January to June 2018

PURPOSE

Protocols for watershed health assessment follow a similar process to that of the 2003 Watershed Plan, with appropriate scientific and engineering knowledge of the evolving state of best practice. Based on the biophysical conditions observed from 2015 and 2016 field studies and previous watershed health assessment ratings and targets, develop current targets for the watershed which will identify the actions required to achieve the goals and objectives. Begin integration of the seven Phase 1 technical reports to derive a holistic view of the watershed based on the separate studies.

WORK TO BE DONE

TECHNICAL

- The various subject matter experts (SMEs) on the staff technical team will assess the targets from 2003 Watershed Health Ratings Report for relevance, updating, gaps, and set new targets; ***Status*: Complete**
- Begin the integration exercise based on the Phase 1 technical reports and management recommendations, a comprehensive exercise which requires a multi-disciplinary approach; ***Status*: Complete**

STEP 3: Watershed Response "Tool Box"

TIMING

January to December 2018

PURPOSE

The "tool box" is a collection of models and evaluation methodologies which assess various criteria from the land use scenarios. The modelling results and findings from the terrestrial and aquatic response methodologies illustrate how the watershed can reasonably be expected to respond to land use changes, and other factors such as climate change, based on the best available science. TRCA scientists and planners will interpret the outcomes in order to develop recommended management actions which protect, restore, and enhance Carruthers Creek watershed.

WORK TO BE DONE

TECHNICAL

- SWAT (Soil and Water Assessment Tool) model which assesses surface water quality set up and calibrated (initial data from Phase 1); ***Status*: Complete, report currently being drafted**
- Groundwater model set up and calibrated; ***Status*: Complete, report completed and peer reviewed**
- Hydrology model set up and calibrated (initial data from Phase 1); ***Status*: Model complete, validation of model underway with review from TRCA, City of Pickering, and Town of Ajax engineers**
- Assess options/tools to evaluate watershed's terrestrial response; ***Status*: Complete, report drafted and under internal review**
- Assess options/tools to evaluate watershed's aquatic response; ***Status*: Underway**
- Surface water quantity report based on stream flow gauges completed and peer reviewed; ***Status*: Complete, report completed and under peer review**

CONSULTATION

- Review Hydrology model results with Ajax and Pickering staff; ***Status*: Not started, will follow model validation**

STEP 4: Watershed Scenario Evaluation

TIMING

January to September 2018

PURPOSE

Develop five scenarios for the watershed**,** evaluating past, current, future, and potential future watershed conditions to be analysed using state-of-the-art modelling and watershed response tools. Knowledge garnered will be shared amongst the technical experts, allowing for integration of outputs and best outcomes for the overall health of the watershed.

WORK TO BE DONE

TECHNICAL

Finalize mapping for each of the five scenarios, each subsequent scenario builds on the previous, ranging from historic conditions (1999) to development as per current approved Official Plans to 2031 and an enhanced Natural Heritage System, plus prospective development post-2031.

- Using various inputs such as Official Plans, existing natural cover, older TRCA Terrestrial Natural Heritage System plans, etc., delineate an enhanced Natural Heritage System for use in the future scenarios; ***Status*: Complete**
- Evaluate opportunities for urban forestry enhancement; ***Status*: Complete, report drafted and under internal review**
- Complete Ecosystem Services Valuation study and identify Green Infrastructure features/ practices which could be incorporated into existing urban areas and in new urban development; ***Status*: Complete**
- Complete a storm water management retrofit study; ***Status*: Complete, report currently being drafted**

CONSULTATION

- Review scenario criteria/conditions with Ajax and Pickering staff; ***Status*: Complete**

STEP 5: Evaluate Management Actions

TIMING

July 2018 to June 2019

PURPOSE

Formulate candidate management actions which will be evaluated when recommendations are developed, to ensure that the overall conditions in the watershed will sustain the desired state of health once the plan is adopted and implemented.

WORK TO BE DONE

TECHNICAL

- Management actions will be derived as the modelling is carried out and the terrestrial and aquatic response tools are applied. Actions tend to be specific and are expected to arise through non-linear, multi-disciplinary analysis, as all SMEs integrate their findings. Actions will be evaluated against the plan's draft recommendations, goals, and objectives; ***Status*: Underway**

STEP 6: Draft Management Recommendations

TIMING

July 2018 to September 2019

PURPOSE

Develop draft recommendations for the optimal management of the watershed based on the most advanced scientific knowledge available. They will be practical and make the best use of partnerships and available resources, and anticipate the challenges ahead. The recommendations inform the management actions and guide the implementation of the Watershed Plan.

WORK TO BE DONE

TECHNICAL

- Management recommendations will be evaluated against meeting the vision, management philosophy, goals, and objectives established earlier in the process. This is a non-linear, multi-disciplinary exercise which involves all SMEs and is integrated with other steps throughout the process; ***Status*: Underway**

CONSULTATION

- Review draft management recommendations with Ajax and Pickering staff; ***Status*: Not started**
- Consult public and stakeholders about draft management recommendations; ***Status*: Not started**

STEP 7: Final Watershed Plan

TIMING

October to December 2019

PURPOSE

Complete the process to develop the Carruthers Creek Watershed Plan.

WORK TO BE DONE

TECHNICAL

- Finalise the Watershed Plan document; ***Status*: Not started**

CONSULTATION

- Once received by Durham Council, TRCA will post the final Watershed Plan for stakeholder and public comment, dates to be determined; ***Status*: Not started**

#	Key Tasks	Schedule
1	Complete scenario evaluation	2018 – Q4
2	Peer Review of 2018 technical work	2019 – Q1
3	Recommendations and implementation schedule	2019 – Q2
4	Peer Review of 2019 technical work	2019 – Q3
5	Study complete	2019 – Q4

Carruthers Creek Watershed Plan Communications and Consultation Strategy

1.0 GOAL OF THE COMMUNICATION AND CONSULTATION

The goal is to inform and consult with the public and stakeholders in and neighbouring the watershed to create awareness about the new Watershed Plan, and to review and consider input on the vision and management philosophy, draft management recommendations, and finally the draft Carruthers Creek Watershed Plan.

2.0 OBJECTIVES FOR THE REVIEW AND WATERSHED PLAN UPDATE

The primary objectives of the Carruthers Creek Watershed Plan are:

- To update the understanding of existing conditions in the watershed through scientific research and analysis of the physical characteristics of the watershed.
- To identify important watershed management priorities and action in urban and rural areas of the watershed for the present and into the future.
- To continuously build on and refine, sustain, and reinforce the 2003 implementation framework. The vision and management philosophy for the watershed will be updated and supported with new goals and objectives based on the study findings.
- To ensure that Durham Region has the right information and knowledge base to make decisions which affect the watershed.
- To ensure that this Watershed Plan meets or exceeds new provincial guidance for mandatory Watershed Plans to municipal land use planning.
- To showcase leading edge scientific methodology and analyses demonstrating TRCA's Watershed Plan development process as state-of-the-art, and exemplify our "next generation" of Watershed Plans.

3.0 KEY AUDIENCES

The focus of the communications is informing the general public, and consulting residents and stakeholders in and neighbouring the watershed. Stakeholders expected to be affected by, and who will have an interest in, this Watershed Plan will be identified as consultation progresses. A summary table on communication and consultation methods categorised by audience accompanies this strategy.

4.0 HIGH LEVEL CONSIDERATIONS FOR DEVELOPING THE WATERSHED PLAN

Phase 1: Completion of extensive scientific studies to update Carruthers Creek watershed's baseline physical conditions and establish the technical foundation for the Watershed Plan.

Phase 2: Build on the work completed in Phase 1, review potential land use scenarios, and short and long-term watershed management actions.

The starting point for this update is the Watershed Plan for Duffins Creek and Carruthers Creek (2003).

The management philosophy and past objectives and management actions will be the basis for developing the updated Watershed Plan. Key considerations for developing the new Watershed Plan include the following:

- Build an understanding amongst the public and stakeholders of what the Watershed Plan is, how it is being developed, the process and timelines.
- Explain how this Watershed Plan meets and exceeds the provincial requirements for Watershed Plans which serve municipal interests.
- Address the status of the 2003 Watershed Plan (*i.e.*, goals, objectives, and management actions, progress to date).
- Identify sensitivities of Carruthers Creek watershed's natural heritage.
- Communicate how the Watershed Plan's development will benefit from new information and studies completed since the 2003 plan.
- Demonstrate how the Watershed Plan will be used to guide and direct activities in the watershed in the future – including public and private use.

5.0 KEY MESSAGES ABOUT THE WATERSHED PLAN

An important aim is to provide clear information about the purpose of the Carruthers Creek Watershed Plan. Key messages will be used to develop website material, responses to frequently asked questions (FAQs), stakeholder materials, and information for online consultation and the news media. Key messages will focus on the anticipated needs of different audiences and be updated as necessary. Clear, consistent and direct communication on what the study is about, and what it is not, will contribute to greater public understanding about the watershed and the Watershed Plan.

Content for key messages to be used in the consultation materials will be prepared by TRCA in collaboration with the Region of Durham. The following key messages communicate the purpose, scope, and expected outcomes for the Carruthers Creek Watershed Plan:

- The purpose of the Watershed Plan update is to undertake a review of the watershed considering the 2003 management actions, existing conditions, new information and studies since 2003, as well as current scientific thinking, in order to develop a comprehensive plan to protect, restore, and enhance the whole watershed – lower, middle, and upper reaches.
- The 2003 Watershed Plan included a set of eight goals and twenty-five objectives which made up the overall management strategy. There has been significant progress in implementing these recommendations. This plan is a unique investment by the Region of Durham in original work to understand the environmental conditions in the watershed that have evolved since 2003.
- The work is being undertaken by the TRCA on a fee-for-service basis on behalf of the Region of Durham. TRCA's role is to provide professional, scientific, and evidence based recommendations for the protection, restoration, and enhancement of Carruthers Creek watershed. This involves providing information, analysis, and management recommendations to assist the Region with its consideration of planning and infrastructure decisions, as well as protection of Durham's natural heritage and water resources.
- TRCA will ensure the final Plan meets and exceeds the provincial guidance for Watershed Plans.

- The recommendations from this update will be based on peer reviewed scientific research and analysis. Peer review is being undertaken by an independent third party to ensure impartiality and rigour in the review and findings.

- Land use planning decisions are outside the scope of the Watershed Plan. This plan is not about making land use recommendations or commenting on development proposals or Greenbelt designation in Carruthers Creek watershed.

- The update will examine alternative land use scenarios in order to analyse the potential implications associated with land use changes and identify measures for protection, restoration, and enhancement. The analysis will not recommend a preferred scenario but rather identify recommendations which are important to ensure the sustainability of the watershed regardless of land use changes. This will ensure that the Region of Durham has the best knowledge base in order to make decisions about planning policy.

6.0 PROPOSED CONSULTATION ACTIVITIES

The communications and consultation strategy for the Watershed Plan focuses on interrelated streams of stakeholder and public consultation. Specific deliverables include the following:

Phase 2 Consultation Methods and Deliverables
1. **Project Website** with notice that Phase 2 is underway, scope of work, timelines; Frequently Asked Questions (FAQs); mailing list for updates at key milestones; revisit 2003 vision statement and management philosophy with feedback mechanism for public comments.
2. Use a **dedicated email address** on the project website as a one-window approach for receiving emails pertaining to the plan: carruthers@trca.on.ca. Respond to inquiries where appropriate.
3. **Conduct online survey(s)** to receive input on the 2003 Carruthers Creek Vision and Management Philosophy and input on issues and opportunities (2018) and feedback on draft management recommendations (2019).
4. **Create outreach/communication tools** *i.e.,* postcards for distribution by TRCA, area municipalities, and other groups, at public events over 2018/2019 to raise awareness of Watershed Plan (drive people to website for more info).
5. **In-person outreach** to reach a wide array of audiences through “pop-ups” throughout the watershed (2018 - 2019). Potential Public Information Centre (2019) to receive feedback on draft management recommendations.
6. **Stakeholder outreach** through small group meetings to provide information and discuss watershed management objectives and recommendations: TRCA Regional Watershed Alliance, Durham Environmental Advisory Committee, Durham Agricultural Advisory Committee, Ajax Environmental Advisory Committee, golf courses, former Task Force members, ENGOs, other stakeholder groups.
7. **Reports to Region of Durham Council** at key milestones at the direction of Durham staff.
8. **Staff to Staff meetings**: Interactive coordination meetings with Durham, Pickering, and Ajax at key milestones.
9. **Media and Social Media Communications** through the preparation of content for social media, news releases, and updates on study deliverables.

7.0 CONTINUOUS IMPROVEMENT AND RISK MANAGEMENT

As the communications and consultation strategy is delivered, it will be adapted to meet project needs. The following actions have been identified upfront to minimise and manage risk:

- Establish principal point of contact at Region of Durham and at TRCA for inquiries about the Carruthers Creek Watershed Plan and issues management.
- Use a dedicated email address as a one-window approach for receiving emails pertaining to the Watershed Plan.
- Monitor and adapt communications and consultation approach as needed. Undertake continuous improvement based on the response to issues.
- Review media coverage and outreach.

Toronto and Region Conservation Authority

Carruthers Creek Watershed Plan
Communications and Consultation Summary
Phase 2, Stage 1

January 2019

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1 Context for This Report

Carruthers Creek is a relatively small watershed with a drainage area of approximately 3,748 hectares, ranging from 2-3km in width and 18km in length (See Appendix 1). It is the easternmost watershed in Toronto and Region Conservation Authority's jurisdiction and is located entirely within the Region of Durham with a population of approximately 41,000 residents. Carruthers Creek's headwaters form to the south of the Oak Ridges Moraine, in the City of Pickering, and the creek enters Lake Ontario in the Town of Ajax. The watershed is mainly rural north of Highway 7 and urbanized south of Taunton Road to the lakeshore. From Highway 7 south to Taunton Road, the majority of lands are in the Protected Countryside of the provincial Greenbelt.

Toronto and Region Conservation Authority (TRCA), in partnership with the Region of Durham is undertaking an update to the last Watershed Plan for Carruthers Creek, which was completed in 2003. TRCA will assess the many changes and impacts which have occurred in the Carruthers Creek watershed since 2003 and review the current conditions of the watershed through a multi-year process. The updated Watershed Plan will not make decisions about land use however; it will make recommendations for the protection, restoration, enhancement and overall management of the watershed that will guide future decision making for the watershed.

The goal of communication and consultation is to inform and consult with the public and stakeholders in and neighbouring the watershed to create awareness about the updated Watershed Plan and to review and consider input as the watershed plan progresses. TRCA hired a third party Consultation Advisor to ensure an independent, credible consultation process. Public input is important to establish the updated Watershed Plan Vision Statement and to consider public and stakeholder feedback on Management Recommendations. A new Watershed Plan will aim to protect Carruthers Creek's ecological health now and for years to come.

Phase 1 of the project, which culminated in the preparation of seven peer-reviewed technical reports characterising the watershed's existing conditions, was completed in Fall 2017. Phase 1 did not include public consultation as the work was completed by technical staff. Phase 2 of the Carruthers Creek Watershed Plan update has been initiated; the process is shown in Table 1.

Table 1: Phase 2 Key Tasks for updating the Watershed Plan

1	Establish updated goals and objectives for the watershed.
2	Based on the conditions observed through Phase 1 and other watershed health assessments, develop targets for the watershed and identify the actions required to achieve the goals and objectives.
3	Establish watershed response methodologies / assessments that will be used to measure how the watershed could be expected to respond to changes in land use and other factors, such as climate change.
4	Develop, model and evaluate five scenarios for the watershed, consisting of historic conditions, existing conditions, approved development (as per current Official Plan designations), enhanced natural heritage system, and a development scenario with an enhanced natural heritage system.
5	Formulate and evaluate candidate management actions to achieve the desired state of watershed health.
6	Develop Management Recommendations.
7	Deliver the completed Watershed Plan.

As part of Phase 2, TRCA is undertaking extensive stakeholder and public consultation. Consultation will occur in stages throughout Phase 2 of the Watershed Plan update and will follow the *Carruthers Creek Watershed Plan Communications and Consultation Strategy*. The *Communications and Consultation Strategy* was received by Durham Regional Council in May 2018, and time lines were refined at Council's request in June 2018. It is a dynamic document that is adapted to respond to communications and consultation needs and opportunities as the work proceeds.

Phase 2, Stage 1 involved updating the Vision which will guide this new Watershed Plan. During this initial stage, communications and consultation were undertaken to seek input on the Vision for the Watershed Plan. Consultation will also be undertaken in subsequent stages to solicit feedback on the draft Management Recommendations and draft Watershed Plan, including the technical work completed as part of Phase 2. This consultation is set to occur starting in mid-2019.

This report is a compilation of the communications and consultation by TRCA on Phase 2, Stage 1 which were undertaken from December 2017 to October 2018. It outlines the public process objectives which guided the communications and consultation and describes the methods and activities used to inform and consult the public and stakeholders. It also describes what was heard and how public input is reflected in the new draft Vision and ongoing Phase 2 work.

2 Communications and Consultation for Phase 2

2.1 Public Process Objectives

A key objective of Phase 2, Stage 1 was to promote awareness and interest in the watershed planning process and to seek feedback on the 2003 Vision Statement. Durham Region and TRCA are committed to a process to develop the Watershed Plan that provides opportunities for residents and stakeholders to learn about the health of the watershed and to share issues and ideas for protecting the health of Carruthers Creek watershed.

The purpose of the consultation for Phase 2, Stage 1 was to:

- Raise awareness about the Carruthers Creek Watershed Plan.
- Inform partners, stakeholders, and the general public about the process for updating the Watershed Plan.
- Gather feedback on the Vision developed for the 2003 Watershed Plan and preliminary issues and ideas to be considered in all the Phase 2 work.

2.2 Audiences for Communications and Consultation: Who was consulted?

The Region of Durham, Town of Ajax, and City of Pickering (Councils, Staff and Advisory Committees) have a key role in protecting the health of the watershed and implementing the 2003 Watershed Plan and the new updated plan. As such, the groups mentioned above are a key audience and stakeholder in all stages of the watershed planning process and some were already actively engaging the public on issues they identified within the Carruthers Creek watershed prior to the initiation of the Watershed Plan update.

The Carruthers Creek Watershed Plan will also be of interest to residents across Ajax and Pickering (in and neighbouring the Carruthers Creek watershed), environmental stakeholders, land owners, farmers, golf course operators, businesses, and land developers.

Various audiences have different levels of knowledge of, and interest in, the watershed and communications and consultation methods were geared to these different audiences. Methods utilized are outlined in section 2.3 of this report.

Additional stakeholders expected to be affected by, and who will have an interest in, this Watershed Plan continue to be identified as work to develop the plan progresses.

3 Communications and Consultation Activities: What methods were used?

The communications and consultation efforts used various formats and tools to share information and gather input. The following provides an overview of the communications and consultation methods used during stage 1 and should be read in conjunction with section 4 of this report which describes what was heard.

Carruthers Creek Watershed Plan Project Website: The website **yoursay.ca/carruthers-creek** was developed for the Carruthers Creek Watershed Plan update as a mobile device-friendly online portal for information on watershed features, current issues, and projects occurring in the watershed. Information available includes the Carruthers Creek Watershed Plan Technical Reports completed in 2017. The website provides information on how the Plan is being developed, identifying the Phases of work, and includes feedback mechanisms for receiving comments. As of 1 October 2018 (the end of Phase 2, Stage 1), the website has received more than 1000 visits.

Dedicated Carruthers Creek email – carruthers@trca.on.ca: A dedicated email address was established for the Carruthers Creek Watershed Plan update to provide a single point of contact for residents and stakeholders to provide input. This dedicated email address was promoted through a media release and post cards distributed throughout the watershed. The TRCA's Project Manager receives, responds to, and documents emails from this address.

Online Survey: From February to August 2018, a survey was live on the website to receive input on the 2003 Carruthers Creek Vision and issues and opportunities for the watershed. A total of 72 people participated in the survey. Specific questions on the Vision provided responses which guided the drafting of a new Vision for the watershed. Survey responses were reviewed by TRCA staff and the Consultation Advisor and where possible, incorporated into the Vision statement. The responses will continue to be reflected in the Watershed Plan as it is developed.

Post Cards: A post card was developed and distributed by TRCA, the Town of Ajax and the City of Pickering at public events in 2018 to raise awareness of the Watershed Plan and direct people to the project website and project email address. Over 1500 post cards were distributed.

Pop-Ups: Pop-up outreach was undertaken from June 2018 to September 2018. TRCA staff with public outreach training and experience facilitated the pop-ups. Each pop-up consisted of a three panel display with photos (with the exception of the GO Station pop-ups) of the watershed and a future Visioning exercise. At some of the pop-ups, interactive children's activities with bright graphics were incorporated to draw attention from families and spark

interest in conversation with staff. The pop-ups generally took place over several hours with a few occurring over a full day. The pop-up workshops were conducted at the following locations / events:

- Ajax Trail Fest
- Ajax Electric Vehicle Show
- Ajax Canada Day
- Pickering Auxiliary Rescue Association (PARA) Waterfront Festival
- Ajax National Tree Day celebration
- Ajax GO Station (morning commute peak hours)
- Pickering GO Station (morning commute peak hours)

By going to where public already gather and high pedestrian traffic locations, staff reached residents who might not attend an open house event, and who were able to offer ideas to TRCA and informally learn about the watershed. The pop-ups were effective at raising awareness of the watershed and project website. Approximately 600 residents were reached through the pop-ups. Post cards were distributed to encourage visits to the project website and participate in the online survey.

Stakeholder Workshops: Interactive, small group, stakeholder workshops were held with key stakeholders who have an interest in or are affected by the watershed. Each meeting occurred over several hours and included a short presentation on the Watershed Planning process, key findings on the health of the watershed and review of the 2003 Vision. Following the presentation, roundtable discussion occurred to identify issues and concerns, observations and ideas for protecting the health of the watershed. Three stakeholder workshops were held with:

- Former members of the Carruthers Creek Task Force (an advisory and action-based TRCA committee) who participated in the 2003 Carruthers Watershed Planning process.
- Golf Courses within the watershed (Bunker Hill Golf Course, Hawthorne Valley Golf Course, and Deer Creek Golf Club).
- Environmental Non-government organisations with interests in the watershed and the watershed's context in environmental issues across Southern Ontario (Ducks Unlimited, Environmental Defense, Green Durham Association).

The small group stakeholder workshops facilitated reciprocal dialogue on suggested changes to the 2003 Vision and ideas to be incorporated in the new Watershed Plan. The golf course operators shared their observations about changes in stream conditions over time. They also provided information on their best management practices in the field.

Staff to Staff meetings: Interactive meetings were held between staff of the Town of Ajax, City of Pickering, Region of Durham, and TRCA. Two meetings were held, one in December 2017 and one in October 2018. The first meeting involved a presentation and discussion on the watershed planning process and review of the 2003 Vision and Management Philosophy. The second meeting involved a presentation and discussion on the status of Phase 2 technical work as well as communications and consultation for Stage 1. The meetings provided an opportunity for a broad discussion amongst different departmental staff from each municipality. Further, TRCA regularly coordinates directly with municipal staff through teleconferences, emails and correspondence on a variety of issues and technical studies throughout the process. Group meetings will continue at regular intervals and key milestones throughout Phase 2.

Presentations to Councils and Committees: TRCA presented to Councils and Advisory Committees to provide an overview of the watershed planning process, information on the health of the watershed, and to seek feedback on the relevance of the 2003 Vision. Presentations to Councils and Committees were effective for clarifying the purpose and approach for the watershed planning process and receiving input. An important outcome of the presentations to Councils and Committees was for TRCA to clarify that the Watershed Plan does not make recommendations about Greenbelt expansion, as this was a major misconception.

Presentations were made to the following groups:

- Town of Ajax Council
- City of Pickering Executive Committee (of Council)
- TRCA Regional Watershed Alliance
- Ajax Environmental Advisory Committee (EAC)
- Durham Agricultural Advisory Committee (DAAC)
- Durham Environmental Advisory Committee (DEAC)
- Ontario Power Generation Pickering Nuclear Generating Station Community Advisory Committee

In addition to the presentations, two tours of the Carruthers Creek watershed were hosted for councillors from Ajax and Pickering. The tours with elected officials and TRCA staff were to observe various sites and conditions within the watershed.

A comprehensive list of the communications and consultation activities undertaken for Phase 2, Stage 1 can be seen in Appendix 2.

4 What we Heard

Key goals of Phase 2, Stage 1 of the communications and consultation were to promote awareness of the watershed planning process, to inform the public and stakeholders on how they could provide input, and to seek input on the relevance of the 2003 Watershed Plan Vision. Public input received throughout Phase 2, Stage 1 could be categorised in four key topics as follows:

- Discussion and understanding of the watershed planning process including clarification on expectations and outcomes
- Feedback on the 2003 Vision
- Challenges facing the watershed
- General themes and key messages for input to the development of the new Watershed Plan

Section 4 of this report provides a synthesis of what was heard with respect to these three topics.

4.1 Discussion and Understanding of the Watershed Planning Process

The consultation and outreach activities undertaken were important for raising awareness of the Watershed Plan. The pop-ups were effective for informing residents about the Plan and the watershed, and to promote their involvement through the project website and survey.

The postcard was effective for connecting people to the website and email address. Many people commented that they didn't really know anything about Carruthers Creek watershed and were interested to learn more as the

process continues. With over 1000 visitors to the website as of October 2018, there was good uptake with many reviewing multiple documents on the site. Those that completed the survey provided detailed comments on what they perceive as challenges facing Carruthers Creek today, along with ideas about the 2003 Vision.

Additional input was received through the focused stakeholder workshops which identified ideas for updating the Vision and concepts and approaches for consideration in the development of recommendations which will result from the technical work in Phase 2. At one workshop, specific information about how conditions in the Creek have changed over time was shared by golf course operators.

The presentations to Councils and Committees identified many important questions about how the Watershed Plan process is undertaken. It was important to be able to hear and respond to these questions, to learn about concerns, and to clarify that the watershed planning process and Watershed Plan will guide future decision-making for the watershed but that it will not make decisions about land use.

The communications and consultation activities will continue through Phase 2, adapting to continuously improve how information is shared with stakeholders, with both online and in-person opportunities for residents and stakeholders to provide input and feedback.

4.2 Feedback on the 2003 Vision

Generally, the feedback received on the 2003 Watershed Vision is that it is a good statement and remains relevant. When asked about what the public would like the Vision to say (question 7 in the online survey), some responses were:

"The essence of the Vision is on the mark. Enhance and protect the Carruthers Creek Watershed to ensure that it continues to provide valuable environmental and societal benefits to the community."
Watershed resident

"The Vision needs to emphasise sustainability, climate change and biodiversity and retrofitting existing areas. The importance of continued research and science are important to acknowledge."
Environmental Stakeholder

There is a desire to update the Vision with more current language and to incorporate new concepts and approaches. It was also noted that a shorter version for the Vision would make it easier to be understood and recalled by residents and stakeholders.

The following ideas were frequently suggested for inclusion in the new Vision:

- Incorporate resiliency and adaptation to climate change.
- Have more focus on biodiversity and improving ecological health and integrity through a systems management approach.
- Incorporate more emphasis on sustainability, restoration and retrofitting existing urban areas.
- Highlight the importance of continued research and science.
- More focus on health benefits of nature not just the risk versus benefit.
- Encourage all stakeholders to participate in the stewardship of the watershed.

4.3 Challenges facing the Carruthers Creek Watershed Today

The following is a synthesis of the frequently noted challenges and concerns that were identified through the consultation activities undertaken (specifically Question 5 of the survey that asked respondents to list what they think are the top 3 challenges that the Carruthers Creek watershed faces today):

- Impacts from urban development and continuing development pressure with concerns about the impact of more growth on the ecosystems
- Health of the natural environment, noting concerns about how to reduce the spread of invasive species.
- How to reduce habitat loss and increase biodiversity.
- Concerns about waste, illegal dumping, excessive fill placement in the headwater areas which are exacerbated by the perceived lack of enforcement of by-laws preventing such.
- Concerns about human/pet encroachment particularly in sensitive areas
- Insufficient storm water management in the urban portion of the watershed noting concerns about potential temperature increases impacting species of fish and the resulting poorer water quality
- Concerns about erosion, silt, and road salt, and pesticides in surface runoff
- Flooding risks downstream due to increasing upstream development and the impacts of climate change
- Political commitment and funding for maintaining a sustainable watershed.
- Climate change impacts.
- Perceived lack of environmental protection for Carruthers watershed because it is outside the Greenbelt.

4.4 General Themes and Key Messages Heard Throughout Phase 2, Stage 1

A synopsis of the general themes from key messages heard at the presentations, stakeholder workshops, pop-ups, online survey, and staff to staff meetings is provided in Table 3. Please note that these key messages are an amalgamation of what was heard from all engaged audience types including municipal staff and council, environmental organizations, business owners, landowners and developers, and residents in and near the watershed. Some of the themes and key messages heard throughout consultation may not be directly applicable to the updated watershed plan as they may be outside of the scope of the watershed planning process. These themes are being reviewed as part of the process to develop Management Recommendations in Phase 2 but some frequently heard key messages are outside of the scope of the Watershed Plan.

Table 3 – General themes and key messages heard

General themes	Key messages
Address resiliency and adaptation to climate change	• TRCA should clearly identify how the Carruthers Creek Watershed Plan will incorporate consideration of climate change and adaptation, as this is a major change since the last Watershed Plan was completed in 2003. • Protecting the watershed is critical to prevent flooding. • Climate change modelling is of interest, especially as related to flooding, impacts on biodiversity, and determining the ecological restoration and natural area protection needed to prepare for 500-year floods.
Incorporate sustainability, restoration, and adaptive	• Integrate sustainability principles and incorporate newer concepts such as green infrastructure, restoration and adaptive management

General themes	Key messages
management practices	practices. • More emphasis is needed on mitigating urban development impacts in the watershed. Management actions to retrofit urban areas should be considered such as tree planting to address heat islands, edible fruits and forests promote connection to the earth, and increasing green infrastructure. • More consideration of building practices that do not harm wildlife or environment. • Highlight good practices being taken by landowners (e.g., golf courses) to inspire and encourage others. • Ensure use of buffers, best management practices and low impact development techniques for agriculture and urban development. • Explore ways to increase local food and food systems.
Enhance the natural heritage system.	• Improve the ecological health and integrity of the watershed. • Ensure that the headwaters are protected. • Increase biodiversity of species. • Protect and enhance habitat for wildlife. • Consider how a systems management approach focusing on environmental gain and ecological integrity could enhance the natural heritage system of Carruthers Creek watershed.
Consider health benefits and appropriate public use that place priority on the ecological health of the watershed.	• While there is an interest in having more focuses on human health and the benefits of nature, priority should be afforded to ecological health and connectivity of natural areas. • Many residents want to be able to walk throughout the watershed and experience such things as a healthy active fishing community. There is a desire for more trails and public use facilities. • Residents are also concerned that there is too much access in sensitive areas, citing issues with human and pet encroachment, dogs off leash, increasing litter and waste left in natural areas. • TRCA should consider how trails and public use can contribute to human health and increased stewardship and support for implementation, without compromising the ecological integrity of the watershed.
Develop strategies for land use working with private land owners to reduce impacts of human activity on the watershed.	• Agriculture is important for the Region and best management practices should be applied to reduce nutrient runoff from agricultural lands. • Ensure buffers for agricultural lands and urbanization are adhered to. Require LID (low impact development techniques/practices) for developments where stormwater flows into the creek. • More thought needs to be put into how our building practices harm wildlife; storm drains are death traps to small animals, work with builders to find solutions.

General themes	Key messages
	• Private land owners should maintain a certain proportion of their lot as permeable surface; slow stormwater by de-paving, put in rain gardens and use permeable paving. • Highlight good practices and pilot projects currently being undertaken by landowners in the watershed to inspire and encourage others.
Strengthen controls and enforcement of activities that impact the health of the watershed.	• Address concerns raised by what is described as excessive fill placement in the headwaters. • Increase enforcement of illegal dumping. • Address concerns about road salt.
Increase public education, awareness and stewardship.	• More focus is needed on stewardship, partnerships and collaboration, and responsibility for the watershed, along with accountability and transparent decision making. • Priority should be placed on showcasing demonstration projects on sustainable living and sustainable community design. School projects were also noted to be key to building awareness and action in the watershed. • All stakeholders should be encouraged to participate in the stewardship of the watershed. Everyone's efforts are needed. • There is a general concern that many residents and community members in and near the watershed do not know much about it. There needs to be more education and awareness of the importance of its health and ways for people to participate and contribute. • Increased knowledge is seen as important to increase compliance among all types of property owners to protect the watershed. • Would like to see TRCA continue ongoing stewardship programs in conjunction with local government and the public. • Opportunities could be pursued to engage with Indigenous groups for stewardship and environmental protection.
Develop an effective implementation and compensation plan as a key part of the new Watershed Plan.	• TRCA should describe how the Carruthers Creek Watershed Plan will be used and how implementation and action will be measured, including establishing priorities, targets, follow-up, monitoring and how stakeholders such as Environmental Non-Government Organisations can help to achieve priorities for the watershed. • There should be more focus on ecological restoration and how to measure outcomes, including how to work with developers and use compensation offsetting to achieve biodiversity and improve environmental function. Offsetting discussion should include restoration of lost wetlands. • Private businesses should be forced to provide compensation for any damage caused to the natural environment and be required to make capital investments to ensure prevention. This includes developers, manufacturing industries, commercial vehicles, etc. • Enforcement needs to be included in the implementation plan to address ongoing concerns raised that by-laws are not being enforced

General themes	Key messages
	and resulting in damage to the natural environment. • TRCA should continue to monitor and report on watershed health and ecological integrity to ensure the Vision established is realised.

5 Conclusion

This report is a compilation of the communications and consultation by TRCA on Phase 2, Stage 1 which were undertaken from December 2017 to October 2018. It outlines the public process objectives which guided the communications and consultation and describes the methods and activities used to inform and consult the public and stakeholders. It also describes what was heard and how public input is reflected in the new draft Vision and ongoing Phase 2 work. As the watershed plan continues to develop, consultation and communication with partners, stakeholders, and the public will be an important tool in helping to create the final Carruthers Creek Watershed Plan.

We would like to give our sincere gratitude to everyone who took the time and effort to become involved in the Carruthers Creek Watershed Plan by sending in their questions and comments, attending meetings, and completing the survey during Phase 2, Stage 1 consultation. All of your efforts and passion will help develop a new Watershed Plan that will protect, restore, enhance, and manage the Carruthers Creek watershed now and in the future. You can continue to be involved as the Watershed Plan progresses by visiting https://yoursay.ca/carruthers-creek to stay up-to-date and submit any questions/comments you may have.

6 Appendix 1

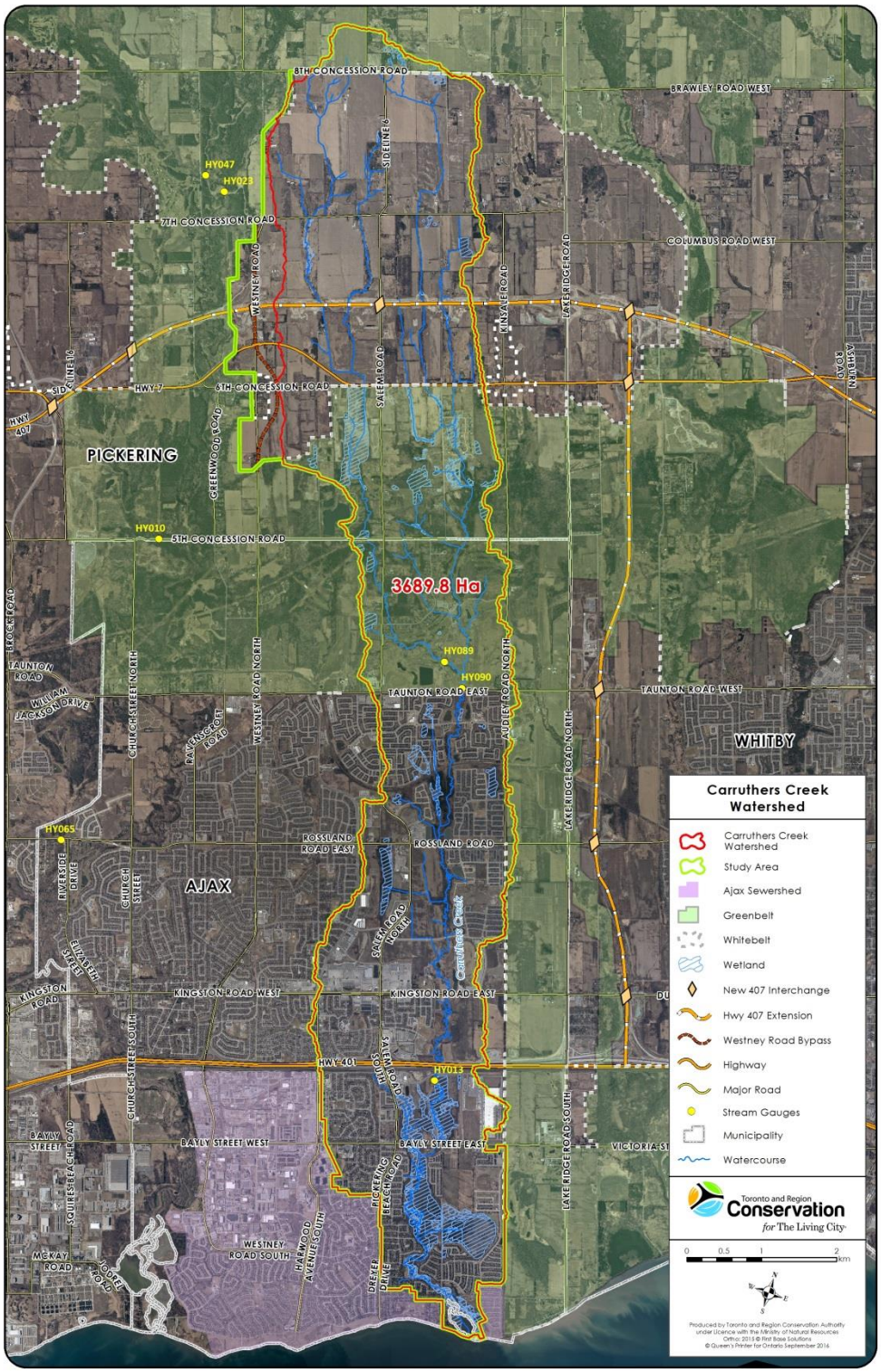

Figure 1: A map of the Carruthers Creek watershed and study area for the updated Carruthers Creek Watershed Plan.

7 Appendix 2

Table 2 –Phase 2, Stage 1 Communications and Consultation Activities

	Phase 2, Stage 1 Consultation Activities	Date
1	Staff to Staff meeting: Durham, Pickering, and Ajax staff	12 December 2017
2	Launch website and online survey	7 February 2018
3	Stakeholder workshop: golf courses	20 March 2018
4	Responded via email, or postal mail where no email address available, to all stakeholders who contacted TRCA regarding Carruthers Creek Watershed Plan since the project began in 2015	22 March 2018
5	Media release, in partnership with Region of Durham, to local news outlets	4 April 2018
6	Stakeholder workshop: former members of Task Force for 2003 Watershed Plan for Duffins Creek and Carruthers Creek	27 April 2018
7	Carruthers Creek Watershed Tour	11 May 2018
8	Presentation to Town of Ajax Council	22 May 2018
9	Presentation to TRCA Regional Watershed Alliance	23 May 2018
10	Presentation to Town of Ajax Environmental Advisory Committee	07 June 2018
11	Presentation to Region of Durham Agricultural Advisory Committee	12 June 2018
12	Stakeholder workshop: ENGOs	13 June 2018
13	Presentation to City of Pickering Executive Committee	18 June 2018
14	Presentation to Ontario Power Generation Pickering Nuclear Generating Station Community Advisory Council	19 June 2018
15	Presentation to Region of Durham Environmental Advisory Committee	21 June 2018
16	Pop-Up at Ajax Trail Fest	24 June 2018
17	Pop-Up at Ajax Electric Vehicle show	24 June 2018
18	Pop-Up at Ajax GO station	26 June 2018
19	Pop-Up at Pickering GO station	27 June 2018
20	Pop-Up at Ajax Canada Day Celebrations	1 July 2018
21	Carruthers Creek Watershed Tour	19 July 2018
22	Pop-Up at PARA (Pickering Auxiliary Rescue Association) Waterfront Festival	25 August 2018
23	Pop-Up at Ajax National Tree Day celebration	26 September 2018
24	Staff to Staff meetings: Durham, Pickering, and Ajax staff	3 October 2018

Item 8.3

Section I – Items for Board of Directors Action

TO: Chair and/ Members of the Board of Directors
Meeting #8/19, Friday, September 27, 2019

FROM: Darryl Gray, Director, Education and Training

RE: **TORONTO DISTRICT SCHOOL BOARD OUTDOOR EDUCATION CENTRE CLOSURES**
Update on closures of Toronto District School Board Outdoor Education Centres.

KEY ISSUE
Update on closures of Toronto District School Board Outdoor Education Centres located on Toronto and Region Conservation Authority (TRCA) lands.

RECOMMENDATION

WHEREAS TRCA provides greenspace for the purposes of out-of-classroom natural science learning experiences to school boards, as enabled under Section 197 of the Education Act (R.S.O 1990), through formal lease agreements;

WHEREAS Toronto District School Board operates the Etobicoke Field Studies Centre at Claireville Conservation Area and the Etobicoke Outdoor Education Centre at Albion Hills Conservation Area under lease agreements with TRCA for the purposes of the provision of out-of-classroom natural science learning experiences for students;

WHEREAS Toronto District School Board, as part of the Board of Trustees approved June 19, 2019 Operating Budget Plan for 2019 - 2020, are proposing to close both the Etobicoke Field Studies Centre and the Etobicoke Outdoor Education Centre;

WHEREAS Toronto District School Board provided written notice on July 3, 2019 to Toronto and Region Conservation Authority of the closure of the Etobicoke Field Studies Centre, effective August 31, 2019;

WHEREAS TRCA, upon termination of the lease agreements with Toronto District School Board, will assume the education facilities and has an interest in ensuring future student access and use of said facilities;

AND WHEREAS TRCA's Outdoor Education Task Force convenes on October 7, 2019 with an eighteen (18) month mandate to develop a strategic framework for the long-term provision of out-of-classroom natural science learning experiences, including the optimization of school board and conservation authority outdoor education assets;

THEREFORE LET IT BE RESOLVED THAT a Request for Expressions of Interest be undertaken to explore alternative uses for the Etobicoke Field Studies Centre;

THAT TRCA staff provide a report to the January 24, 2020 Board of Directors meeting on the results of the Request for Expressions of Interest;

AND FURTHER THAT the Board of Directors request that TDSB reconsider closure of the Etobicoke Outdoor Education Centre to ensure long-term student access to out-of-classroom natural science learning experiences.

BACKGROUND

Since 1953, TRCA has partnered with schools and school boards within the Toronto region to provide natural science and conservation education programs to students as part of their formal learning curriculum. The foundation of school boards and conservation authorities collaborating to provide outdoor learning experiences for the students of Ontario was laid through a unique partnership between Humber Valley Conservation Authority (predecessor to TRCA) and York Memorial Collegiate Institute in May of 1953. This ground-breaking partnership introduced the concept of students taking their learning out of the classroom and into the natural environment, where they could share in the expertise and experience of conservation professionals applying the science of watershed management.

Since that initial camp school in 1953, the partnership between TRCA and local school boards became a model for how public agencies such as school boards and conservation authorities can leverage their respective assets to benefit students and young learners, with TRCA providing greenspace and natural science expertise to support school board student learning outcomes. Currently TRCA has leases or other formal agreements with Toronto District School Board, Toronto Catholic District School Board, York Region District School Board and Durham District School Board for the provision of out-of-classroom natural science learning experiences located within TRCA conservation areas and greenspace, while also providing learning opportunities to over 75,000 students from school boards across the Greater Toronto Area at TRCA owned and operated outdoor education centres. Currently TRCA is one of the largest providers of curriculum-linked out-of-classroom natural science learning opportunities for schools and students in Canada.

On June 19, 2019, the Toronto District School Board (TDSB) approved an Operating Budget Plan for the 2019/2020 school year that required a reduction of $68.7 million in expenditures, resulting in program changes. Among the included program changes were the closure of two TDSB operated outdoor education centres, both located within TRCA conservation areas. TDSB currently operates ten (10) outdoor education centres, and the resulting closures would bring this number down to eight operating outdoor education centres: four day-use centres and four overnight centres. The affected centres are:

Etobicoke Field Studies Centre (Claireville Conservation Area)

Constructed in 1993 by TRCA for the former Etobicoke Board of Education, the Etobicoke Field Studies Centre at Claireville Conservation Area was built using proceeds from the sale of land to the Province of Ontario for the construction of Highway 407. The current outdoor education centre replaced a previous centre that was located within the Hwy 407 right-of-way.

The Etobicoke Field Studies Centre at Claireville Conservation Area is used by schools from TDSB for student day visits that provide natural science-based learning experiences utilizing the unique ecological features of Claireville Conservation Area. The Centre is a two-story structure with classrooms and offices on the main and second floor and with an additional classroom and storage in the basement level. The facility is owned by TRCA but operated and staffed by TDSB. TRCA provides snow clearing and drinking water on a cost-recovery basis and TDSB pays a base rent for use of the facility, in addition to providing ongoing building maintenance and upkeep. TRCA utilizes a separate portion of the lower level of Etobicoke Field Studies Centre at Claireville Conservation Area for program equipment and file storage.

Etobicoke Outdoor Education Centre (Albion Hills Conservation Area)

Opened in 1982 under the terms of a forty-year lease agreement, the Etobicoke Outdoor Education Centre is an overnight education centre adjacent to TRCA's Albion Hills Field Centre, within Albion Hills Conservation Area. The Etobicoke Outdoor Education Centre was built by the former Etobicoke Board of Education for student overnight visits up to five days in length that provide natural-science-based learning experiences utilizing the unique ecological features of Albion Hills Conservation Area.

The Etobicoke Outdoor Education Centre at Albion Hills Conservation Area is an overnight centre with capacity for 64 visiting students and accompanying teachers. The facility has multiple classrooms, dormitory accommodations, a central lounge, and gathering spaces. It is owned, operated and staffed by TDSB, with TRCA providing food service for visiting TDSB students at the Albion Hills Field Centre Dining Hall on a cost-recovery basis. Additionally, TRCA provides snow removal, turf maintenance and drinking water on a cost-recovery basis. The lease with TDSB for the Etobicoke Outdoor Education Centre expires in June 2022.

Other School Board Leases and Agreements

In addition to the above TDSB-operated outdoor education centres, TRCA has agreements with York Region District School Board, Durham District School Board and Toronto Catholic District School Board for the provision of natural-science learning experiences for students. TRCA has received no indication from York Region District School Board, Durham District School Board or Toronto Catholic District School Board that these programs are under review.
The following is a summary of current school board outdoor education centre agreements:

- York Region District School Board: Swan Lake Outdoor Education Centre
    - Located within the Swan Lake Centre
    - Agreement to provide facility and greenspace for School Board-operated Outdoor Education Centre
    - 10-year term expiring in 2023, with options to renew for two further five year terms.

- York Region District School Board: Burlington Outdoor Resource Centre
    - Located adjacent Nashville Conservation Reserve
    - Agreement to provide for greenspace adjacent to School Board-operated Outdoor Education Centre
    - 1-year term renewed annually.

- Durham District School Board: Duffins Creek Outdoor Education Centre
    - Located within Claremont Forest and Wildlife Area
    - Land lease for a School Board-operated Outdoor Education Centre
    - 5-year term expiring in 2022, with option to renew for one further five year term.

- Toronto Catholic District School Board: Lake St. George Field Centre
    - Agreement to provide overnight out-of-class natural science learning experiences at TRCA-operated Lake St. George Field Centre
    - 2-year term expiring in 2021, renewed biennially.

RATIONALE
TRCA received written notice from TDSB on July 3, 2019 regarding the closure of the Etobicoke Field Studies Centre at Claireville Conservation Area, effective August 31, 2019, at which point the building and environs under lease to TDSB revert to TRCA. On July 31, 2019, TRCA staff completed an inspection of the facility to view and assess the condition of the facility prior to TDSB relinquishing the building.

TDSB has not provided any written notification regarding the Etobicoke Outdoor Education Centre at Albion Hills Conservation Area, however, the June 19, 2019 Operating Budget Plan approved by TDSB's Board of Trustees, indicated that this centre was slated to close in September 2020.

In order to ensure future use of the Etobicoke Field Studies Centre, TRCA staff are proposing to conduct a Request for Expressions of Interest for potential school board or community partners to assume operations of this facility for the purposes of providing out-of-classroom natural science-based learning experiences for Toronto region students, or similarly compatible uses.

Relationship to Building the Living City, the TRCA 2013-2022 Strategic Plan
This report supports the following strategies set forth in the TRCA 2013-2022 Strategic Plan:
Strategy 3 – Rethink greenspace to maximize its value
Strategy 5 – Foster sustainable citizenship
Strategy 7 – Build partnerships and new business models

FINANCIAL DETAILS
Under the terms of the current lease agreement with TDSB for the Etobicoke Field Studies Centre at Claireville Conservation Area, the base rent for this facility is $87,000/annum. The cost recovery services for snow removal and water was $9,600 in 2018. These costs will no longer be recoverable upon termination of the lease, resulting in a $96,600 net loss to TRCA's Operating Budget. Additionally, upon assumption of the Etobicoke Field Studies Centre from TDSB, until a new tenant is secured, TRCA will be responsible for building maintenance, security and other state of good repair costs, estimated at $25,000 annually.

Under the terms of the 1982 lease agreement with TDSB for the Etobicoke Outdoor Education Centre at Albion Hills Conservation Area, the base rent is the nominal fee of $1/annum. The cost recovery from TDSB for services rendered in 2019 is projected to be $197,000 for food services and $15,000 for snow removal, turf management and drinking water. Should TDSB terminate the lease, this $213,000, less the cost of consumables, would no longer be recoverable, resulting in a projected $75,000 net loss to the Albion Hills Field Centre Operating Budget. Additionally, should TDSB terminate the lease for the Etobicoke Outdoor Education Centre, TRCA assumes ownership of the facility and would be responsible for building maintenance, security and other state of good repair costs, estimated at $50,000 annually, until a new tenant or partner can be secured for use of the facility. Should a new tenant not be secured, under the terms of the 1982 lease there is no demolition or removal clause and the condition of the facility is not known, so any demolition or removal costs would be borne by TRCA, should TDSB terminate the lease.

The overall potential financial impact to TRCA from the closure of the two TDSB-operated education centres is $246,600, which will affect TRCA's staffing complement and require an additional source of funding for ongoing facility maintenance. TRCA staff are working to secure new partnerships and revenue streams that would offset the impact budgets.

DETAILS OF WORK TO BE DONE
A Request for Expressions of Interest for the future use of the Etobicoke Field Studies Centre will be released that invites proponents to submit proposed uses for the Field Studies Centre that meet the following objectives:

- Provides a minimum of market rent to TRCA for use of the facility;
- Includes provisions for ongoing maintenance of the facility;
- Enhances community and public use and programming within the facility and Claireville Conservation Area.

The Request for Expressions of Interest will be posted online and circulated to local school boards, area municipalities, social service agencies and other similar organizations. With Board of Directors approval of TRCA proceeding with a Request for Expressions of Interest, TRCA staff will provide a report on the Request for Expressions of Interest results to the Board of Directors at the January 24, 2020 Board of Directors meeting.

TRCA staff will continue to work with TDSB to ensure the continued use of the Etobicoke Outdoor Education Centre at Albion Hills Conservation Area, including advocacy to TDSB Trustees.

TRCA's Outdoor Education Task Force convenes an eighteen (18) month term starting October 7, 2019 and the work of the Task Force is intended to provide a framework for the long-term provision of out-of-classroom natural science learning experiences for students in the Greater Toronto Area, including the optimization of the current school board and conservation authority operated outdoor education system.

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Date: August 14, 2019

Item 8.4

Section I – Items for Board of Directors Action

TO: Chair and Members of the Board of Directors
Meeting #8/19, Friday, September 27, 2019

FROM: Laurie Nelson, Director, Policy Planning

RE: **POSITIVELY GREEN**
100+ Priority Projects to Enhance Our Greenbelt

KEY ISSUE
To provide a summary of a Greenbelt restoration initiative that is a collaboration between thirteen conservation authorities, the Friends of the Greenbelt Foundation, and other partners.

RECOMMENDATION

THAT the presentation by Edward McDonnell, CEO, Friends of the Greenbelt Foundation be received;

THAT the Positively Green project be endorsed and that staff be approved to enter into agreements with the Friends of the Greenbelt or funding bodies subject to funding approvals;

AND FURTHER THAT TRCA staff continue to work with the Friends of the Greenbelt Foundation to advance the Positively Green: 100+ Priority Projects to Enhance our Greenbelt initiative.

BACKGROUND
In 2015, the nine conservation authorities of the Conservation Authorities Moraine Coalition (CAMC) completed a "Report Card on the Environmental Health of the Oak Ridges Moraine and Adjacent Greenbelt Lands". The Report Card was funded, in part, by the Friends of the Greenbelt Foundation. The purpose of the Report Card was to document current environmental conditions on the Oak Ridges Moraine and adjacent Greenbelt lands in order to inform the 10-year review of the Provincial Plans for those lands, as well as the review of the Growth Plan and the Niagara Escarpment Plan. The Report Card revealed three main conclusions:

1. Implementation of the Moraine and Greenbelt Plans through *Planning Act* applications was sufficient to maintain existing conditions, but not enough to achieve the Plans' goals and objectives to restore and enhance these lands.
2. Without the use of additional tools to restore and enhance natural systems across the Moraine and Greenbelt landscape, environmental conditions may be expected to decline over time due to the cumulative impacts from continued growth, related infrastructure and climate change.
3. The sustained and targeted use of additional watershed stewardship and municipal tools are needed to enhance and restore environmental conditions across the Greenbelt.

Subsequent to the completion of the Report Card, the Friends of the Greenbelt Foundation (FGF) approached the CAMC to prepare an "Action Plan for Ecological Enhancement across the Greenbelt", in order to address the environmental deficits identified in the Report Card. Four additional conservation authorities (CA) with watersheds encompassing the Niagara Escarpment joined the project to ensure coverage of the entire Greenbelt landscape. The goal of the project is to create an Action Plan for undertaking high priority, high impact

programs/projects that will, over time, result in the restoration and enhancement of the environmental health, improved biodiversity, resilience and connectivity of Greenbelt watersheds. After a year of work, a list of 111 projects was submitted to the FGF in 2017.

RATIONALE

With the addition of the four CA partners having Niagara Escarpment watersheds (Conservation Halton, the Hamilton, Niagara Peninsula and Grey Sauble conservation authorities), and to better align with the geography of the four Provincial Plans, the CAMC rebranded itself as the Greenbelt Golden Horseshoe Conservation Authority Collaborative (GGH CAC) to undertake this project. Currently the CAO of Credit Valley Conservation chairs the Collaborative, while the coordinator role remains at TRCA, with the Senior Manager, Provincial & Regional Policy, in the Policy Planning Division.

Since the submission of the list of projects to the FGF by the GGH CAC, the FGF has been undertaking several additional components of the project. This includes the development of a funding strategy, a communications/branding plan, and related initiatives to make the business case for ecological enhancement projects, as well as research into a carbon offset program as part of the funding strategy. As part of these efforts the FGF made a pre-budget submission for funding from the 2019 federal budget while the CAs helped to facilitate letters of support from their local MPs.

The project has now been rebranded as "*Positively Green*: 100+ Priority Projects to Enhance our Greenbelt". The restoration priorities are organized around three environmental outcomes:

- Increasing biodiversity by improving habitat and restoring connectivity to benefit species at risk, fish and ranges of large mammals;
- Protecting and improving water quality and groundwater, and the clean and abundant base flows provided to rivers and lakes; and,
- Advancing the use of green infrastructure by municipalities as a climate mitigation and adaptation tool, particularly to manage stormwater and flooding, as well as to sequester carbon.

Positively Green has more than 100 shovel-ready priority projects on the ground in communities across the Greater Golden Horseshoe. These projects are community-facing and provide real, tangible examples of how climate action benefits people and neighbourhoods directly. The projects are grouped into six main categories and include:

1. **Forestation and Cooling Corridors** – such as tree planting and habitat restoration to increase biodiversity, create interior forest, restore connectivity, protect water quality and strengthen climate resiliency.
2. **Wetlands and Stormwater/Flood Control** – such as restoring historic wetlands to reduce flood risk to downstream communities, securement of provincially significant wetlands into public ownership and replacement of on-line stormwater ponds with constructed wetlands.
3. **Habitat Restoration and Biodiversity** – such as restoration of rare habitats supporting species at risk, eradication of invasive species and fish barrier mitigation and riparian restoration to improve fish habitat.
4. **Major Lake and River System Improvements** – including support to implementation of Low Impact Development (LID) programs and agricultural best management practices.
5. **Enhancing Greenspace and Public Access** – such as improvements to existing natural environment destinations and interpretive facilities and the creation of new, future environmental and outdoor recreational spaces.

6. **Climate Leadership and Innovation** – including promoting road ecology, mitigating climate emissions through carbon sequestration, creating cooling corridors in the urban river valleys and supporting municipal natural asset management plans.

Projects contributed by TRCA include:

- headwater tributary restoration in the Don, Rouge and Humber River watersheds;
- biodiversity enhancement and stewardship across TRCA Greenbelt watersheds based on the TRCA Integrated Restoration Prioritization and Implementation program;
- fish barrier mitigation and habitat restoration for Atlantic salmon; and,
- the Brocklands Restoration project in the Duffins Creek watershed to naturalize a 1000-acre site and create a new recreation destination.

The Brocklands Restoration project was also selected as one of three projects for evaluation through a "business case" cost-benefit analysis study. The analysis of this project found that every dollar spent on capital and project costs resulted in $3.56 to $4.45 worth of benefits.

Relationship to Building the Living City, the TRCA 2013-2022 Strategic Plan
This report supports the following strategies set forth in the TRCA 2013-2022 Strategic Plan:
Strategy 2 – Manage our regional water resources for current and future generations
Strategy 3 – Rethink greenspace to maximize its value
Strategy 7 – Build partnerships and new business models
Strategy 12 – Facilitate a region-wide approach to sustainability

FINANCIAL DETAILS
The cost to implement the entire 111 projects is estimated at $100 million over ten years. The FGF made a pre-budget submission to the federal government in Spring 2019 for $27M in funding over five years. This contribution, if successful, would act as the seed money to leverage the additional funding over the ten-year period from provincial and municipal governments, businesses, foundations and non-government organizations.

Each of the thirteen individual CA partners are responsible for funding their own projects through various partnership and funding arrangements. Within TRCA watersheds, some of the ten projects identified are already partially funded with implementation currently underway. One example is the Brocklands Restoration project noted above, that is funded in large part through the tipping fees collected for the clean fill deposited on the site for use in the restoration works.

DETAILS OF WORK TO BE DONE
The FGF continues their work to assess the viability of creating a carbon offset program to provide funding for the projects. They are also promoting the project and seeking funding through presentations to municipal councils, CA boards of directors, meetings with Federal MPs and Provincial MPPs and other potential funding and implementation partners. Where funding has been arranged, some projects are currently being implemented on the ground to improve environmental conditions, mitigate flooding impacts and increase resiliency to the impacts of climate change.

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Date: August 15, 2019

Item 9.1

Section III – Items for Board of Directors' Information

TO: Chair and Members of the Board of Directors
Meeting #8/19, Friday, September 27, 2019

FROM: Laurie Nelson, Director, Policy Planning

RE: **TRCA COMMENTS TO ENVIRONMENTAL REGISTRY OF ONTARIO (ERO)**
New Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (ERO #019-0198)

KEY ISSUE
Toronto and Region Conservation Authority (TRCA) comments on the new Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health.

RECOMMENDATION

WHEREAS the Province of Ontario posted the new Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, for public comment on the Environmental Registry of Ontario (ERO);

AND WHEREAS several TRCA programs contribute to Great Lakes water quality and ecosystem health;

AND WHEREAS TRCA staff submitted comments to the Province in response to the ERO posting by the September 4, 2019 deadline;

THEREFORE LET IT BE RESOLVED THAT the Toronto and Region Conservation Authority (TRCA) staff report and comments on the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, be received;

AND FURTHER THAT the Clerk and Manager, Policy, so advise municipal partners and Conservation Ontario.

BACKGROUND
On July 5, 2019, the Ministry of the Environment, Conservation and Parks posted on the Environmental Registry of Ontario for a 61-day review period (comments were due September 4th), a proposed new agreement between Canada and Ontario to restore, protect and conserve the Great Lakes in accordance with the Province's **Made-in-Ontario Environment Plan**.

The current Canada-Ontario Agreement expires in December 2019. To support the continued partnership on Great Lakes restoration, Canada and Ontario have negotiated a **draft new Canada-Ontario Agreement**. This would be the ninth agreement between the two levels of government. It is designed to advance action on key challenges facing the Great Lakes such as improving wastewater and stormwater management and reducing pollution, including a new focus on road salt and plastic pollution.

Once finalized, the new Canada-Ontario Agreement (the COA) would be signed by:

- the Ontario Minister of the Environment, Conservation and Parks
- the Ontario Minister of Natural Resources and Forestry

- the Ontario Minister of Agriculture, Food and Rural Affairs
- Canada's Minister of the Environment and Climate Change
- five other federal ministers

An Executive Committee will oversee the COA and consist of senior representatives from the ministries, departments and agencies of the Parties responsible for Agreement commitments.

Commitments in the draft new COA would:

- support the implementation of Great Lakes-related commitments in the Province's **Made-in-Ontario Environment Plan**
- advance the purposes of the Province's ***Great Lakes Protection Act*, 2015**
- align with the goals of **Ontario's Great Lakes Strategy**
- support Canada's commitments under the **Canada-United States Great Lakes Water Quality Agreement**
- respond to priorities raised by many Great Lakes partners in recent discussions with federal and provincial agencies

The new COA is comprised of a Framework Agreement consisting of thirteen articles that describe the purpose, principles and administration. The COA also contains thirteen annexes (listed below), each of which includes:

- a preamble describing what Canada and Ontario will strive to achieve;
- intended results for the Great Lakes specific to each annex; and,
- commitments Canada and Ontario will deliver jointly or separately to achieve the intended results.

Protecting Waters
Annex 1: Nutrients
Annex 2: Harmful Pollutants
Annex 3: Wastewater and Stormwater
Annex 4: Discharges from Vessels

Improving Coastal Areas
Annex 5: Areas of Concern
Annex 6: Lakewide Management

Protecting Habitat and Species
Annex 7: Aquatic Invasive Species
Annex 8: Habitat and Species

Enhancing Understanding and Adaptation
Annex 9: Groundwater Quality
Annex 10: Climate Change Impacts and Resilience

Engaging Communities – From Awareness to Action
Annex 11: From Awareness to Action
Annex 12: Métis and the Great Lakes
Annex 13: First Nations and the Great Lakes

To respond to the consultation on the proposed new agreement, TRCA Policy Planning staff coordinated comments from various divisions at TRCA, drafted and submitted a final letter response to the ERO by its deadline of September 4, 2019 (Attachment 1). The TRCA response letter includes general comments and two appendices containing a listing of TRCA programs contributing to Great Lakes ecosystem health, as well as detailed comments on the COA itself.

RATIONALE

TRCA understands the Canadian and Ontario governments recognize the need to strengthen efforts to address new and continuing threats to Great Lakes water quality and ecosystem health, including aquatic invasive species, excessive nutrients, harmful pollutants, discharges from vessels, climate change and the loss of habitats and species.

TRCA supports the proposed update to the COA and appreciates that it is premised on the belief that Great Lakes water quality and ecosystem health cannot be achieved by addressing individual threats in isolation, but rather depends upon the application of an ecosystem approach that addresses individually and cumulatively all sources of stress to the Great Lakes. There is a strong alignment with conservation authorities' (CAs) ecosystem approach and watershed-based work that serves to mitigate for the impacts of urbanization and climate change on the Great Lakes and improves ecosystem health.

On a collective basis, CAs and their partners' environmental protection and management of rivers, wetlands and headwaters provide downstream benefits to the Great Lakes, including those for water quality, habitat and recreation. As local watershed and partnership agencies, CAs are well-positioned to play a key role in many of the actions identified in the COA. This is particularly the case for the Greater Golden Horseshoe CAs with Great Lakes shorelines, where the impacts of urbanization and the compounding effects of climate change are acutely felt.

The draft COA contains many initiatives that align with TRCA's Strategic Plan, business units and current program delivery. The Toronto and Region Remedial Action Plan (RAP) is the largest program currently supported by COA. TRCA administers the RAP for the Toronto Area of Concern (AOC) as part of a 5-year (2015-2020), $2.5 million agreement with Environment and Climate Change Canada and the Ministry of Environment, Conservation and Parks (matching funding). In addition to habitat restoration work, through development and infrastructure planning processes, TRCA staff work with municipalities and proponents to ensure restoration is directed toward strategic areas to address RAP priorities in the Toronto AOC.

TRCA staff with technical expertise in each Annex reviewed the draft COA and provided detailed comments that informed the TRCA response (Attachment 1). TRCA's letter made the following recommendations for the governments' consideration:

- COA employs a holistic lens and reflects a watershed approach to supporting lake health; this approach should be replicated in the update.

- Introduce a section or an appendix on implementation mechanisms, targeted timelines and funding;

- That the connection between land development and lake water quality and ecosystem health be a more prevalent theme throughout the COA;

- Maintain the ability of the current COA to encourage partnerships between agencies and the leveraging of funds for greater impact;

- Ensure a continuum of current and long-term program funding for TRCA and agencies/ministries with whom we collaborate to deliver on COA actions;

- Make new funding available in support of land-based actions such as watershed planning, stewardship and restoration (perhaps under the Western Lake Ontario Land to Lake Initiative).

- Maintain an ongoing commitment to the de-listing of Areas of Concern and to monitoring, community engagement, and maintenance following de-listing.

Relationship to Building the Living City, the TRCA 2013-2022 Strategic Plan

This report supports the following strategies set forth in the TRCA 2013-2022 Strategic Plan:

Strategy 2 – Manage our regional water resources for current and future generations
Strategy 4 – Create complete communities that integrate nature and the built environment
Strategy 8 – Gather and share the best sustainability knowledge
Strategy 12 – Facilitate a region-wide approach to sustainability

FINANCIAL DETAILS
Staff are engaged in this policy analysis work per the normal course of duty, with funding support provided by TRCA's participating municipalities to account 120-12. No additional funding is proposed to support the policy analysis work associated with the preparation of these comments.

DETAILS OF WORK TO BE DONE
The enclosed comments have been submitted to the Province and copied to the federal government for consideration. Staff will continue to brief the Board on any updates received as a result of the COA consultation.

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Date: September 9, 2019
Attachments: 1

Attachment 1: TRCA Comments – Great Lakes COA (ERO #019-0198)

Toronto and Region Conservation Authority

August 27, 2019

BY E-MAIL ONLY (glo@ontario.ca)

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

Dear Ms. O'Neill:

Re: Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (ERO #019-0198)

Thank you for the opportunity to comment on the Ministry of Environment, Conservation and Parks' Environmental Registry posting on the proposed new Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (COA).

Toronto and Region Conservation Authority (TRCA) undertakes a number of roles affecting the health of the Great Lakes within its watershed-based jurisdiction: as a public commenting body under the *Planning Act* and *Environmental Assessment Act*, as a regulator of development under the *Conservation Authorities Act*, a proponent of restoration, remediation and recreational use projects on TRCA-owned or managed lands, and as a resource management agency and service provider to member municipalities and other public agencies. These roles are in addition to environmental education, stewardship and outreach services. TRCA and its partners strive to help communities understand, look after and enjoy the natural environment and to increase residents' and businesses' awareness of flood and erosion hazards that can threaten people, property and infrastructure.

Purpose of the Update
We understand the Canadian and Ontario governments recognize the need to strengthen efforts to address new and continuing threats to Great Lakes water quality and ecosystem health, including aquatic invasive species, excessive nutrients, harmful pollutants, discharges from vessels, climate change and the loss of habitats and species.

Ecosystem Approach
TRCA supports the proposed update to the COA and appreciates that it is premised on the belief that Great Lakes water quality and ecosystem health cannot be achieved by addressing individual threats in isolation, but rather depends upon the application of an ecosystem approach that addresses individually and cumulatively all sources of stress to the Great Lakes (page 3 of the draft COA). There is a strong alignment with conservation authorities' ecosystem approach and watershed-based work that serves to mitigate for the impacts of urbanization and climate change on the Great Lakes and improves ecosystem health. On a collective basis, conservation authorities and their partners' environmental protection and management of rivers, wetlands and headwaters provide downstream benefits to the Great Lakes, including those for water quality, habitat and recreation.

Participation by Conservation Authorities
In the Province's Great Lakes Strategy and the *Great Lakes Protection Act*, conservation authorities (CAs) are named as essential partners in the implementation of programs and project initiatives to protect and improve the health of the Great Lakes. With CAs as partners, the Province has initiated outreach and guidance on integrated stormwater practices, environmental farm plans, habitat restoration and environmental monitoring. TRCA works in concert with federal, provincial and municipal governments on aquatic and terrestrial shoreline restoration projects, as do many of the CAs on the Great Lakes. Therefore, as local watershed and partnership agencies, CAs are well-positioned to play a key role in many of the actions identified in the COA. This is particularly the case for the Greater Golden Horseshoe CAs with Great Lakes shorelines and In-take Protection Zones, such as TRCA's jurisdiction, where the impacts of urbanization and the compounding effects of climate change are acutely felt.

TRCA and the COA
The draft COA contains many initiatives that align with TRCA's Strategic Plan, business units and current program delivery. The Toronto and Region Remedial Action Plan (RAP) is the largest program currently supported by COA. TRCA administers the RAP for the Toronto Area of Concern (AOC) as part of a 5-year (2015-2020), $2.5 million agreement with Environment and Climate Change Canada and the Ministry of Environment, Conservation and Parks (matching funding). In addition to habitat restoration work, through development and infrastructure planning processes, TRCA staff work with municipalities and proponents to ensure restoration is directed toward strategic areas to address RAP priorities in the Toronto AOC.

Close working relationships with provincial staff have also been key to past COA partnerships. For your reference, we have attached a listing of TRCA programs, partnerships and interests that contribute to achieving the goals of the COA (Appendix 1). While the list may not be exhaustive, it makes evident TRCA programs' significant contribution to meeting federal and provincial objectives for Great Lakes water quality and ecosystem health.

Renewed Focus on Lake Ontario
TRCA recognizes the importance of the many new activities outlined in the draft COA for Lake Ontario and is pleased to see a renewed focus on the Lake given that the previous COA focused mainly on Lake Erie. The renewed focus is timely as it aligns with major economic growth pressures experienced in the Greater Golden Horseshoe. This is a key improvement given that scientific understanding learned, and policy positions developed for Lake Erie (and as well for Lake Simcoe and Georgian Bay) may not be directly transferable to Lake Ontario. Therefore, we appreciate that the new COA and the new draft Lake Action Management Plan (LAMP) for Lake Ontario recognize the key role for Lake Ontario's science community to investigate the lake and make "lake specific" recommendations to COA Executive Committee and the LAMP Committee.

Implementing Mechanisms
Although TRCA supports the proposed actions and goals ("Results") in the COA, we find that many actions lack specifics on implementation. For example, phrases such as "work with", "promote", "build on" are used but the mechanisms for triggering the effect of these actions on the ground (with implications for water quality and ecosystem health) are not referenced. Therefore, the COA could benefit from some indication of the tools each level of government, other agencies and partners might use to implement the important commitments described, which in turn would indicate the lead and supporting ministry or department. If not stipulated within each action or set of actions, this could be stated in a preface or an appendix to the COA to outline legislation, policies and regulations related to the Annex topics, where applicable. For example, under Annex 3, Wastewater and Stormwater component, the *Ontario Water Resources Act* - section 53 Certificates of Approval, could be cited as

an example of an implementing mechanism, supported by technical guidance of a comprehensive update to the provincial Stormwater Management Planning and Design Manual (2003).

Other mechanisms for implementation of commitments made in the COA may be through land use planning policy and infrastructure planning. Including reference to the planning process, environmental assessment process and infrastructure master planning would better emphasize the connection between continued land development and water quality and ecosystem health. Annex 5, Areas of Concern, makes this connection in its preamble, but this should be a more prevalent theme throughout the COA. For example, there could be an upfront commitment in the COA for the Province to promote the environmental sections of the Provincial Policy Statement to recognize the link between, not only protection of coastal natural heritage, but the importance of natural heritage system planning throughout watersheds for downstream benefits to the Great Lakes.

This approach could also be taken for federal and provincial support in the COA of the Source Protection Plans under the *Clean Water Act*. It could be emphasized that Canada and Ontario support municipal implementation of the Source Protection Plans for the contribution it makes to lake health, particularly for those municipalities with Intake Protection Zones in the Great Lakes.

The exercise of listing key mechanisms could also serve as a gap analysis of sorts, given that it may reveal where actions from the COA do not have an existing pathway for implementation. A partner survey may also be helpful to determine if other agencies are already working in the same areas and are able to pool resources to avoid duplication and enhance efficiencies for the actions in the COA.

Implementing Funding

Further to the above, resources and funding are crucial for supporting agencies that have the demonstrated ability to leverage partnerships and other types of collaboration to help achieve the actions in the COA. Indeed, TRCA's and other levels of governments' ability to deliver on the partnerships referenced in the new COA will depend upon the availability of resources. Past TRCA program contributions were undertaken in collaboration, and with the financial support, of municipal, provincial, federal, and non-government partners.

For partnerships to succeed, it may be beneficial for staff from all levels of government to attend meetings and information exchanges. While there have been limitations on travel imposed by governments, there should be consideration going forward to consider certain exceptions to allow travel within the Great Lakes area. This would be especially important for projects that require inter-agency and inter-governmental cooperation among subject matter experts.

Recent shifts in support at the provincial level to conservation authorities and municipal partners may have an impact on our abilities to contribute to the partnerships identified in the COA. It is important that the Province recognize the commitments made when it is developing its open for business policy and economic and growth management strategies.

TRCA Comments and Recommendations

TRCA staff with technical expertise in each Annex have reviewed the draft COA and have provided detailed comments and editorial suggestions in the attached table (Appendix 2). In consideration of these and of the general comments above, TRCA makes the following recommendations for the Ministry's consideration:

- COA employs a holistic lens and reflects a watershed approach to supporting lake health; this approach should be replicated in the update.

- Introduce a section or an appendix on implementation mechanisms, targeted timelines and funding;

- That the connection between land development and lake water quality and ecosystem health be a more prevalent theme throughout the COA;

- Maintain the ability of the current COA to encourage partnerships between agencies and the leveraging of funds for greater impact;

- Ensure a continuum of current and long-term program funding for TRCA and agencies/ministries with whom we collaborate to deliver on COA actions;

- Make new funding available in support of land-based actions such as watershed planning, stewardship and restoration (perhaps under the Western Lake Ontario Land to Lake Initiative).

- Maintain an ongoing commitment to the de-listing of Areas of Concern and to monitoring, community engagement, and maintenance following de-listing.

We trust that the above and the two detailed appendices are clear and of assistance. Thank you once again for the opportunity to provide input on the proposed new Great Lakes Canada-Ontario Agreement. Should you have any questions or wish to discuss any of the above, please contact the undersigned at 416.667.6290 or at john.mackenzie@trca.ca.

Sincerely,

John MacKenzie, M.Sc.(Pl), MCIP, RPP
Chief Executive Officer

CC (by e-mail only):

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Appendix 1

TRCA Programs Contributing to the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health

ANNEX 1: NUTRIENTS
PURPOSE: To address the issue of excess nutrients and reduce harmful and nuisance algal blooms.
SUMMARY OF ANNEX • The reasons for the occurrence of algal blooms are now more complex than in past decades. The introduction of invasive species such as zebra and quagga mussels and round gobies, changes in agricultural production systems, increased urbanization, and climate change are all contributing factors. • The Great Lakes are currently experiencing nutrient levels that impair human use and result in harmful effects on ecosystem functions. This Annex recognizes that the continued environmental, social and economic health of the Great Lakes basin requires the effective and efficient management of nutrients from human activities. • It addresses the need for improved understanding of nutrient issues while continuing to develop and promote actions to improve nutrient management and to reduce inputs from wastewater and stormwater.
TRCA INVOLVEMENT • TRCA is participating in tributary loading studies that are contributing to improved knowledge and understanding of phosphorus sources, the forms of phosphorus being discharge to Lake Ontario and their seasonal characteristics. • TRCA is monitoring nearshore and coastal marsh water quality in Ajax –Pickering nearshore area with support from York and Durham Regions and MECP and ECCC. • TRCA collaborated in water quality studies looking at eutrophication issues in the Toronto Harbour. • TRCA helping City of Toronto with wet weather flow study (tributary & watershed monitoring). • TRCA helping MECP and ECCC with monitoring of nuisance algae and lakebed biota in Lake Ontario. • TRCA next generation of watershed studies- e.g. the Carruthers will promote local actions to improve nutrient management in both urban and rural areas. • STEP program offers significant advancements in LID and stormwater technology. • TRCA has Rural Clean water, restoration and stewardship programs that address sources of nutrients. • Regional Watershed Monitoring Network & Watershed Report Cards & RWMN Program Reporting document current nutrient conditions and trends within the TRCA. • TRCA provides plan input and review services related to development in regulated areas, including dogs off leash parks. Dog waste can be a contributor to nutrient loading in our watersheds. Particularly in the City of Toronto, where these facilities are often located within valleylands. TRCA staff work with municipal staff to ensure appropriate site drainage and servicing schedules, including flushing infrastructure, to minimize nutrient impacts on the watercourses.
TRCA INTERESTS • More work needs to be done on Lake Ontario. • There is a lot of scientific work needed to establish if additional nutrient reduction targets are needed for Lake Ontario • These studies need to consider ecology of the lake and fisheries it supports. • TRCA is interested in being part of this target setting effort when the focus turns to Lake Ontario. • TRCA proposing Citizen science algae watch to document current conditions and hot spots.

- TRCA's Next Generation Watershed Plans for its watersheds will focus on establishing better land to lake interactions and provide guidance on policy recommendations, stakeholder and community actions. We need to work closely with the Provincial and Federal government to make sure COA Goals are addressed.

ANNEX 2: HARMFUL POLLUTANTS

PURPOSE: To guide cooperative and coordinated actions to reduce or eliminate harmful pollutants into the Great Lakes Basin.

SUMMARY OF ANNEX:

- Under the 1994 Canada-Ontario Agreement, specific harmful pollutants were targeted for action:
  - **Tier I Substances** (chemicals targeted for virtual elimination or zero discharge from sources within the Great Lakes as well as for global efforts to eliminate out-of-basin sources)
  - **Tier II Substances** (chemicals that had the potential for widespread impacts in the Great Lakes or were already causing local adverse impacts).
- Canada and Ontario are actively engaged in programs and initiatives designed to assess and manage the risks posed by certain chemicals to human health and the environment.
  - Federal – Chemical Management Plan, National Pollutant Release Inventory, Stockholm Convention on Persistent Organic Pollutants, Convention on Long-Range Transboundary Air Pollution.
  - Ontario – *Toxics Reduction Act, 2009*, Toxics Reduction Strategy, local air quality regulations

COMMITMENTS:

1) Complete a status report of chemicals identified as Tier I and Tier II substances;
2) Establish a Canada-Ontario Chemicals Management Committee;
3) Establish a process to identify Chemicals of Concern in the Great Lakes;
4) To cooperate on specific research, monitoring, surveillance, and risk management actions for these Chemicals of Concern; and
5) Take actions to reduce risks and impacts from environmental emergencies and spills, and from stormwater and wastewater contaminant loadings.

TRCA INVOLVEMENT:

- TRCA supports the work of municipalities and other stakeholders to increase diversion of materials containing Tier I and Tier II substances from the waste stream (i.e., Partners in Project Green);
- Continues education and outreach initiatives and activities to reduce releases of legacy substances through the promotion of environmentally sound practices and pollution prevention measures (i.e., Children's Water Festival participation).
- Supports and enhances stewardship programs to improve waste diversion, take-back and proper disposal of harmful pollutants (i.e., General education and outreach, policy implementation under the CTC Source Protection Plan);
- Works with academia, industry, municipalities and stakeholders to promote the development of green technologies and activities supporting green chemistry (i.e., Sustainable Technologies Evaluation Program);
- Continues to cooperate on activities to support the prevention of, preparedness for, response to and recovery from environmental emergencies and spills in the Great Lakes basin (i.e., Collaboration on implementation of CTC Source Protection Plan Policies related to Lake Ontario with the City of Toronto, Durham Region, Peel Region, and the Ministry of the Environment, Conservation and Parks.

- Monitors the performance and effectiveness of stormwater and green infrastructure projects and communicate results (i.e., Sustainable Technologies Evaluation Program, Sustainable Neighbourhoods); and
- CTC Source Protection Plan requires the Province to review, amend or establish Environmental Compliance Approvals to ensure appropriate terms and conditions are in place to prevent a sewage treatment plant by-pass discharge to surface water or sewage treatment plant effluent as a result of a disinfection interruption at a Waste Water Treatment Plant (WWTP Diffuser).
- TRCA provides plan input and review services related to development in regulated areas, including roads, parking lots and salt storage facilities. Salt is a major contributor to watercourse toxicity in our watersheds. TRCA staff work with municipal staff to ensure appropriate site/road drainage to minimize salt impacts on the watercourses.
- TRCA will continue to work with municipal and provincial agencies to develop strategies and policies to minimize salt runoff to watercourses and wetlands, including appropriate draining and buffers.

ANNEX 3: DISCHARGES FROM VESSELS

PURPOSE: To ensure that discharges from vessels do not adversely impact the Great Lakes.

SUMMARY OF ANNEX:

- The federal Parliament has exclusive jurisdiction over navigation and shipping. Existing laws, regulations, regulatory programs, inspection protocols and enforcement regimes are designed to address threats to the Great Lakes from vessel discharges.
- The Canada-United States Great Lakes Water Quality Agreement includes commitments to protect the Great Lakes from the discharge of ballast water, oil, hazardous polluting substances, garbage, wastewater, sewage, AIS, pathogens, and antifouling systems.
- The most recent binational report on Great Lakes water quality (April 2012) indicated that, with the exception of AIS found in ballast water, the impact on the Great Lakes from these (potential) discharges is low.

COMMITMENTS:

6) Actions to continue implementing existing ballast water and discharge requirements;
7) To advance new treatment technologies and control measures for AIS, and
8) To ensure that canals and waterways are considered in measures to prevent and control AIS.

TRCA INVOLVEMENT:

- The Lake Ontario Collaborative Group (Toronto, Durham, Peel, MECP) is considering discharges from vessels as an alternative spill scenario (and impact on municipal drinking water intakes drawing water from Lake Ontario) to investigate as an update to the CTC Source Protection Plan.

ANNEX 4: AREAS OF CONCERN

PURPOSE: To restore water quality and ecosystem health in Areas of Concern (AOCs) and includes the goals of completing priority actions for delisting in five “goal 1” AOCs.

- Trca Involvement:
- TRCA administers the Toronto and Region Remedial Action Plan for the Toronto Area of Concern (AOC).
- Toronto is one of the 43 original AOCs identified in the mid-80s which were more impaired than other sites around the Great Lakes. Each AOC a Remedial Action Plan to address specific impairments (called Beneficial Use Impairments or BUIs).

- Ontario has de-listed three AOCs, has 3 “Goal 1” or high priority AOCs outlined in COA, and the remaining are “Goal 2” AOCs. Toronto is currently a “Goal 2” AOC.
- TRCA has a 5 year (2015-2020), $2.5 million agreement with ECCC and MECP (matching funding) for administration of the Toronto RAP.
- Toronto has re-designated 4 BUIs – fish deformities, degradation of benthos, restrictions on dredging, bird deformities. A re-designation report for the aesthetic BUI is nearly complete and will be submitted to ECCC and MECP by the end of March.
- Actions taken to improve the Toronto AOC have resulted in:
- More swimmable beaches - 8 of 11 beaches are now Blue Flag certified.
- Improved water quality – Phosphorous levels along the waterfront now meet RAP targets.
- Decrease in contaminants in fish so that there are no longer restrictions on consumption for most fish.
- Improved aesthetic conditions of watercourses and the waterfront.
- Protection and creation of fish and wildlife habitats along the Toronto waterfront and Watersheds (e.g. Tommy Thompson Park wetlands, Mimico Waterfront Park, Spadina Quay Claireville Conservation Area and Rouge National Urban Park.)
- The Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS) was developed by TRCA in partnership with MNR and DFO, and in consultation with the City of Toronto and Waterfront Toronto to guide Toronto AOC restoration initiatives and address the fish and wildlife habitat and populations Beneficial Use Impairments (BUIs) under the RAP. The Strategy offers an integrated resource planning approach to achieve a net gain in aquatic habitat on the Toronto waterfront and provides a framework for restoration of these habitats.
- In 2007, Aquatic Habitat Toronto (TWAHRS Implementation Team) was established to provide the opportunity for waterfront project proponents to work with the relevant resource management agencies in a more time and cost-effective manner, and to apply science to support sustainable waterfront development. The Implementation Team includes representatives from TRCA, MNR, DFO, City of Toronto, and Waterfront Toronto. The main objective of the Implementation Team is to ensure that the approval of waterfront projects facilitate strategic improvements to aquatic habitat by providing information on waterfront environmental conditions, provide design advice to realize aquatic habitat improvements, and help coordinate the regulatory review and approval of the project.
- TRCA provides plan input and review services related to infrastructure and land development in regulated areas. TRCA staff work with municipalities and developers to avoid, minimize, restore or compensate for impacts related to the natural heritage system in our jurisdiction.

TRCA INTERESTS:

- Continue to fund AOC programs and the associated RAPs. We are very close to de-listing (2025) and it is worthwhile to keep funding the RAPs to address the 6 remaining impairments (2 of which are in the process of being re-assessed).
- Toronto is currently a “Goal 2” AOC, but given the improvements we’ve made and our work plans for the next 5 years, we could recommend moving up to a “Goal 1” AOC.
- Through the infrastructure and land use development processes, TRCA planning staff work with TRCA Restoration and Infrastructure staff to ensure restoration and compensation requirements are directed toward strategic areas to address RAP AOC areas of interest.

ANNEX 5: LAKEWIDE MANAGEMENT

PURPOSE: To advance restoration, protection and conservation of the Great Lakes through collaboration among jurisdictions domestically and binationally and with the Great Lakes community on a lake-by-lake basis.

SUMMARY OF ANNEX:

Lakewide Action and Management Plans (LAMPs) provide a mechanism to assess and report on the state of the ecosystem, identify science and management priorities, conduct studies and outreach activities, and identify the need for and facilitate further action. It also contains commitments to develop Lake Ecosystem Objectives, a new nearshore framework, and consult and cooperate with the Great Lakes community to assess the status of each Great Lake and address environmental stressors on a lakewide scale.

The nearshore areas of the Great Lakes have great biological diversity, provide numerous benefits and are the focal point for human interaction with the Lakes but are also subject to tremendous human impact. The Great Lakes are Ontario's primary source of drinking water.

COMMITMENTS:

To further assess and address threats to sources of drinking water in connection with efforts under Ontario's ***Clean Water Act, 2006*** as well as through existing federal policies and programs.

TRCA INVOLVEMENT:

- TRCA participates on both Lake Ontario LAMP Management Committee and Working Group.
- LAMP help to address program needs in Durham Region (who's watershed and waterfront are outside of the Toronto AOC).
- Through LAMP Annex, lakewide issues such as reappearance of Cladophora can be best addressed.
- TRCA staff contribute to preparation of annual reports and participated in drafting new 5 Year LAMP Management Plan document
- TRCA contributed to developed of Lake Ecosystem Objectives for Lake Ontario
- Participated in development of nearshore framework and will help support its application in Lake Ontario.
- Helped develop Western Lake Ontario Land to Lake initiatives that connects land activities and management actions by CA and municipalities with the health of Lake Ontario
- One of several policies in the Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Plan (SPP) is to encourage collaboration on protecting our shared drinking water sources; and raise the profile of the importance of Lake Ontario as a source of drinking water for Ontario residents. TRCA is a partner in engaging with municipal, provincial, national, and international stakeholders on this outreach.
- Toronto and Region Source Protection Authority in collaboration with the CTC Source Protection Committee has delineated vulnerable areas around the drinking water intakes on Lake Ontario which fall within the conservation authority's jurisdiction.
- TRCA is a participant on the Lake Ontario Collaborative Group, a partnership between the Ministry of the Environment, Conservation and Parks, Environment and Climate Change Canada, the Region of Peel, City of Toronto, and Durham Region, which focuses on the implementation of policies from the CTC SPP intended to protect Lake Ontario as a source of drinking water. Some of the activities that this group is engaged in includes:
    - Sharing information about Lake Ontario circulation and water quality monitoring; and
    - Sharing environmental monitoring data and using modelling to inform research on topics such as, but not limited to:

a) the effectiveness of risk management measures and spill contingency measures;
b) cumulative impacts of point and non-point sources of contaminants on nearshore water quality; and
c) the effectiveness of Source Protection Plan policies in reducing the risk related to pathogens (not limited to E. coli), including identifying the pathogens and the respective densities at different times; assessing the associated risk at intakes due to pathogens in non-disinfected wastewater and other known specific sources of these pathogens; and undertaking quantitative microbial risk assessments, using a structured research and development design (such as based on the protocols established by the US EPA), to assess the threat and adequacy of existing treatment on a plant-by-plant basis.

- To protect drinking water sources on Lake Ontario from potential spills along highways, shipping lanes and railways, the CTC SPP requires that contingency plans incorporate risk reduction and mitigation measures, where appropriate.
- A water budget has been completed across TRCA's entire jurisdiction to comply with the requirements of the Clean Water Act, 2006. This information will augment the understanding of the water budget for the entire Great Lakes basin.

TRCA INTERESTS:

- New resources are needed to support TRCA in delivery of programs and services as a LAMP partner. Contributions to date come largely through municipal funding partnerships.

ANNEX 6: INVASIVE SPECIES

PURPOSE: To ensure cooperative and coordinated efforts to reduce the threat of aquatic invasive species to Great Lakes water quality and ecosystem health. It includes a commitment to understand and respond to the potential for new or expanded ranges of Aquatic Invasive Species in the Great Lakes.

TRCA INVOLVEMENT

- Under contract with DFO TRCA implements the Toronto Area portion of the Asian Carp Surveillance Program. It's a strategic monitoring program which targets Asian Carps along the Toronto Waterfront. The scope of the program is two-fold, targeting areas (a) that are habitats that are suspected to have high potential for sustaining Asian Carps, and (b) where Asian Carps have been reported during past monitoring efforts. With these data, TRCA, its partners and provincial and federal agencies will be better equipped to reduce the threat of the Lake Ontario ecosystem destruction by the highly invasive Asian Carps as well as implement an adaptive management approach of aquatic habitats, particularly coastal wetlands.
- Under contract with DFO TRCA implements the Toronto Area trapping portion of the Sea Lamprey control program. This project involves operating Sea Lamprey traps in the Humber River and Duffins Creek during the Lamprey seasonal migration upstream (April - June). Trap operation involves removal and counts of Lamprey, performing mark and recapture on selected individuals, and identification of by-catch fish.
- TRCA provides plan input and review services related to development in regulated areas. Wherever possible, TRCA supports municipalities and other agencies in the removal of invasive species and incorporates the benefits of such removals in negotiations for natural heritage restoration or compensation.

ANNEX 7: HABITAT & SPECIES

PURPOSE: To continue efforts to restore, protect and conserve the resilience of Great Lakes native species and their habitats.

TRCA INVOLVEMENT:

- The RAP and GLSF (Great Lake Sustainability Fund) have supported a large number of strategic habitat restoration project including: Coastal Wetland Creation (e.g. Cell 2, Cell 1, etc), Watershed Signature Wetlands (McMichael Gallery, Toronto Zoo), Habitat Regeneration (Professors Lake, Humber Bay Park, Toronto Islands). These projects have levered substantial financial project support including an investment for TTP Cell 2 from Coca Cola Canada in a Private Public partnership valued over 3 million dollars.
- TRCA has developed and delivered over 5.7 million dollars of strategic habitat restoration projects since 2014.
- TWAHRS Fish Habitat Assessment -Assess restoration and rehabilitation efforts to aquatic habitat along the Toronto Waterfront. Specifically, this includes evaluating the effectiveness of restoration techniques from the Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS) compendium of restoration techniques. This will be accomplished by calculating rehabilitation area by habitat type (embayment/wetland, open coast and rivermouth), restoration sites. Aquatic Habitat Toronto (AHT), Fisheries and Oceans Canada (DFO), Environment Canada and Climate Change (ECCC), Ministry of Natural Resources and Forestry (MNRF), City of Toronto, Ports Toronto and Waterfront Toronto.
- Rap and GLSF has supported the development and delivery of a number of strategic habitat planning initiatives including: the **Integrated Restoration Plan (IRP)** for the TRCA watersheds. This strategic habitat planning has defined prioritized restoration activities including forest cover, wetland, and riparian habitats on a watershed catchment basis. **Toronto Habitat Banking** Development and delivery of a DFO ready habitat banking scheme to improve regulatory approval process for projects. "**Fishing in Your Backyard – An Urban Recreational Fisheries Strategy for the Lake Ontario Northwest Waterfront**" which fostered a $2.5 million investment from the City of Toronto to improve waterfront fishing access. These Strategic watershed planning initiatives supports annex 4, 9 and 10
- RAP and GLSF funding supported the development of the TRCA Terrestrial Natural Heritage System Strategy – a strategy that identified the amount and distribution of habitat required to protect and restore biodiversity within the TRCA jurisdiction. The science and approach to natural heritage planning advanced through the development of the strategy has helped to inform a number of TRCA and municipal ecosystem management and land use planning initiates and has significantly contributed to improved restoration, protection and management of the natural system. This also helps support Annex 4 and 10
- Urban developed has been the major driver of habitat and species loss within the TRCA jurisdiction. RAP and GLFS funding have supported the development of a number of technical guidance tools to inform land use planning, helping to ensure natural features and systems are protected through the land use planning process. The suite of wetland water balance guideline documents as well as the guideline for determining ecosystem compensation have both been developed with support from RAP and GLFS funding. This also helps support Annex 4 and 10.
- Ontario Climate Consortium Secretariat supports Annex 7 by convening stakeholders to discuss Resilience Thinking and climate change vulnerability best practices associated with coastal wetlands.
- Through the TRCA plan input and review process, TRCA supports conservation and restoration of native species throughout our watershed for both infrastructure and land use development projects.

TRCA INTERESTS:

- Advance progress on priority actions for the loss of fish and wildlife habitat and the degradation of fish and wildlife populations Beneficial Use Impairments. This project will evaluate the effectiveness of restoration efforts in the Toronto AOC by TRCA that have been implemented to support priority projects from the TWAHRS.

ANNEX 8: GROUNDWATER QUALITY
PURPOSE: To gain a better understanding of how groundwater influences Great Lakes water quality and ecosystem health, and to identify priority areas for future action.
SUMMARY OF ANNEX: • Groundwater may represent as much as 50 percent of the water entering the Great Lakes, either directly (via groundwater discharge along the coasts) or indirectly (via discharge into rivers and streams that then discharge into the lakes). • Groundwater-based contaminants and excessive nutrients can impair the quality of the waters of the Great Lakes, particularly the nearshore region, with potential effects on aquatic species and recreational waters. • Groundwater quality in the Great Lakes is linked to the successful delivery of key commitments in other Annexes, including Areas of Concern, Lakewide Management, Harmful Pollutants, Nutrients, and Habitat and Species.
COMMITMENTS: 1) To develop a binational state of Groundwater Science Report; 2) Create an interagency groundwater issues team; 3) Identify priorities for future research, and 4) Identify priority areas and sites for monitoring, management or remediation actions to address groundwater impacts and stressors.
TRCA INVOLVEMENT • The Groundwater Science Report was released for public review in December 2015 and Conservation Ontario provided a letter of support. • TRCA has a representative on the Annex Sub-Committee. This committee continues to work on development of a groundwater indicator (e.g. nitrates - rural, chlorides - urban) for the Annex 10 science indicators project. • As a member of the Oak Ridges Moraine Groundwater Program, TRCA has supported the augmentation of groundwater knowledge. • Municipally funded YPDT Groundwater program is supported by CLOCA and housed at TRCA. This program has made significant progress in harmonizing data and models across GTA and can be a valuable resource for this Annex. • TRCA provides plan input and review services related to development in regulated areas. In areas where groundwater dewatering may impact surficial features such as wetlands and baseflow in watercourses, and hence their habitats, TRCA requires comprehensive mitigation and monitoring strategies be developed and employed.

ANNEX 9: CLIMATE CHANGE IMPACTS
PURPOSE: To build an understanding of climate change impacts and advance integration of knowledge into Great Lakes adaptation and management strategies.
TRCA INVOLVEMENT: • TRCA serves as the Secretariat for the Ontario Climate Consortium (OCC). OCC brings together researchers from some of Ontario's leading academic institutions. • TRCA /OCC also collaborates with GLISA – Great Lakes Integrated Science Assessment Program based our of University of Michigan. • OCC offers support to Annex 9, Climate change Impacts, in identifying climate science knowledge gaps and convening experts around climate modeling and information at the Great Lakes Basin scale • OCCC sits on the Annex 9 Extended Subcommittee (Climate Change Impacts).

- OCCC provides support to the Development of Great Lakes Annual Climate Summary (jointly produced by Annex 9 - Climate Change Impacts and Annex 10 - Science)
- OCCC also provides climate change related support to Annex 7, Habitat and Species, by convening stakeholders to discuss Resilience Thinking and climate change vulnerability assessment best practices associated with coastal wetlands.
- The 2017 update to the Ontario *Environmental Assessment Act* requires proponents to address impacts to climate change in all assessments. TRCA works closely with proponents to ensure such impacts are addressed, as related to flood and erosion control and natural habitat resilience.

TRCA INTERESTS:

- Continue to support and invest in climate science and research TRCA/ OCC.
- Contribution to the scientific knowledge and understanding of Lake Ontario impacts and strategies through local and regional science and actions.
- TRCA is hosting a workshop with environmental assessment practitioners to address climate change impacts in infrastructure development, thereby ensuring consistency and relevance of approaches as it relates to TRCA's mandate and interests. TRCA Infrastructure Planning and Permits will partner with OCC in this regard.

ANNEX 10: SCIENCE

PURPOSE: To enhance the effectiveness and efficiency of Great Lakes science activities through planning, cooperation, coordination and communication.

SUMMARY OF TRCA INVOLVEMENT:

- TRCA's Environmental monitoring activities along the Toronto and region waterfront are an important component of TRCAs Lake Ontario shoreline monitoring program. Understanding environmental conditions of the shoreline provides significant information and input into the restoration projects planning and implementation. Scientific information is used for effective decision making and for reporting on the conditions and progress in achieving environmental objectives and defining appropriate and necessary actions. Monitoring focuses on documenting local and regional conditions and bio-physical attributes of the shoreline. Monitoring activities include fish community surveys, wetland monitoring, bioaccumulation monitoring, sediment surveys, and aquatic habitat surveys.
- TRCA in cooperation with Aquatic Habitat Toronto (AHT), Fisheries and Oceans Canada (DFO) Science Group, and Carlton University, are continuing a study to monitor the abundance and health of the fish community inhabiting the Toronto Harbour. The study utilizes acoustic tags and receivers to allow researchers a more complete view of the individual fish activity throughout the entire year. Tagged fish are tracked throughout the inner and outer harbours of Toronto, including areas that underwent habitat restoration. Moreover, tagged fish movements are tracked by receiver networks installed outside of the Toronto area (e.g., Hamilton Harbour), providing a more complete picture of fish movement and habitat utilization along the north-western coast of Lake Ontario.
- Near Shore Community Index Netting (NSCIN) assessed fish community status for Toronto Harbour— fish community assessments of the Toronto Harbour were focused in the areas of Tommy Thompson Park and the Toronto Islands. Evidence collected toward maintenance or improvement in IBI scores and aquatic ecosystem health generally.
- The RAP and GLSF recognize the importance of assessing progress towards ecosystem goals and learning from past experience. As such important monitoring and evaluation studies have been supported such as Evaluating the Status of Wildlife Habitat Loss and Degraded Wildlife Populations. This study developed a number of key recommendations for additional actions to further protect wildlife and habitat within the Toronto region. This also helps support Annex 4 and 7.

- The Great Lakes Protection Initiative is currently supporting the development of wetland key performance indicators, helping to develop a framework for monitoring and reporting on the success of wetland restoration projects. This also helps support Annex 4 and 7.

TRCA INTERESTS:

- Provides a critical understanding of ecological conditions associated with our restoration project sites.
- Contributes directly to TRCA's Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS)
- Contributes Directly to Toronto's area of concern (RAP objectives)
- Benefits the City's Waterfront Revitalization Plans, Contributing to Waterfront Toronto's activities in waterfront development and waterfront park planning.
- Toronto Water Pollution Objectives: Water Quality - meet guidelines for water and sediment quality
- Water Quantity - reduce erosion impacts on habitats and property
- Natural Areas and Wildlife - protect, enhance and restore natural features and functions
- Natural Areas and Wildlife - achieve healthy aquatic communities
- Natural Areas and Wildlife - reduce fish contamination.
- Contributes to scientific knowledge and understanding of environmental health with jurisdictional boundaries and connections within a regional context.

ANNEX 11: PROMOTING INNOVATION

PURPOSE: To create long-term, environmentally sustainable economic opportunities that improve water quality and ecological health and contribute to the well-being of the Great Lakes community. It includes working with companies to commercialize their new technologies in the water sector/market.

TRCA INVOLVEMENT:

- The annex is aligned with the TRCA strategic plan strategy 1 - green the Toronto region's economy.
- Facilitated the market adoption of effective new green building practices and technologies throughout the jurisdiction. For example, in partnership with industry, TRCA piloted new construction technologies at The Living City Campus at Kortright Centre for Conservation; encouraged the adoption of more sustainable practices and new building technologies in new developments (e.g., Toronto Waterfront), and designed a new head office that demonstrates leadership in green office building design and construction.
- Helped create and strengthen partnerships between public, private, institutions and non-profit sectors to support the adoption of green infrastructure policy and investments by senior levels of government across the jurisdiction through the Green Infrastructure Ontario Coalition, Eco Health Ontario and the Ontario Climate Consortium.
- Partners in Project Green Eco-Zone program is a public-private partnership that works to enhance adoption of new technologies and turn sustainable practices into economic gains for businesses
- Sustainable Technologies Evaluation Program (STEP) Water, a partnership between TRCA, CVC, and Lake Simcoe Region CA, has received funding through GLSF, GLPI and the RAP. STEP focuses on technologies within the following key focus areas:
    - Urban runoff and low impact development;
    - Erosion and Sediment Control;
    - Healthy Soils;
    - Salt Management; and
    - Protection of Natural Features and Systems.

TRCA INTERESTS:

- Continued support of innovation and particularly in the creation of environmentally sustainable economic opportunities.

ANNEX 12: COMMUNITY ENGAGEMENT

PURPOSE: To empower communities by providing opportunities for individuals and groups to enjoy and help take care of the Great Lakes.

TRCA INVOLVEMENT:

TRCA serves an expanding population of over 3.5 million citizens across six 18 upper, single and lower tier municipalities, nine watersheds and Lake Ontario. Community Engagement activities are in large part undertaken in support of TRCA's Strategic Plan, watershed and waterfront plans, municipal programs and multi-partner strategies such as the Remedial Action Plan (RAP) and Canada-Ontario Agreement (COA) on Great Lakes Water Quality and Ecosystem Health.

- Engagement activities are also focused around specific watershed land uses and stakeholders such as neighborhoods and business.
- TRCA programs build capacity and community environmental leadership to undertake independent local actions towards the improvement and protection of watershed and great lakes health
- TRCA engagement and education programs promote positive behavioral change that fosters individual and social health and well-being.
- Through a diverse range of engagement programs and activities (listed below) TRCA provides year-round opportunities for communities and stakeholders to contribute to the protection and better understanding of Great Lakes and watersheds:
  1) Community-Based Engagement Programs – watershed and shoreline clean-up, restoration, citizen-science, learn to fish, sustainable neighbourhoods
  2) Education and Training Programs – educational workshops, school programs and day camps and educational resources and new Canadian outreach.
  3) Community/Watershed Engagement Events
  4) Public Stakeholder Consultations
  5) TRCA Parks and Campgrounds Programs
  6) Watershed and Stewardship Committees such as Regional Watershed Alliance and Youth Council
- TRCA works with municipal, provincial and federal agencies to provide development and infrastructure review and comment as related to our mandate and interests. Through this work, TRCA planning staff advocate for community and public realm benefits be included in the projects wherever practicable.

TRCA INTERESTS:

- TRCA will continue to proactively seek involvement with and outreach to a broad cross-section of the Toronto region population to support the goals and objectives of COA and RAP (beyond delisting of AOC).

ANNEX 13 & 14: METIS & FIRST NATION ENGAGEMENT

PURPOSE: To highlight the interests and important role of Metis and First Nations as participants in the restoration, protection and conservation of the Great Lakes. It includes collaborating with Metis and First Nations in the delivery of the Agreement and opportunities to collaborate with Metis and First Nations on traditional knowledge.

TRCA INVOLVEMENT:

- TRCA supports the goals of collaborating with First Nations and Métis and enhancing consideration of traditional knowledge:

• TRCA endeavors to engage first Nations and Metis Nations through our various programs. Mandatory engagement through environmental assessment process is a provincially delegated responsibility. TRCA's mission specific engagement programs have been successful in establishing excellent relationships with both Metis Nations and First Nation communities. Some of these programs include, watershed events, promotion of human heritage of TRCA's watersheds and rivers, healing gardens, archeology etc..
TRCA INTERESTS: • We encourage senior governments to lead the charge on Metis and First Nations engagement. • Regional forums, supported by capacity-building funding, would enable conservation authorities to build local relationships with First Nations and Métis to support mutual watershed-based goals. • TRCA encourages additional efforts to integrate traditional knowledge and western science into decision-making on Great Lakes issues.

Appendix 2

TRCA Detailed Comments (August 2019) on the Draft Canada-Ontario Great Lakes Water Quality and Ecosystem Health, (ERO#019-0198)

Definitions	(g) "Great Lakes community" – TRCA is pleased to see conservation authorities are a part of this community along with municipalities and other stakeholders. (j) "Ontario's Environment Plan" is referred to as "the 2018 draft document"; We understand the Plan was final as of November 2018 and can be referred to as such.
Administration of the Agreement – COA Executive Committee	(f) As a member of the "Great Lakes community", TRCA would be pleased to meet with the COA Executive Committee and other members at roundtable discussions as it relates to our jurisdiction.
Annex 1: Nutrients	The call for nutrient reductions is a critical component of the Agreement. TRCA is an active participant in this research effort. Should future reductions be required, TRCA supports "ecosystem considerations" in any nutrient reduction target setting exercise; given the significance of the recreational fishery in Lake Ontario and the damaging impact of invasive mussels that changed the nutrient pathways in the Lake. TRCA has made significant investments in restoring fish communities and aquatic habitat in Lake Ontario, which requires a balance in nutrient allocation to ensure continued productivity of this fishery. TRCA has the knowledge to help target areas for these nutrient reductions and have advanced programming to implement urban and rural nutrient management strategies and best management practices across our watersheds. TRCA agrees there are a number of complementary initiatives that contribute to reducing nutrient loading in the Great Lakes, including research and monitoring, green infrastructure promotion and generally, improvements in urban and rural land use and land management practices. TRCA suggests that the agencies' work planning include working with partners, such as municipalities and conservation authorities, to develop watershed plans for key priority watersheds as a means of identifying science-based local level actions required to reduce the risk of excess nutrients, and wastewater and stormwater pollution. As provincial policy requires municipalities to undertake watershed plans to inform development and infrastructure planning decisions

	(including stormwater and wastewater master plans), this is a natural opportunity for collaboration. TRCA's experience from administering our Rural Clean Water Program, undertaken jointly with neighbouring conservation authorities and municipalities, can inform actions to achieve Result 4, which discusses best management practices for reduced risk of nutrient loss from agricultural production. Dog waste is another contributor to nutrient loading in our watersheds and eventually to Lake Ontario. This is particularly true for older established areas like Toronto, where dogs off leash parks are often located within valleylands. Best management practices include vegetated buffers, site drainage and servicing schedules, including flushing infrastructure, to minimize nutrient impacts on watercourses that ultimately make their way to the Lake. Under Result 5, (l) and (m) both of these points mention "decision-making" but are not specific as to under which legislation, policies or regulations decisions would be pursuant.
Annex 2: Harmful Pollutants	Please consider the following revisions: to (b) under Result 4 (Canada and Ontario will): "Complete chronic toxicity testing studies for Polyaromatic Hydrocarbons (PAHs) to ~~develop~~ **create** a body of science sufficient to develop create appropriate Environmental Quality Guidelines." to (a) under Result 5 (Canada and Ontario will): "Support capture and clean up projects ~~for~~ **to remove** plastic pollution from our waterways and land;" Consider revision to (b) under Result 5 (Canada and Ontario will): "Working through the Canadian Council of Ministers of the Environment, ~~support the development of~~ **create** an action plan to implement the Canada-wide Strategy on Zero Plastic Waste" to (g)(ii) under Result 5 (Canada will): "Develop national performance ~~requirements~~ **indicators** and standards ~~including~~ for recycled content, compostability, reparability, and remanufacturing/refurbishment;" to (l) under Result 5 (Ontario will): "Consider **integrating the management of** plastic pollution in**to** wastewater and stormwater policies." to description of Result 6:

	Maintain an accurate scientifically derived inventory of Chemicals of Concern ~~When scientific evidence identifies a need, new Chemicals of Concern are identified and designated, and existing Chemicals of Concern are periodically reviewed for removal.~~ to third paragraph under description of Annex: "Improving wastewater and stormwater management requires significant investments, long-term planning, and clear standards and policies. ~~Many~~ **Multiple** partners play a role **in the successful management of wastewater and stormwater** including federal, provincial, and municipal governments."
Annex 3: Wastewater and Stormwater	There are several actions listed in Annex 3 that conservation authorities can assist with as we have knowledge, expertise, research partnerships, and monitoring programs aligned with the intent the Annex's Results (e.g., water quality and stream discharge monitoring, exploring the water quality benefits of natural features, assessing impacts of salt us on aquatic ecosystems, etc.). Opportunities for further collaboration and partnership exist through watershed planning that gets undertaken jointly by municipalities and municipalities through the land use planning process as mentioned above under Annex 1, Nutrients. In the past TRCA has received special funding through Grant Agreements with both ECCC and MECP – to name a few recent examples: Western Lake Ontario – Land to Lake, Western Durham water quality monitoring program, Frisco Road Stormwater Retrofit study, Small Equine Stewardship Program, Cladophora studies, Community engagement and outreach for programs and activities outside of the Toronto AOC (Durham watersheds). Most recently, TRCA received approximately $400K for tributary nutrient loading studies from MECP. Consider revision to (e) under Result 1 (Ontario will): "Update wastewater **management** policies and develop a new stormwater management policy, **which includes provisions** ~~including policies~~ specific to treatment requirements, ~~the~~ **as well as** sewage overflows and bypasses to enhance environmental protection and reduce nutrient loadings." RE: (l) under Result 2 (Ontario will): While TRCA supports this action given that communication tools are needed about septic system impacts on Great Lakes water quality, it should be noted that municipalities and conservation authorities across the province have developed materials for public

	consumption on septic contaminate risk for drinking water (to comply with Source Protection Plan policies). Re: (m) under Result 2 (Ontario will): Given the impact of harmful algae blooms on the use of public beaches, it is recommended that HABs be listed together with E. coli, as below: “Enhance understanding of the causes of E. coli, **algae,** or other substances that reduce use of beaches;” Re: (o) under Result 2 (Ontario will): Suggest that beach management tool be described, or examples provided in text. With respect to Result 2, (q) (pathways for road salt), Source Protection Regions established under the *Clean Water Act* undertaking an analysis of groundwater’s transport pathways, could aid the Province in its goal of assessing pathways for road salt into groundwater. This goal ties into Science Need Area 7 “Improve the understanding of the effects of urban development on groundwater” as identified in the *Groundwater Science Relevant to the Great Lakes Water Quality Agreement: A Status Report*. The Sustainable Technologies Evaluation Program could also support the Province in addressing objectives of this Science Need including base data acquisition and monitoring of urban water balances and research on urban groundwater contaminate fate. We note that the removal of sodium and chloride from the Provincial Water Quality Objectives feels at odds with this goal. Salt is a major contributor to watercourse toxicity in our watersheds. TRCA staff work with municipal staff to ensure appropriate site/road drainage to minimize salt impacts on the watercourses. TRCA continues to work with municipal and provincial agencies to develop strategies and policies to minimize salt runoff to watercourses and wetlands, including appropriate draining and buffers.

Annex 5: Areas of Concern	The Toronto and Region Remedial Action Plan (RAP) for the Toronto Area of Concern (AOC) is the largest program currently supported by the COA. TRCA administers the RAP as part of a 5-year (2015-2020), $2.5 million agreement with Environment and Climate Change Canada and MECP. The COA under the RAP and the Great Lakes Sustainability Fund have fostered the development and delivery of strategic habitat planning and project initiatives that value over 10 million dollars. TRCA projects under the RAP include the Integrated Restoration Plan, Toronto Habitat Banking, “Fishing in Your Backyard – An Urban Recreational Fisheries Strategy for the Lake Ontario Northwest Waterfront”, and projects that focus on coastal wetlands and habitat restoration in high profile public spaces. Moreover, through development and infrastructure planning processes, TRCA staff work with municipalities and proponents to ensure ecological restoration projects are directed toward strategic areas to address RAP priorities in the Toronto AOC. Under Result 12 (b) conducting “monitoring of wildlife populations to assess progress towards achievement of delisting criteria” seems out of place given that, while we have monitored wildlife, this is not a priority activity. The reason for listing of the fish and wildlife populations BUI was fish. “Wildlife populations and habitat” was always a joined BUI with fish. In 2015, the RAP determined that the wildlife part of both BUIs needed to be reported on separately as we moved towards delisting these. This was not meant to indicate a lack of concern for wildlife. Rather, there was a focus on the Lake rather than watersheds. Therefore, at that time, there were no real objectives set for wildlife. However, while there are limited opportunities to speak to wildlife if the focus is strictly the Lake, the process to delist allowed the RAP team to do this. Further to the above, another suggested commitment could be for the Toronto RAP team and Aquatic Habitat Toronto to provide financial and technical support to priority actions to advance progress towards achievement of delisting criteria for Loss of Fish and Wildlife Habitat and Degradation of Fish and Wildlife Populations. Also under Result 12, the Ashbridge’s Bay Treatment Plant upgrades will be an additional key action for addressing the beach closures and eutrophication BUIs. The Toronto AOC is on track to delist by 2025. While there is a sunset for the RAP, there is some expectation that efforts and investment will continue once the AOC is de-listed, primarily through monitoring, engagement and maintenance activities to ensure ongoing resilience.

Annex 6: Lakewide Management	Erosion plays a role in impairing water quality so it should be included in the COA. Erosion should be featured more prominently in commitments especially given the high-water level events of 2017 and 2019 in Lake Ontario. In order to accommodate the increased volume and velocity of surface runoff from urbanization, widening and undercutting of receiving waterbodies can occur, in turn causing steep banks to slump and fail during severe storms. In addition, the bed of the watercourse may change due to sediment covering the natural substrate with shifting deposits of mud, silt, and sand, thereby affecting aquatic habitat; downcutting of the channel bed creates instability which can lead to increases in the velocity of stream flow and erosion downstream. Loss of riparian tree canopy cover results from the constant undercutting and failure of the stream banks, exposing tree roots and other woody vegetation that would otherwise serve to stabilize the banks of the watercourse. The impairments from these impacts have ramifications downstream at the river mouth where it meets Lake Ontario. Result 1, (b) in this Annex could be a good point to include wording about erosion threats in riverine and shoreline systems ((b) highlights this arguably under "physical"). Annex 3 where stormwater management is discussed is where another connection could be made to issues of erosion for ecosystem health. We note that erosion is referenced in Annex 10, Climate Change Impacts and Resilience, but the focus in Annex 6 on threats to water quality could include actions regarding erosion. Re: (e) under Result 5 (Ontario will), suggest that action be expanded as follows: “Maintain and/or develop programs to provide education and outreach on the protection of drinking water sources, and to: • identify **and** support action**s** to mitigate potential threats to source water, • encourage collaboration on protecting our shared drinking water sources; and • raise the profile of the importance of the Great Lakes as a source of drinking water for Ontario. Suggest the addition of another action: Canada and Ontario will work with municipalities responsible for providing water from systems with intakes in the Great Lakes to undertake actions to support the implementation of source protection plan policies to protect these sources of drinking water.
Annex 8: Habitat and Species	Result 1 (a) and (b) - The references to “net habitat gain” and “restoration” imply a habitat off-setting strategy is needed to augment the current protections for habitats under the *Planning Act* and *Environmental Assessment Act* review and approval processes.

	The current review of the Provincial Policy Statement alludes to provincial guidance for municipalities to “manage” non-provincially significant wetlands, however, the Agreement’s commitments cited above would require guidance on managing a broader range of habitat.
Annex 9: Groundwater Quality	TRCA is highly supportive of the commitments in the Agreement related to protecting groundwater quality. However, as identified by Conservation Ontario, the link between groundwater quality and quantity is not emphasized. Please see comments above under Annex 3, Wastewater and Stormwater on how conservation authorities might aid the Province in connecting groundwater flow regimes (rural and urban) to groundwater quality and ecosystem health. TRCA is pleased to see the Province committing to updating its SWM criteria and there are commitments in the COA to studying LID and other green water management infrastructure. Nonetheless, the Agreement could benefit from more focus on implementation (see General Comments on Implementing Mechanisms). For example, through our roles in the planning and permitting processes, TRCA provides direction on mitigation in areas where groundwater dewatering may impact baseflow to natural features such as wetlands and watercourses. The Agreement speaks to the importance of monitoring, and provincial responsibilities for that. This is not consistent with the recent MECP decision to reduce funding for the Provincial Groundwater Monitoring Network. Indeed, the reduction in funding seems at odds with the goals outlined in this Annex. Many of the AOCs that fall within conservation authority boundaries and large projects that rely on conservation authority expertise, such as the Don River Naturalization and Portlands Flood Protection project, can generate significant data on water quality and ecosystem health of the Great Lakes, including nearshore areas. In addition, the Oak Ridges Moraine Groundwater Program (ORMGP) can provide a significant service in data retention for such projects. With respect to Result 2 (a), (surface water- groundwater conceptual and numerical models), the ORMGP could assist the Province with this Result in developing groundwater-surface water (GW/SW) models at various scales. The ORMGP has retained the modeling files for all the models produced by the nine conservation authorities located on the ORM and has undertaken a comparative analysis of the various models, especially where overlap of the model boundaries exists. The ORMGP is also working with its CA and municipal partners on a Terms of Reference with respect to future modeling projects.

	The Agreement's Result 2 goal for improved understanding of GW/SW interactions also ties into three different Science Need Areas as identified in the *Groundwater Science Relevant to the Great Lakes Water Quality Agreement: A Status Report:* • Science Need Area 1: Advance assessment of regional-scale groundwater discharge (quantity) to surface water in the Basin • Science Need Area 5: Develop better tools for monitoring surveillance and local-scale assessment of groundwater-surface water interaction • Science Need Area 8: Develop scaled-up models of regional effects of groundwater on Great Lakes water quality. In particular, watershed planning exercises' future land and water use scenarios could be considered in the context of the model outputs generated by Source Protection Regions. With respect to Result 2 (b), (Undertake and promote monitoring and research to improve understanding of groundwater), this goal ties into Science Need Area 4 "Advance research on local-scale assessment of interaction between groundwater and surface water" as identified in the *Groundwater Science Relevant to the Great Lakes Water Quality Agreement: A Status Report*. Conservation Authorities could aid the Province in its goal of improving understanding of groundwater influences on ecosystem health through local knowledge. TRCA recently undertook an exercise in identifying Ecologically Significant Groundwater Recharge Areas using outputs from groundwater models that were produced by the Source Protection Region. The model outputs were verified by undertaking statistical analysis of known groundwater dependent ecosystems captured by the model outputs. With respect to (c) (provincial groundwater, surface water and integrated climate change monitoring), this goal ties into Science Need Area 3 "Advance monitoring and surveillance of groundwater quality in the Great Lakes Basin" as identified in the *Groundwater Science Relevant to the Great Lakes Water Quality Agreement: A Status Report*. Conservation authorities, with sufficient funding, can aid the Province through identifying priority watersheds in which to focus research efforts, compiling historical groundwater quality data, and increasing availability of hydrogeological mapping products. With respect to Result 3 (a) (Facilitate the coordination, sharing and exchange of information and research), this goal aligns with Science Need Area 6 "Advance research on the role of groundwater in aquatic habitats in the Great Lakes Basin" as identified in the *Groundwater Science Relevant to the Great Lakes Water Quality Agreement: A Status Report*. As groundwater-dependent ecosystems are mapped within the Great Lakes Basin, conservation authorities can support the Province in collecting local data such as

	habitat patch and species distribution as well as assess their exposure and sensitivity to groundwater variation and other stressors. For Result 3 (b) (Identify priority sites or areas where point sources may impact...), this goal relates to Science Need Area 2 “Establish science-based priorities to advance the assessment of the geographic distribution of known and potential sources of groundwater contaminants relevant to Great Lakes water quality, and the efficacy of mitigation efforts” as identified in the *Groundwater Science Relevant to the Great Lakes Water Quality Agreement: A Status Report*.
Annex 10: Climate Change Impact and Resilience	TRCA and the Ontario Climate Consortium (OCC) are established, credible partners that can offer strategic planning support to many of the commitments made in the Climate Change Impact and Resilience Annex. TRCA serves as the Secretariat for the OCC. OCC brings together researchers from some of Ontario’s leading academic institutions, as well as municipalities, conservation authorities, and the broader public sector. TRCA/OCC also collaborates with GLISA – Great Lakes Integrated Science Assessment Program - based out of the University of Michigan; GLIS is a leading group on climate modelling in the Great Lakes Basin and communicates climate change impacts to the broader community. TRCA/OCC has been supporting the Climate Change Annex (previously Annex 9 – Climate Change Impacts) in identifying climate science knowledge gaps and convening experts around climate modeling and information at the Great Lakes Basin scale. OCC also sits on the Extended Subcommittee for the Climate Change Annex and contributes to the development of the Great Lakes Annual Climate Summary. OCC Projects with the public sector include conducting vulnerability assessments in the Great Lakes Basin and hosting an annual climate science and planning workshop. OCC also provides climate change-related support to Annex 7, Habitat and Species, by convening stakeholders to discuss Resilience Thinking and climate change vulnerability assessment best practices associated with coastal wetlands. TRCA/OCC looks forward to continuing to support the objectives of the Agreement in tackling climate change into 2020 and beyond. We offer the following comments and questions on the draft new Agreement Annex 10 for climate change. Second paragraph - suggest revising sentence to “warmer water temperatures” and adding “increasingly variable waves and winds, extreme weather events.”

	Third paragraph - The impacts of climate change will also have a significant effect on communities in the Great Lakes Basin. For example, harsh lake-effect snow and ice storms can disrupt critical services and damage infrastructure. Therefore, the third paragraph should also include how climate change impacts will affect communities. Further to the above, we suggest rephrasing sentence to "Regional adaptation planning, decision-making and action are supported through this program with the aim of helping communities and industries prepare for and adapt to local climate impacts ~~resulting from a changing climate~~ **including** the increase in droughts, floods and coastal erosion." TRCA also suggests adding problems with water and air quality, forest fires, crop changes, extreme weather events, and health impacts, to the list of local impacts. Suggest providing more details around the climate projections Ontario intends on using. For example, will Ontario use the data provided by the Canadian Centre for Climate Services? Or will the Province be undertaking its own regional climate modeling? It may be helpful to outline this here, since there are many uncertainties and gaps around climate modeling, specifically in the Great Lakes Basin (e.g., many climate models do not account for the Great Lakes). It would be helpful for the COA to provide more details on the on-line tool that the Province will be developing. For example, will this be similar to that of the Canadian Centre for Climate Services? Will the Province be running this tool, or will there be a provincial climate "hub" organization that will be leading this? Suggests adding "and with other Annexes of the GLWQA and enhancing inter-Annex collaboration and communication on climate change" in the last paragraph, when talking about sharing climate change information with the Great Lakes community. For Result 1, (Enhance knowledge and understanding of existing and future climate change impacts…), in (c), suggest adding "Great Lakes water levels" as Environment and Climate Change Canada is already doing this. For (j), is there a reason why this action only involves Lake Ontario? Suggest including all Great Lakes in Ontario, if possible. In Result 2, (Assess existing and future climate change risks and vulnerabilities…), **s**uggest moving subsection d) "Share information and results from the Provincial Climate Change Impact Assessment and the Canada in a Changing Climate series of reports" to Result 3, as this is more focused around sharing information on climate

	change impacts, risks and vulnerabilities with the Great Lakes community. Under subsection g), revise “flood mapping” to “floodplain mapping”. Result 3, (Share information on climate change impacts, risks and vulnerabilities….and advance the integration of climate change considerations…), in section (a), include other Annexes of the COA in the knowledge sharing, as there is a lack of inter-annex communication on climate change.