

# Natural Environment Trail Strategy



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City of Toronto



Prepared by



with



The **Planning** Partnership



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The City of Toronto's Natural Environment Trail Strategy is a product of over fifteen years of cumulative trail management experiences, outreach, stewardship and efforts by many groups and individuals.

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## Natural Environment Trails Program Working Group

<i>Garth Armour</i>	<i>Jennifer Kowalski</i>	<i>Rob Mungham</i>
<i>Michael Bender</i>	<i>Scott Laver</i>	<i>Brittany Reid</i>
<i>Edward Fearon</i>	<i>Roger Macklin</i>	<i>Alex Shevchuk</i>
<i>Norman DeFraeye</i>	<i>Beth Mcewen</i>	<i>Karen Sun</i>
<i>Ruthanne Henry</i>	<i>Brian Mercer</i>	<i>Ed Waltos</i>

## Natural Environment Trails Program Advisory Team

<i>Lorene Bodiam</i>	<i>Jennifer Hyland</i>	<i>Jane Scarffe</i>
<i>Christina Bouchard</i>	<i>Dennis Kovacs</i>	<i>William Snodgrass</i>
<i>Susanne Burkhardt</i>	<i>Sibel Sarper</i>	<i>Jane Weninger</i>
<i>Susan Hughes</i>		

## City of Toronto

<i>Teresa Bosco</i>	<i>Jennifer Gibb</i>	<i>Wendy Strickland</i>
<i>Jack Brown</i>	<i>Jim Hart</i>	<i>Richard Ubbens</i>
<i>Chris Clarke</i>	<i>Janette Harvey</i>	<i>Mike Voelker</i>
<i>Chris Coltas</i>	<i>Amy Lang</i>	<i>Soraya Walker</i>
<i>Jason Doyle</i>	<i>Nancy Lowes</i>	<i>Cara Webster</i>
<i>Carlos Duran</i>	<i>Cheryl Post</i>	<i>Sean Wheldrake</i>
<i>Jason Foss</i>	<i>Kim Statham</i>	<i>Alice Wong</i>
<i>Councillor Mary Fragedakis</i>	<i>Christine Speelman</i>	

## Toronto and Region Conservation Authority

<i>Adele Freeman</i>	<i>Alexis Wood</i>	<i>Adam Szafarski</i>
<i>Amy Thurston</i>	<i>Keri McMahon</i>	<i>Vince D'Elia</i>
<i>Arlen Leeming</i>	<i>Steven Joudrey</i>	<i>Susan Robertson</i>

## Natural Environment Trail Strategy Project Team

<i>Lees+Associates</i>	<i>Azimuth Environmental consulting, Inc.</i>	<i>Decarto Consulting, Ltd.</i>	<i>Sustainable Trails Ltd.</i>	<i>The Planning Partnership</i>
<i>Katy Amon</i>	<i>Jim Broadfoot</i>	<i>Damian Bradley</i>	<i>Richard Goulding</i>	<i>Donna Hinde</i>
<i>Erik Lees</i>	<i>Lisa Moran</i>		<i>Bill Goulding</i>	
<i>Susan McAllister</i>				
<i>Ted Murray</i>				
<i>Nalon Smith</i>				

## Watershed Sounding Board Members

<i>Don Watershed</i>	<i>Highland Watershed</i>	<i>Etobicoke and Mimico Watersheds</i>	<i>Humber Watershed</i>
<i>Ken Beattie</i>	<i>Carol Baker</i>	<i>Adam De Souza</i>	<i>Mary Louise Ashbourne</i>
<i>Kevin Beattie</i>	<i>Dave Barnes</i>	<i>Shawn Fitzpatrick</i>	<i>Mike Mattos</i>
<i>Jesse Edwards</i>	<i>Pat Heseltine</i>	<i>Irene Jones</i>	<i>Madeline McDowell</i>
<i>Simon Francis</i>	<i>Calvin Kangara</i>	<i>Chris Lawrence</i>	<i>Graham Seaman</i>
<i>Annie Macleod</i>	<i>Brian MacFarlane</i>	<i>Eaphan Lin</i>	<i>Lynn Short</i>
<i>James McArthur</i>	<i>Carlton Miller</i>	<i>Andy McKean</i>	<i>Chris Svirkllys</i>
<i>Margaret McRae</i>	<i>Richard Thomas</i>	<i>Brian Yawney</i>	<i>Peter Telford</i>
<i>John Routh</i>	<i>John Wilson</i>	<i>Rudy Wiens</i>	
<i>Richmond Sedcole</i>			

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## Organizations

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<i>Centennial Community and Recreation Association</i>	<i>Hike Ontario</i>	<i>Toronto Bruce Trail Club</i>
<i>Citizens Concerned for the Future of the Etobicoke Waterfront</i>	<i>Humber Arboretum</i>	<i>Toronto Chinese for Ecological Living</i>
<i>Community Access Restoration</i>	<i>Humber Watershed Alliance</i>	<i>Toronto District School Board</i>
<i>Confederation of Resident and Ratepayer Associations in Toronto</i>	<i>International Mountain Bicycling Association Canada</i>	<i>Toronto Field Naturalists</i>
<i>Curran Hall Community Association</i>	<i>La Societe d'histoire de Toronto</i>	<i>Toronto Green Community</i>
<i>Don Watershed Regeneration Council</i>	<i>Lost Rivers Project</i>	<i>Toronto Off-Road Bicycling Association</i>
<i>Etobicoke /Mimico Watersheds Coalition</i>	<i>Lower Mimico Creek Project Team</i>	<i>Toronto and Region Conservation Authority</i>
<i>Evergreen</i>	<i>Midland Park Community Association</i>	<i>West Lansing Homeowners Association</i>
<i>Forest Valley Outdoor Education Centre</i>	<i>South Etobicoke Creek Project Team</i>	<i>Weston Historical Society</i>
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# EXECUTIVE SUMMARY

## STRATEGY OBJECTIVES AND PROCESS

The goal of the Natural Environment Trails Strategy (NETS) is to ensure the protection of the City of Toronto's natural areas while offering safe and enjoyable recreational opportunities for all natural environment users by creating a sustainable multi-use trail system. The NETS will underpin the future planning, design and management of trails in natural area parkland and ravine ecosystems.

In addition to 300km of paved and granular multi-use trails, there is an extensive network of over 227km of informal natural-surface (dirt) trails within natural area parkland and ravines, referred to as natural environment trails. These trails are heavily used by hikers, joggers, dog-walkers, school and day-camp groups, nature enthusiasts and mountain bikers, and are highly valued as an important part of Toronto's recreational trail system. These trails are also used by staff to access city infrastructure and utilities (i.e. sewer lines, hydro towers) located in our ravines for monitoring and maintenance. They are also used by Emergency Services to access the ravine in response to emergency issues. These trails are the focus of this strategy.

Natural environment trails are an important part of managing natural areas in an urban setting. Many trail users are looking for natural experiences where they can get away from the bustle of the City. For decades, they have been creating an informal trail system through Toronto's ravines and parklands. As the use of these trails has increased over time, damage to the urban forest has resulted due to erosion, compaction and trampling of the understory. Historically, management of this problem has been to fence the area and sign it to keep people out. The outcome of this management practice has been holes in fences and continued recreational use of these informal trails, with no active management and little opportunity for public education. We now understand that the problem was not the number of users or the types of users, but that the informal trails that were cut through the forest over time were poorly designed, routed and built. Building better, sustainable trails with a light footprint to ensure minimal disturbance to the natural environment, could be a solution to these problems.

A trail can be planned and managed as a means to help protect and enhance a natural area. If planned and built correctly, a trail will:

- Keep trail users on a designated path;
- Introduce residents to natural areas, encouraging a sense of ownership and stewardship;
- Focus resources on natural areas where trails are being managed for invasive species removal, trail closures, restoration and natural area expansion;

### Definition of a Natural Environment Trail

In addition to paved and granular multi-use trails, there is an extensive network of informal natural-surface (dirt) trails within natural area parkland and ravines, referred to as natural environment trails. These trails are heavily used by hikers, dog-walkers, school and day-camp groups, nature enthusiasts and mountain bikers, and are highly valued as an important part of Toronto's recreational trail system. These trails are the focus of this strategy.

**All references to trails in this report, unless otherwise stated, refer to natural environment trails.**



*Natural Environment Trail (Photo Credit: City of Toronto)*

- Increase awareness of natural environment issues through user experience and interpretive programming, and
- Provide for the most effective and efficient use of resources in the maintenance and management of infrastructure and natural resources, while optimizing cost/benefits.

This strategy shows a clear shift in natural area management philosophy. Through this strategy, the City recognizes that in a highly urban area, with limited resources for enforcement, it is better to manage a natural area to include some recreational and active transportation access rather than try to keep people out of these areas entirely. Building trails that keep user experience top of mind is critical to the success of this strategy. If our new managed trail system cannot deter illegal trail builders from their activities we will continue to struggle to protect these natural environments.

This strategy builds on many years of previous work including hands-on experience in building and maintaining sustainable trails at a pilot site, Crothers Woods, located in the Don River Valley and the development of a number of studies regarding mountain biking and trail management in the City.

In the development of this report, extensive data collection was undertaken including mapping, user surveys and trail counter information. Stakeholder focus group meetings (Watershed Sounding Boards) and public meetings were held to solicit information and feedback about where informal trails were located in their communities as well as recommendations for how to improve their local trail system.

The Toronto Parks Plan 2013-2017, adopted by the Parks and Environment Committee in April 2013, recognizes the importance of managing the natural environment trails system as an important component to preserving and promoting nature. It notes that the Natural Environment Trails Program offers a model for improving natural trails throughout the City, requiring comparatively little to plan, build and manage, and can yield high returns in terms of environmental protection, education, community involvement and recreation.

The following guiding principles are intended to direct the development and implementation of the City of Toronto's Natural Environment Trail Strategy. These principles support the goals and principles established for the [City of Toronto Parks Plan](#); [City of Toronto Recreation Service Plan](#); [City of Toronto Bike Plan](#); and the [Strategic Forest Management Plan](#).

## Principles:

- 1. Parks and Trails as City Infrastructure:** Trails are vital components of City infrastructure. They provide recreational opportunities to residents and visitors, creating connections both within and outside of the City. As a means of access to nature, trails provide opportunities for relief from the urbanized environment;
- 2. Equitable Access:** Trails are a valuable City resource and should provide an inclusive environment welcoming to users of varying abilities, including those with physical, sensory and intellectual disabilities;
- 3. Environmental Protection:** One of the key purposes of the trail system is to better protect the natural areas that house trails through trail design and stewardship. These trails provide opportunities for the public to learn about the function and value of the City's natural environment, and
- 4. Community Engagement:** Community involvement, throughout planning, construction and maintenance, is necessary to ensure the long term success of the trail system and protection of natural environment areas. Stewardship and volunteer participation is encouraged, complimenting existing City resources and helping to provide high quality trails.

As population densities increase the pressure on our natural areas will continue to intensify. It is important for the City of Toronto to be able to manage this resource while being realistic about the desires and expectations for accessing these areas. This Natural Environment Trails Strategy will make Toronto a leader in managing an urban natural environment trail system.

## BENEFITS OF TRAILS

The natural trail system, and the ravines in which they are found, provide a broad spectrum of benefits to the City of Toronto and its residents. These include environmental, social, educational, health and economic benefits.

**Environmental benefits** - Ravines and natural area parklands provide environmental benefits including habitat for birds and wildlife, increased faunal and floral biodiversity and ecological function – from hydrologic health to air quality and carbon sequestration. Carefully planning and managing the natural environment trails within the ravines, and therefore lightly managing the ravines, protects the ecological systems from harm often associated with ravines in highly urban environments (such as illegal dumping, contamination). Managing trail use and building trails properly results in less environmental degradation than typically arises when users build rogue trails. Sensitively managing trail development can occur in tandem with stewardship efforts, such as ecological monitoring and management of invasive species. Trails can provide a site for active transportation – walking and cycling – which can reduce a community’s transportation based emissions. Trails within the ravines also provide access for litter removal and medical emergencies.

**Social benefits** - Trails provide increased opportunities for social interactions - facilitating better connection to other trail users, community space and nature. These opportunities foster social relationships and shared responsibility. Improved self-image and social relationships, reduced crime rates, and a lifestyle encouraging youth to find their entertainment in healthy, wholesome pursuits, are all found to be by-products of local trail systems (Active Living – Go Green, 1996).

**Educational Benefits** - Trails provide a setting for natural, cultural and archaeological history lessons, experiential education, and opportunities for increased connection and learned respect for nature that is often lost in highly urbanized environments.

**Health benefits** - A healthy, active life style is associated with a longer, disease free life, decreased stress levels and decreased chance of depression. Regular physical activity reduces the risk of developing a number of chronic illnesses, including cardiovascular disease, non-insulin dependent diabetes and colon cancer. Other benefits of regular physical activity such as walking, cycling and jogging include reduced risk of osteoporosis, obesity and depression, as well as an increased psychological well-being and quality of life (Transportation Research Board, 2005).

**Economic Benefits of Trails and Managed Ravine System** – “The Ontario Trails Council estimates that trails contribute at least \$2 billion a year to the provincial economy” (Ontario Trails Strategy, 2005). Economic benefits of trails can vary from increased foot traffic to local businesses, through to wider spending associated with the provision and promotion of world class trails as part of an eco-tour circuit. Many economic benefits are also found in protecting the trees, ravines, and natural features in the City of Toronto this includes economic cost savings that the urban forest provides for example it is estimated to reduce heating and cooling energy costs by \$9.7 million annually, also Toronto’s trees store an estimated 1.1 million metric tonnes of carbon equal to \$31.6 million worth of carbon sequestration.



*Crothers Woods (Photo Credit: IMBA)*



*Nature Tour (Photo Credit: IMBA)*



*(Photo Credit: City of Toronto)*

## Toronto's Natural Environment Trail Strategy - Existing Informal Trails - Overview Map

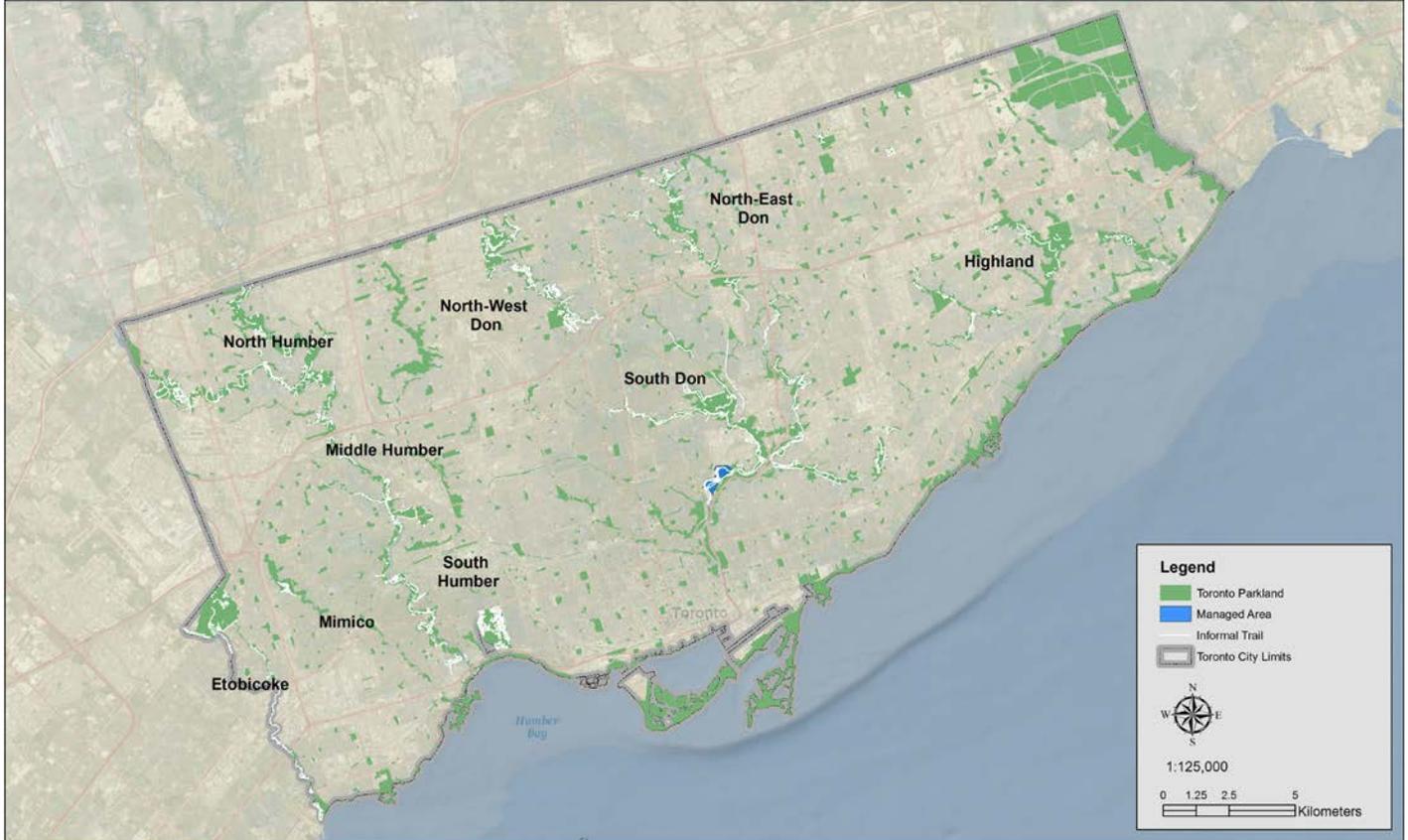


Figure i: Existing Informal Trails

## SUMMARY OF STRATEGIES AND RECOMMENDATIONS

The strategies and recommendations in this report detail an approach to promoting, planning, designing, maintaining and managing the trails system over the next 10 years. It is an ambitious program, including a broad range of recommendations – from those which should be applied through system wide changes and initiatives, to detailed recommendations in design and day to day practices.

Strategies for implementation are presented through four core areas:

- Stewardship & Partnerships;
- Marketing & Education;
- Planning & Design, and
- Management (including service delivery and policies).

The recommendations are prioritized into five categories, under two broad groupings. The first comprises of actionable items that require additional resources for implementation and are prioritized as short, medium or long term. The second relates to protocol and approaches that should be adopted within the first year of the Strategy for application to all work undertaken on the trails throughout the course of the Strategy’s life. These are broken into two categories: ongoing policy and protocol, and ongoing planning and design directives.

The following table details the prioritization of recommendations:

<b>LEGEND</b>	
	Short Term Priority Actions (1-2 years)
	Medium Term Priority Actions (3-5 years)
	Long term Priority Actions (6-10 years)
	Ongoing Policy/Protocol
	Ongoing Planning and Design Directives
<b>Short Term Priority Actions (1-2 years)</b>	
3	Provide community volunteers with varied and structured volunteer opportunities.
6	Provide educational and interpretive information on the ravine and trail system, trail maps and up to date information through a variety of mediums and outlets.
10	Create a comprehensive, aesthetically fitting and approachable signage and wayfinding program for all managed trail systems that follows all Parks Forestry and Recreation signage and wayfinding guidelines and standards and is compatible with current City-wide initiatives.
16	Prioritize ongoing management of the natural environment trail system for the protection of Environmentally Significant Areas including sustainable trail planning and design, educational signage, stewardship initiatives, selective closures and restoration.
27	Adopt the trail construction standards and guidelines developed by the Toronto and Region Conservation Authority, which offers a range of trail specifications applicable to Toronto’s trails.
37	Increase staff resources for the purpose of planning, public consultation, design, construction, monitoring and maintenance, data collection and management, by-law enforcement, partnership building, coordination of stewardship and public outreach, communications, educational and interpretive materials.
38	In conjunction with other divisional and City-wide budgeting initiatives, establish coordinated capital and operating budgets for the management, maintenance, planning and construction of trails.
43	Develop a trail maintenance program including an inspection schedule, prioritization, documentation procedures, inspection logistics, and inspection crews. Prioritize serious concerns or hazards and expedient garbage pick-up and waste management.
44	Additional, ongoing data collection should continue through the installation and monitoring of trail counters, user surveys and through the inclusion of trails related questions in the City-wide surveys.
<b>Medium Term Priority Actions (3-5 years)</b>	
1	Create and enhance partnerships with all stakeholders to strengthen the Natural Environment Trails Program and ensure the long term success of trails in Toronto.
4	Explore all opportunities for developing sponsorship and fundraising partnerships.

5	Undertake targeted public campaigns and communications to reach all City of Toronto communities, including diverse cultural and language groups and individuals of all abilities to promote the natural environment trail system, responsible and sustainable trail use and trail etiquette.
21	Develop and apply a trail classification system and related signage program appropriate for the Toronto context to allow for a range of user skill levels, activities and experiences.
32	Continue to develop standards and best management practices for back country, low impact, low maintenance aesthetically appropriate structures.
35	Consider the incorporation of additional bike skills parks in areas with high user demand and appropriate site conditions.
39	Provide the City's 311 service with detailed trail system maps and improve inter-departmental coordination to allow the public to more effectively alert the City regarding trail issues.
40	Provide emergency services (police, fire, Emergency Medical Services) with detailed trail system maps and improve inter-departmental coordination such that emergency teams understand how to respond to issues in the trail system.
41	Implement a combination of educational and enforcement measures to improve trail use behaviour and curtail illegal activities.
45	Place garbage and recycling bins at trailheads and key trail intersections and collect garbage/recycling on a regular basis.
56	Protect known and potential archaeological sites through the adoption of planning and management guidelines for the conservation of archaeological resources in accordance with the Archaeological Management Plan.
59	Undertake archaeological assessments for trail management areas that have been identified as having the potential to hold archaeological resources. In accordance with the Archaeological Management Plan and implement any recommendations for routing modifications, construction, interpretation and site maintenance as required.
<b>Long term Priority Actions (6-10 years)</b>	
9	Focus marketing on the trails as a daily recreation resource for local residents and as a tourist destination, in connection to regional trail initiatives, or as an outdoor recreation destination on the eco-tour circuit.
42	Develop a comprehensive data management protocol for trails spatial data in conjunction with land management partners.
54	Pending high volume of interest, amend the current commercial permitting policy to include commercial activities such as biking or trail running clinics and tourism.
55	Enhance or establish partnerships with land owners, managers, trail users and regional municipalities.
<b>Ongoing Policy/Protocol</b>	
2	Include trail users, the general public and all stakeholders in trail planning, design, construction and maintenance processes.
7	Add managed trail areas to any relevant 'Park and Greenspace' lists (i.e. Parks listing on Parks Forestry and Recreation website).
8	Encourage local stewardship, trail activity based businesses and groups to undertake education based events on the trails and to participate in trail promotion activities.
11	Give priority to natural environment protection over trail use where they cannot coexist.
13	Avoid locations where significant/sensitive species or landscapes occur by undertaking detailed vegetation mapping to species level, and assessment of soils, micro-drainage and other features in areas identified for management in order to identify opportunities and constraints, and/or need for alternative locations for trails.

19	Plan and design trails with user experience as a key consideration.
20	Develop a Toronto Mountain Biking Policy. In the short term, adopt the Parks Canada Visitor Activity Guidelines for Mountain Biking.
26	Design, construct and maintain the trail system to the highest standards to ensure the protection of the natural environment while offering safe and enjoyable recreational opportunities for all trail users.
30	As trail management plans for specific areas are developed and implemented, all informally built trail features will be removed. Features will be replaced accordingly, if deemed appropriate during the trail planning process.
36	Recognize the system of trails in natural areas as an important City-wide resource that needs to be managed and adequately resourced. Support ongoing interdepartmental cooperation in managing the natural environment trail.
47	Use signage, outreach and educational materials to inform trail users about rules and responsibilities.
48	Keep records of all regulatory signage including installation, inspection and removal dates.
49	Review trail management plans with Legal Services to ensure standard of care is being met under the <i>Occupiers' Liability Act</i> .
50	Follow recommended natural environment trails maintenance standards and protocol as outlined by the Natural Environment Trail Strategy.
51	Add managed trail areas to any relevant lists applicable to the <a href="#">Permit Allocation Policy</a> and classified accordingly based on the amenities available.
52	Develop appropriate fee structures and application form for permitting managed trail areas where appropriate.
53	Natural Environment and Community Programs Staff should be circulated on any permits that may impact natural environment trail areas for comment and approval.
57	Consult City of Toronto Heritage Preservation Services and Toronto and Region Conservation Authority (TRCA) staff early in the project planning process to ensure that archaeological resources are evaluated, documented, conserved and protected at every step of natural environment trail planning, construction and maintenance.
58	Ensure that information about cultural and archaeological heritage and the conservation and protection of these resources is included in any public education campaign or site interpretation.
<b>Ongoing Planning and Design Directives</b>	
12	Strengthen the natural environment trail system as a continuous, connected system that supports recreational use and the ecological functions of the regional green space system.
14	Follow environmental protection policies and principles regarding the protection of ravines and natural area parklands in the planning, construction and management of trails and trail areas including closing or restoring trails where needed.
15	Limit environmental impacts by following best management policies for trails in ESAs.
17	Plan, design and construct trails for multiple activities and user skill levels appropriate to their location and role within the overall system.
18	Incorporate connected and looped trails as part of the system.
22	Designate the majority of trails as multi-use and bi-directional. Determine preferred use or one-way trail exceptions based on site specific information and user demand.
23	Follow all relevant regulations applicable to trail management made under the Accessibility for Ontarians with Disabilities Act, 2005.

24	All trail planning, design and construction processes should include consultation with community members who have disabilities and the City of Toronto's Parks Forestry and Recreation Community Disability Steering Committee.
25	Integrate businesses, schools and post secondary institutions, recreation centers and residential areas. natural environment trails to connect community destinations such as the bikeway network and multi-use paved trail network, Toronto Transit Commission stations,
28	Minimize the number of bridges and boardwalks through trail design and layout. Where required, construct to protect ecological features and functions and blend in with the surrounding natural environment. Construct to Toronto and Region Conservation Authority standards and specifications.
29	Utilize existing challenging terrain to achieve technical trail challenges, providing existing and enhanced natural features.
31	Build any new structures to comply with best management practices using high quality materials, and simple technology. Make use of local materials where safe and compatible, and ensure visual compatibility within the natural environment setting.
33	Engineered structures (i.e. ladder bridges, wooden ramps and teeter totters) in natural areas should only be considered where aesthetics and nature appreciation experiences would not be impaired and minimal maintenance would be required.
34	Limit technical trail features in Environmentally Significant Areas to existing natural features and limit engineered structures requiring artificial or manufactured materials to skills parks, maintained and managed park grounds and ecologically impaired lands.
46	Plan, design and construct trails to the highest standards and best management practices as identified in the Natural Environment Trail Strategy.

**MANAGEMENT ZONES AND TRAIL IMPROVEMENT PRIORITIES**

In order to best implement many of the strategies involving site specific, community driven processes and actions, the five watersheds have been broken down into a series of more manageable sized areas, referred to as management zones. Each management zone includes a diverse trail system, offering a variety of difficulty levels, experiences and lengths. Management zones or land units are of an appropriate scale and complexity for use by the NETP in future, more detailed, studies, in the development of trails and in environmental rehabilitation efforts. Each is comprised of a section of a watershed, and consists of a relatively large geographic area spanning numerous parks and natural areas within Toronto's ravine system.

Areas requiring more comprehensive trail planning within the nine Management Zones were also identified during the course of this project. These have been divided into Priority Management Areas - areas on which to focus short term development of management plans, and Areas of Interest - longer term priority areas. They include areas with significant infrastructure work planned by others, as well as a small number of large parks, where Staff should seek involvement as a stakeholder in broader park management planning processes, but should not initiate a specifically trails focused management plan.

Toronto Natural Environment Trail Strategy - Management Zones, Priority Areas and Areas of Interest - Overview Map

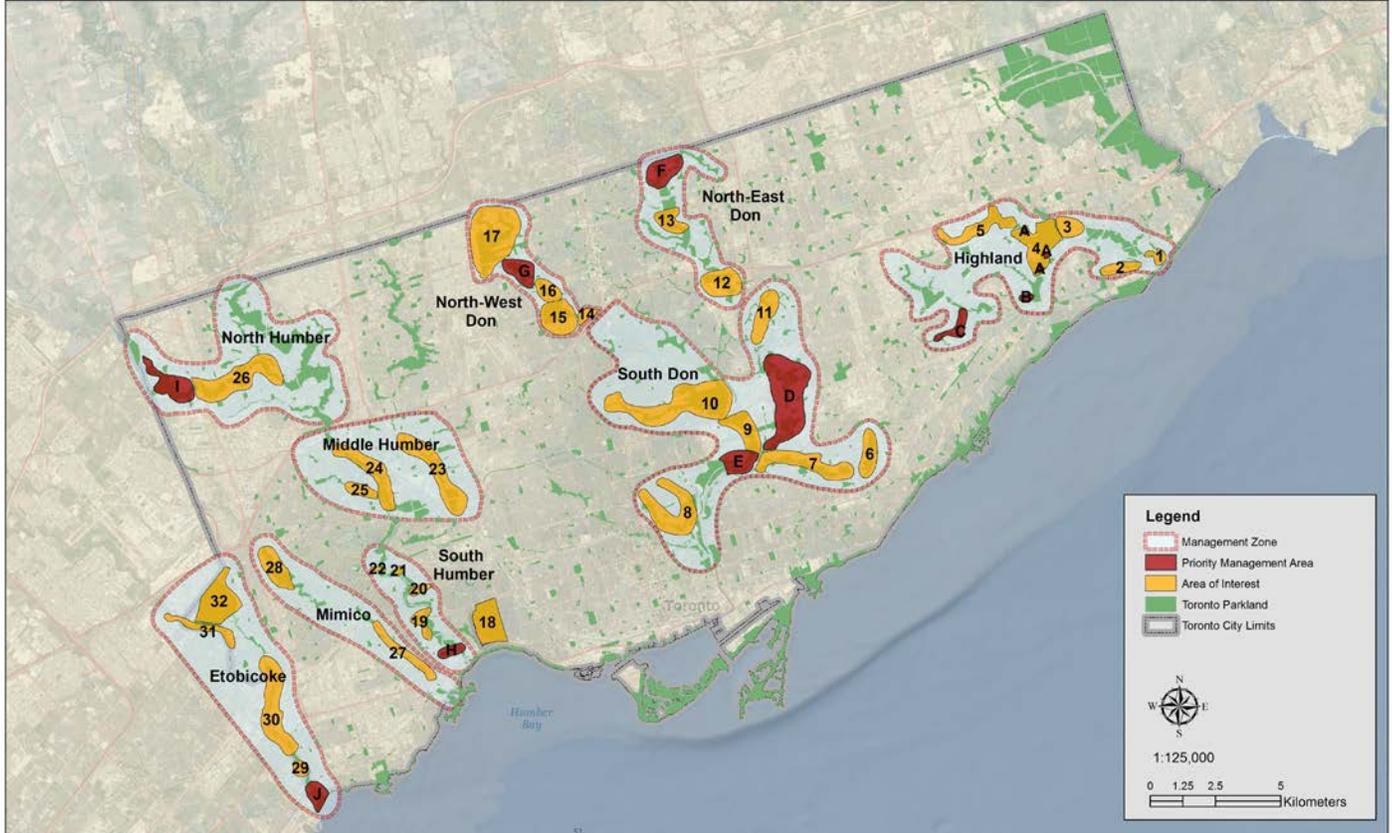


Figure ii: Management Zones, Priority Areas and Areas of Interest Map

### COST ESTIMATE

The order of magnitude cost estimates required over the next 5 years to execute the recommendations in this Strategy are:

Capital Budget: \$3.5 million

Operating Budget (yearly average): \$710,000

The natural environment trails system in Toronto is at once an economic driver, a means to protecting the ravine ecosystem and a keystone of the City’s passive recreational system. It is one of Toronto’s most effective and efficient recreation facilities. For a very low “cost per user” rate, the system requires comparatively little to plan, build and manage, and yet returns extremely high long-term recreational, environmental and educational value. Investing in and maintaining the natural environment trails will not only enhance recreation, but will also provide critical nature experiences for citizens of all ages over the coming years.

# 1.0 INTRODUCTION

The City of Toronto has an extensive, well used and well connected trail system that allows residents to explore, commute, recreate and socialize. These trails help make Toronto a livable City.

The City currently manages a network of nearly 300 km of paved and granular multi-use trails. There is also an extensive bikeway network that includes both on and off-road paved routes and trails across the City, through hydro corridors and into ravines and parkland. The City has converted former rail lines to trails such as the Beltline Trail and the West Toronto Rail Path, hosts regional trails such as the Waterfront Trail and offers interpretive trail programs such as Discovery Walks. Trails across the City host a multitude of events, user groups and programs.

In addition to paved and granular multi-use trails, there is an extensive network of informal natural-surface (dirt) trails within natural area parkland and ravines, referred to as natural environment trails. These are heavily used by hikers, dog-walkers, joggers, school and day-camp groups, nature enthusiasts and mountain bikers, and are highly valued as an important part of Toronto's recreational trail system. These trails are the focus of this strategy. **Unless otherwise stated, all references to trails in this report refer to natural environment trails.**

To date, this network of trails, similar in length to the City's paved trail network (or a third of the length of Ontario's Bruce Trail), is largely unmanaged and poses both a lost opportunity and a liability for the City. Growing demand for recreational trails and specialized cycling facilities brings unauthorized trail creation, unsustainable trail use, and damage to natural areas. As the City's population grows, active living and the desire for a connection with nature increases the need for the natural trails system to be carefully planned, designed, managed and maintained. This Strategy provides the framework for those changes and will help the City manage competing uses in our natural areas and ravines while also protecting valuable natural ecosystems.

# HISTORY OF NATURAL ENVIRONMENT TRAILS MANAGEMENT IN TORONTO



(Photo Credit: City of Toronto)

City of Toronto staff has been addressing the impacts to natural areas from recreational trail use since the mid-1990s. Erosion and compaction caused by recreational uses in natural areas were resulting in significant damage to trees and forest ecosystems. Two early studies include Impact of Mountain Biking Activities in Metro Parks (Marshall Macklin Monaghan, 1996) and Inventory of Mountain Bike Trails and ESAs within the Don Valley (Don Valley Consultants, 1994), both of which led to attempts to manage trail activities in several ravine and natural area parks for the purpose of forest protection.

Since 2002, the Natural Environment and Community Programs (NECP) unit of the Parks, Forestry and Recreation Division (PFR) have worked with local trail users to address the environmental impact of recreational activities on the Carolinian Maple-Beech Forest in Crothers Woods in the Don Valley. Management recommendations from the 1990s often promoted the exclusion of recreational uses, particularly mountain biking. This perspective changed over time with the understanding that the City does not have adequate resources for a high level of enforcement and that the growing, mainstream popularity of mountain biking and outdoor recreation in these natural areas could no longer be ignored. Staff initiated the Natural Environment Trails Program (NETP), an innovative, community-based program that works to improve the long-term sustainability of recreational nature trails in the City's ravines and parklands, while protecting the environment that surrounds them.



Volunteers (Photo Credit: City of Toronto)

In 2007, through extensive public input, stakeholder consultation and the establishment of a valuable partnership with the International Mountain Bicycling Association (IMBA), the Crothers Woods Trail Management Strategy (CWTMS) was created to guide extensive trail management and restoration activities. From 2008 to 2012, as part of the implementation of the strategy, eroded and unsustainable trails were closed, redesigned, repaired or rerouted resulting in 10km of multi-use natural and granular surface trails, five new trailheads with information kiosks and a safe, enjoyable, sustainable trail destination. The redevelopment of the trails system in Crothers Woods resulted in a reduction in erosion, soil compaction and tree root damage and the increased restoration and protection of 53 hectares of native forest habitat. The new trails also reduced the extent of informal trails being created and decreased user conflict through collaborative and thoughtful design.



(Photo Credit: City of Toronto)

Over the last 5 years, NETP staff have also undertaken exercises to further develop policy and best management practices for managing trails with internal initiatives - defining a mountain biking and trail strategy for the City, inventorying built features and establishing Toronto specific trail standards.

Using Crothers Woods as a pilot site, community and corporate volunteer trail building and trail maintenance events have been organized and led by expert staff and consultants. The site has also been used for mountain biking and trail running special events, which have informed staff of the types of activities people want to have on the trails and the range of issues that may need to be addressed in permitting these events.

There has been limited management of informal trails outside of Crothers Woods. Much of the work to date has been to map, inventory and document trails and trail related uses and impacts in natural environments across the City. From 2008 to 2010, NECP mapped the informal trail system throughout the City's major watersheds and natural areas. Approximately 227 km of informal, natural-surface trails and significant areas of environmental degradation, erosion, and many unauthorized structures and trail features have been identified. The location of unsanctioned trails is dynamic as old trails fall into disrepair and grow over, while new trails are built or blazed by members of the community on an ongoing basis.

This mapping exercise was the first major attempt to identify and evaluate the extent of the informal natural-surface trail system in Toronto. Recent initiatives have found that across the watersheds, close to 80 km of trails have yet to be mapped. Observations by staff suggest that the extent of the informal natural environment trail system requires a City wide trail management strategy, with specific trail plans and designs as well as natural area stewardship activities.

In 2009, with the majority of the informal trails of the Don Valley mapped, the City of Toronto Natural Environment Trails Working Group and Advisory Team was established by The Urban Forestry Department with interdepartmental representation to identify planning, policy and management strategies required to address natural environment protection and sustainable natural environment trail opportunities.



*Trail Volunteers (Photo Credit: City of Toronto)*



*Rock armouring (Photo Credit: City of Toronto)*



*(Photo Credit: City of Toronto)*

## THE NATURAL ENVIRONMENT TRAIL STRATEGY

**The City of Toronto Natural Environment Trail Strategy** is a high level planning document that is intended to support future trail management initiatives. It is a product of extensive data collection, outlining the opportunities and constraints for recreational opportunities in natural areas and a significant amount of input from trail users, local residents and stakeholders.

The Natural Environment Trail Strategy is written as a two part document. The first part focuses on guiding principles, strategies and recommendations, and a proposed action plan. The second focuses on the work taken to develop the first part: the project background – including benefits of trails, background studies, biophysical opportunities and constraints, community engagement key findings and trail supply and demand analysis. The Strategy is intended to provide guidance for the management of the natural environment trail system, and to guide future planning exercises. **It is written to help ensure the protection, restoration and enhancement of natural areas while offering safe recreational opportunities and improved access to all natural environment users.** By working extensively with stakeholders and the general public, it is hoped that this document, and future trail plans and initiatives, represent a high degree of ongoing public ownership of the trails.

### PROCESS FOR IMPLEMENTATION

The Natural Environment Trails Strategy will serve as a policy guide and framework for prioritizing trail improvement opportunities across the City. A number of geographic areas have been prioritized in this Strategy, and a set of criteria have been outlined to assist in future prioritization. A process for planning, design and implementation is included in the document, including a process for building and managing new trails for the prioritized areas identified in this Strategy. This involves:

- Collecting more detailed data;
- Developing trail management strategies for priority areas with appropriate public consultation and partnerships, and
- Undertaking conceptual and detailed design for the construction and management of trails.

Many of the City's larger parks have significant (unsanctioned) natural environment trail systems within them. The planning, design and management of trail systems in these parks should be undertaken within the context of a Park Master Planning process, in order to best balance the needs of trail users with other parks uses and environmental protection.

## THE EVOLUTION OF THE NATURAL ENVIRONMENT TRAIL STRATEGY

The timeline below illustrates the steps taken to date, and those recommended in the upcoming years to move towards a cohesive and consistently managed system of natural environment trails in the City of Toronto.

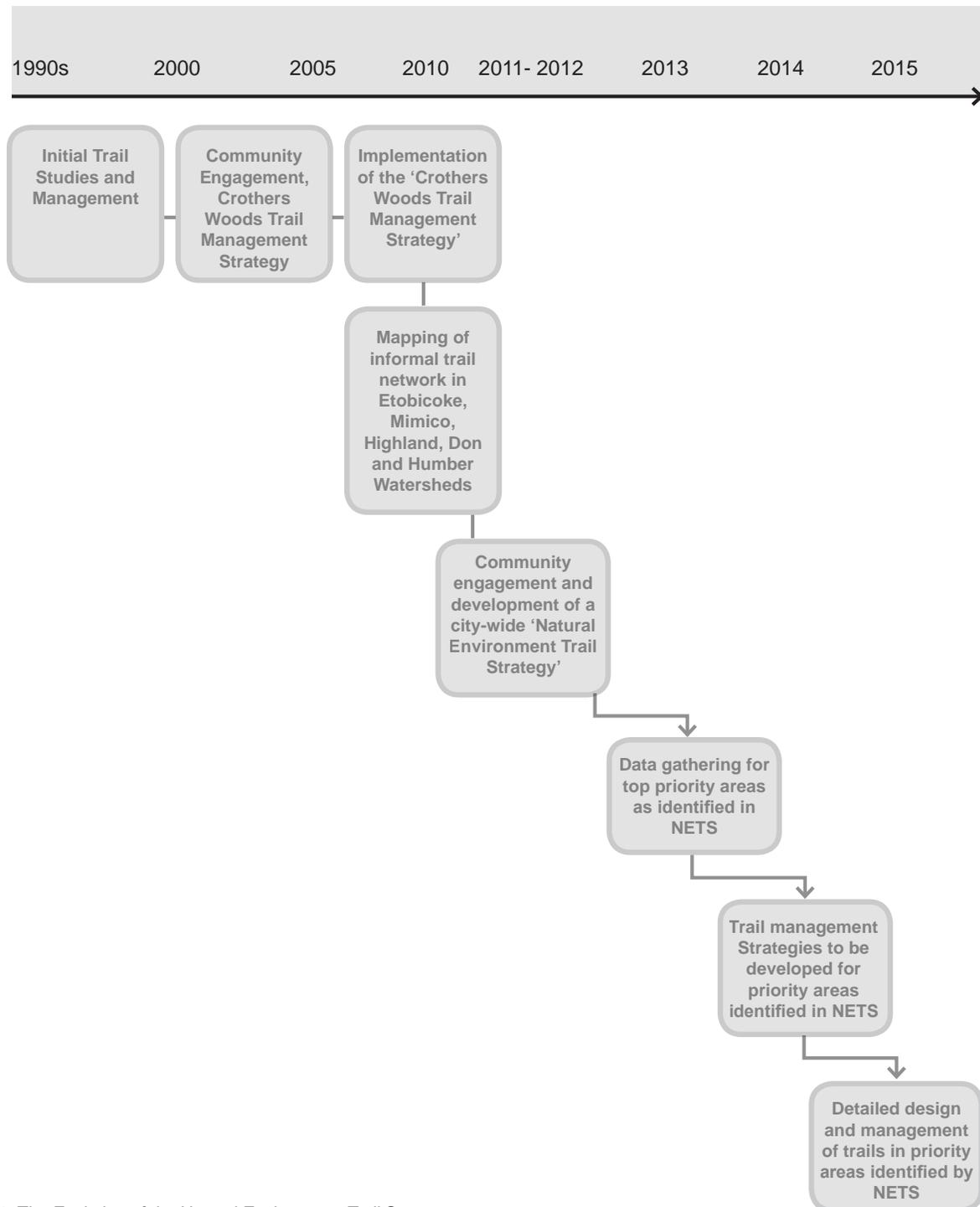


Figure 1: The Evolution of the Natural Environment Trail Strategy

A detailed timeline of the Natural Environment Trail Strategy is shown below. It outlines each of the steps taken in the development of the Strategy, including significant public and stakeholder engagement.

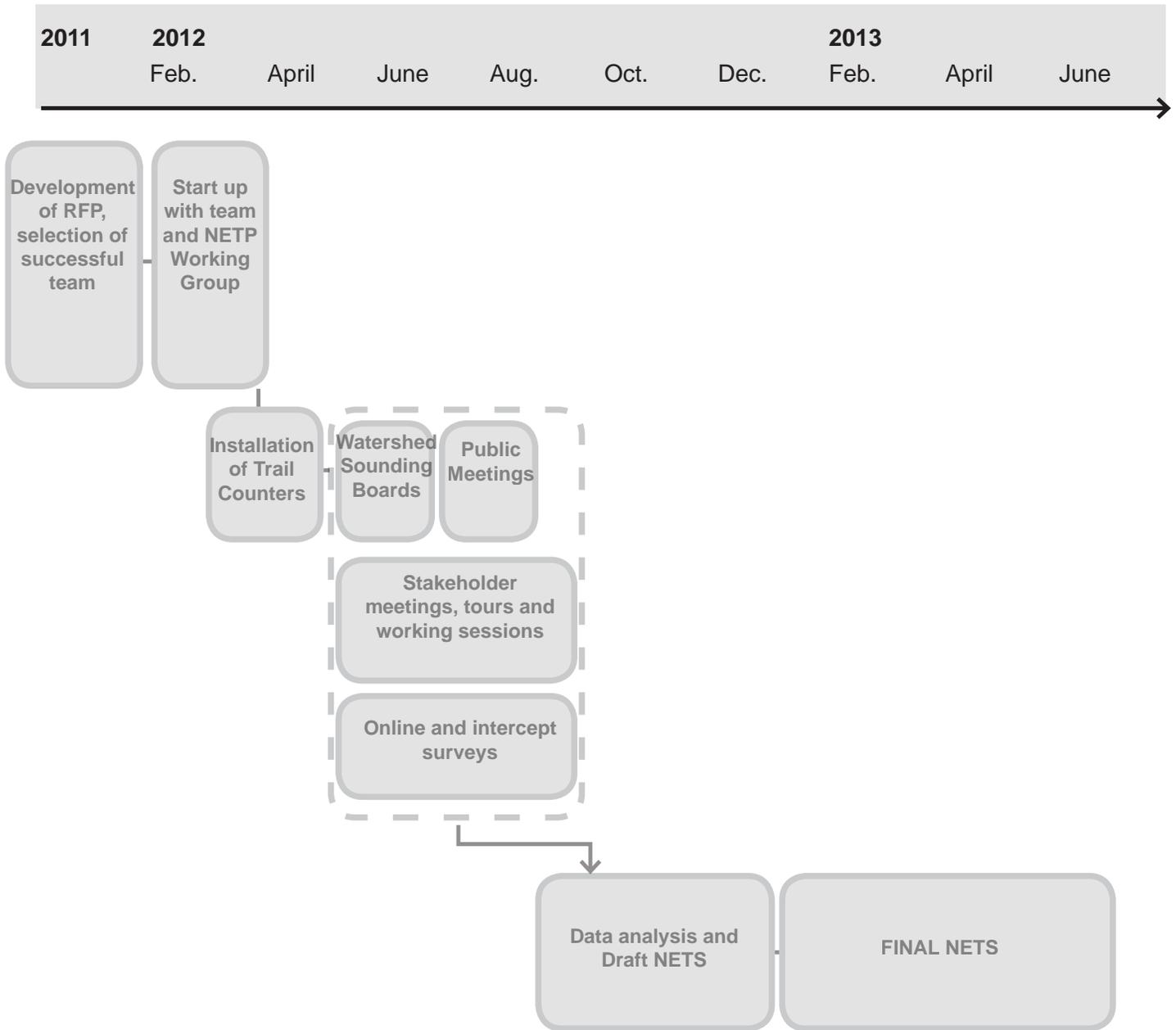


Figure 2: The Natural Environment Trail Strategy Timeline

## PROJECT SITE

The Natural Environment Trail Strategy (NETS) study area includes the trails contained in 5 City of Toronto watersheds: the Don River Valley, Highland Creek, Humber River, Etobicoke Creek and Mimico Creek:

- The Don Valley watershed extends over 36,000 hectares and contains 1.2 million residents. It includes the Don River which stretches almost 38 km in length. Of all the Toronto watersheds users in this watershed are the most actively involved in trail planning and stewardship initiatives;
- Highland Creek is highly urbanized. Despite this, 85 km of creek remains, and includes some of the largest contiguous areas of remnant forests, wetlands and meadows, providing habitat for deer, fox, monarch butterflies, and numerous bird and fish species. The Highland Creek watershed is home to 360,000 residents;
- The Humber River Watershed is the largest in the Toronto area. Originating on the Niagara Escarpment and the Oak Ridges Moraine, water flows down the Humber River system to Lake Ontario. The watershed includes 1800 km of waterways and 600 bodies of water. 732,000 residents live in the watershed, and
- The Etobicoke and Mimico creek watersheds contain 28,860 hectares and a population of over 400,000 people. They are two of the most developed and degraded watersheds in Toronto.



Figure 3: Study Area



Natural Environment Trails also exist in the Rouge Watershed – Areas of the Rouge watershed (north-east of Highland Creek Watershed) are currently in the process of becoming part of Canada’s first National Urban Park therefore the watershed was excluded from this strategy. In 2012 a trail strategy for Rouge Park was developed identifying potential trail improvements in the park. As the new National Urban Park develops and GTA residents’ demand for outdoor experiences increase, the City of Toronto will work with Parks Canada to ensure that trail infrastructure is well coordinated.

## 2.0 GUIDING PRINCIPLES

The following guiding principles are intended to direct the development and implementation of the City of Toronto's Natural Environment Trail Strategy. The goal and principles guiding this Strategy support the goals and principles established for the [City of Toronto Parks Plan](#); [City of Toronto Recreation Service Plan](#); [City of Toronto Bike Plan](#); and the [Strategic Forest Management Plan](#).

### Goal:

Ensure the protection of the City of Toronto's natural areas while offering safe and enjoyable recreational opportunities for all natural environment users by creating a sustainable multi-use trail system.

### Principles:

- 1. Parks and Trails as City Infrastructure:** Trails are vital components of City infrastructure. They provide recreational opportunities to residents and visitors, creating connections both within and outside of the City. As a means of access to nature, trails provide opportunities for relief from the urbanized environment;
- 2. Equitable Access:** Trails are a valuable City resource and should provide an inclusive environment welcoming to users of varying abilities, including those with physical, sensory and intellectual disabilities;
- 3. Environmental Protection:** One of the key purposes of the trail system is to better protect the natural areas that house trails through trail design and stewardship. These trails provide opportunities for the public to learn about the function and value of the City's natural environment, and
- 4. Community Engagement:** Community involvement, throughout planning, construction and maintenance, is necessary to ensure the long term success of the trail system and protection of natural environment areas. Stewardship and volunteer participation is encouraged, complimenting existing City resources and helping to provide high quality trails

*"If we are going to stop building bike lanes on streets then we should make the trails better for commuting: better signage about closures; dryer trails in Taylor Creek; more separation of pedestrian and bike traffic."*

- survey respondent



## 2.0 GUIDING PRINCIPLES

## 3.0 STRATEGIES & RECOMMENDATIONS

The Natural Environment Trail Strategy contains four categories of strategies:

- Stewardship & Partnerships;
- Planning & Design;
- Marketing & Education, and
- Management: including Service Delivery and Policies.

These strategies include policies, responsibilities and associated recommendations to guide the planning, design and ongoing management of Toronto's trail system.

### 3.1 STEWARDSHIP & PARTNERSHIP STRATEGY

Members of the public have been very actively involved in many of the City's trails - building and maintaining trails for decades, in most cases informally and unsanctioned. More recently, the public has been involved through the City led Natural Environment Trails Program (NETP), through community volunteer programs. Experience with trail planning, construction and maintenance through the NETP has shown that providing the community with an opportunity to build and maintain trails develops a sense of ownership for the new trail system and reduces the amount of vandalism, particularly in areas requiring trail closures. Community outreach and engagement is critical to the ongoing success of the trails. Continued and strengthened partnerships with external stakeholders such as community organizations and stewardship groups, the Toronto and Region Conservation Authority (TRCA) and educational institutions would ensure a more robust and well cared for system.

The Stewardship Strategy includes the following:

- Adopt a Trail Partnerships;
- Trail Stewardship Teams;
- Public Volunteer Trail Events, and
- Partnerships and Sponsorship Opportunities.

#### Adopt-A-Trail Partnerships

These partnerships can occur through a formal agreement between the City and community groups with an interest in trail use and the natural environment. Sections of trail could be "adopted" by a local group that act as public education trail ambassadors, monitor the trail and undertake minor maintenance (i.e. clearing garbage, ensuring signs are visible). In this way, the City benefits from the volunteer labour and the community group benefits from the profile they receive for outreach to potential members as well as the opportunity to care for a local trail that they use.

**Fundraising/Partnership Opportunities:**

- Local bike shops
- Beverage manufacturers
- Jogging clubs
- Bike manufacturers
- Footwear and active wear manufacturers
- Local grocery stores
- Coffee shops
- Sporting events
- Health and recreation organizations
- Outdoor adventure organizations
- Outdoor equipment manufacturers

**Trail Stewardship Teams**

These teams would be responsible for trail and natural environment stewardship for specific areas designated by NETP Staff. Teams of volunteers would be recruited from the community to participate in weekly or biweekly activities through-out the season (approximately May to September). Activities would be overseen by staff and trained volunteers. Activities may include control of invasive species, garbage collection, monitoring, outreach, minor trail repairs and closures, and planting of native plants.

**Public Volunteer Trail Events**

Volunteer trail maintenance or trail building events can be organized by Staff for community and/or corporate participants. These events bring together resources (i.e. staff/contractor expertise, equipment, large group of volunteers, etc.) over a short period of time (i.e. half a day, a weekend) in order to complete a more complicated project such as a trail build.

See Appendix A for more details on Types of Trail Volunteering.

**Partnerships, Sponsorship and Fundraising Opportunities**

Toronto's trails offer many opportunities for partnering with organizations and working with groups on sponsorship and fundraising opportunities. These include:

- Partnering with like-minded groups and associations such as the Ontario Trails Council, the Toronto Bruce Trail Association, TDSB EcoSchools, Toronto Field Naturalists, Heritage Toronto and Jane's Walk to coordinate events, outings and initiatives;
- Donations through the Toronto Parks and Trees Foundation by residents, trail users and corporations wanting to contribute to the trails;
- Sponsored events such as races, skills clinics including beginner rides, hikes, trail builds and nature walks;
- Corporate team building days and trail maintenance events, and
- Cost recovery through permitting fees.

**STEWARDSHIP & PARTNERSHIP STRATEGY – RECOMMENDATIONS**

1. Create and enhance partnerships with all stakeholders to strengthen the Natural Environment Trails Program and ensure the long term success of trails in Toronto.
2. Include trail users, the general public and all stakeholders in trail planning, design, construction and maintenance processes.
3. Provide community volunteers with varied and structured volunteer opportunities.
4. Explore all opportunities for developing sponsorship and fundraising partnerships.

## CORPORATE PARTNERSHIPS – LOCAL BUSINESSES CHIP IN

The Natural Environment Trails Program (NETP) is very grateful to all of its corporate partners who help sustain and support trails and forest health in Toronto. From getting their hands dirty building a trail to generous donations, our corporate partnerships are a valuable component to the program. A few examples of recent partnerships include:

- Loblaws – In-kind donations, easement agreement and financial contribution for Crothers Woods Trailhead;
- Telus Mobility – Staff volunteered for a day to close old trails and restore forest health. Donation to NETP;
- Davies, Ward, Phillip, Vineberg – Corporate team building day to repair degraded trails. Donation to NETP, and
- Unilever Canada – Staff assistance with trail building and repair, tree planting and garbage clean up. Donation to NETP.



*Crothers Woods Trail Building  
(Photo Credit: City of Toronto)*



*Corporate Trail Volunteers (Photo Credit: City of Toronto)*

## 3.2 MARKETING & EDUCATION STRATEGY

The trails are a unique element of the City of Toronto's urban infrastructure. They play an important role in supporting environmental education and building commitment to environmental conservation, providing a setting for natural history lessons, experiential education, and opportunities for a reconnection and learned respect for nature that is often lost in urbanized environments. At the same time, they provide local residents of all income levels with access to a space in which to be active and socialize – foundations of healthy residents and communities. In the absence of environmental education, users and non users are more prone to destructive or unsafe behavior including illegal dumping, stream pollution, damage and removal of natural vegetation, building of unsafe and unsustainable informal trails and structures and activities leading to trail degradation, user conflict and safety issues. Awareness, education and advocacy are integral to fostering respect for the natural environment and an appreciation for the health and safety of the public recreating within it.

The marketing and education strategy includes:

- Public campaign initiatives and events;
- Media components; and
- Signage and wayfinding devices.



(Photo Credit: G. Horvath, Black Creek Conservation Project)

### Public Marketing Campaign Initiatives & Events

Public marketing campaign initiatives and events can be targeted to trail users and non users. Promoting the existence and extent of the trail system, the ease in accessing them – often a short walk or bike ride from home, work, or a TTC station - in addition to the health benefits of trail based activities and natural history of the ravines may turn non users into users, and educate existing users of the extent of such an extensive trail system. Public education informs users of the harm caused by activities such as dogs off-leash and the illegal dumping of garden waste close to the trails. Users can be further educated in responsible trail use, sustainable trail management and Toronto's natural and cultural history.

Initiatives could include targeted public campaigns such as:

- Trail basics – promoting the existing trails to new users and preparing them for their first trip;
- Natural and cultural history of the ravines;
- Health benefits of trail based activities;
- Trail code of conduct;
- Impacts of illegal dumping of garbage and garden waste in natural environment areas;

- Invasive species, sensitive species, water quality and habitat, and
- Impacts of off-trail activity and dogs off-leash on the forest understory.

All-ages initiatives, as well as programs targeted to youth and school groups should be emphasized.

Events could include initiatives such as 'Trails Open' based on the popular and successful 'Doors Open' model, and tours, educational outings, and stewardship days.

### Media Components

Over 1200 trail users were surveyed as a part of the NETS project. One of the questions posed asked respondents how they found out about the trails. 50% found out about the trails by word of mouth, while 22% of respondents report discovering the trails by exploring their neighbourhoods (exploring/wandering/by accident), suggesting that improved signage could result in increased usage. 12% found out about the trails from either a recreation group or community group and less than 10% found out from the City of Toronto website - leaving room for improvement through this and other media outlets. Campaigns should consist of events as well as media components, and a well-populated and up-to-date website. Media promotion of trail locations, trail events or trail code of conduct should be done when opportunities arise. In order to encourage ongoing dissemination of information by word-of mouth, NETP's existing trail user list (containing over 400 trail users accumulated through several years of community engagement) should be maintained and updated as a means of reaching the public.

Local community groups and organizations are important resources throughout trail planning, building and maintenance processes. They are excellent vehicles for educational and marketing initiatives – networking to local interest groups and the public, providing volunteer opportunities and support, and creating programs such as children's day camps and trail clean up and invasive species removal days. City staff, or stewardship groups, could also lead educational trail walks. Promoting trails to and through ethnic media would be a good way of reaching language specific communities.

The development of print and web-based resources is important in reaching out to local trail users. This includes providing information at community centers, as well as areas known to be frequented by trail user groups. Web-resources, including the use of websites and social networking provide easy access to information about the trails.

In the future, the trails could be marketed both to local users for daily use, and also as a tourist destination – possibly in connection to regional trail initiatives.

According to statistics collected by NETP staff in 2008, 37% of off-road cyclists receive information about mountain biking through bike shops.

2012 survey respondents report making use of the following sources for information on the trails:

- City of Toronto Website
- International Mountain Bicycling Association
- Bike Forums
- Facebook
- Lapdogs cycling club
- Mtbr.com
- Pinkbike.com
- Ridingfeelsgood.com
- Don Mills Residents Association
- Toronto Off-Road Bicycling Association
- Toronto Field Naturalists
- Wild Betty's

Trail etiquette signs that focus on positives - lists of "Don'ts" are condescending and don't encourage good behaviour, specify "Do's" and focus on a positive trail experience for all.

*"We are good at telling walkers how to enter our trail system; we are bad at indicating how to get out."*

- survey respondents

Trailheads can also provide notice boards to centralize community events and park work notices.

## Signage and Wayfinding

Signage is a crucial aspect of an urban trail system as it provides a base level of information that reassures new and novice users, explicitly lists the rules and etiquette, underpins risk management, can add to the enjoyment of the walk or ride and enhances the understanding of the natural ravine system. A comprehensive, coordinated signage program is required in order to ensure City of Toronto (COT) branding, consistent messaging, aesthetic fit, understandability and legibility, compliance with Accessibility for Ontarians with Disabilities Act (AODA) standards, maintenance and affordability. It can also help to foster public pride in the cleanliness, maintenance and safety of the trails by using approachable language without being over regulatory in nature.

Any signage and wayfinding program must also follow all PFR signage and wayfinding guidelines and standards. Trail signage and wayfinding must also be compatible with current City wide initiatives such as the Toronto 360 wayfinding system that is currently being developed.

### Trailhead Signage

Trailhead signs at all major access points should be used on all managed trails to orient users, communicate and teach trail etiquette, and provide cautionary information about safety concerns and hazards - ensuring that trail users understand and assume risks associated with their activities along the trails. The signs should warn of major dangers (e.g. steep drop offs, etc), postings regarding maintenance, and details outlining that users are responsible for their own safety and use the trails at their own risk. At a minimum, all such signage:

- Must use simple, direct and clear language;
- Should reflect the language(s) of the neighbourhood;
- Should consist of wording, symbols or a combination, and
- Should be the only sign on a post where possible.

As per the Accessibility for Ontarians with Disabilities Act (AODA), detailed trail information including trail length, surface type, average and minimum trail width, average and maximum running slope and cross slope, and the location of amenities is to be provided at each trailhead in order to ensure that users of different abilities can gauge whether they are able to complete the trail. Text for all trailhead and wayfinding signage should have high tonal contrast with the background in order to assist with visual recognition and should include solid characters and appropriate use of fonts. Where other media such as websites or brochures are used to provide information about the trail, this same AODA information must be listed.

## Wayfinding

Wayfinding signs should be used along trails in conjunction with trailhead maps to orient trail users and assist in route planning. Due to the relatively close proximity to urban landmarks (i.e. roads, bridges, tall buildings), the comprehensive maps that will be included at each trailhead, and the aesthetic appeal of limited infrastructure in natural areas, wayfinding signage along trails should be limited. Signage at trail intersections should be limited to signage regarding the difficulty level of the trails, direction to the closest “exit”, numbered markers to assist with map reading (i.e. ‘You Are Here’) and directions for emergency services.

## Interpretive and Educational Signage

Interpretive and educational signage could be integrated to provide users with information on the natural and cultural history of the trails. In an effort to reduce “signage pollution”, or over-signing, of the trails, this signage could be integrated at trailheads, in tandem with way-finding signage or sensitively incorporated at key view points.

Developing Smartphone Apps (such as Hike Bruce Trail APP, Superior Hiking APP or Burke Vermont Trail Map), and incorporating QR codes onto interpretive trail signage could allow users with Smartphones to scan the code to link directly to more in-depth web based information on the trail system, or upcoming stewardship events. It could also allow users to upload information on trail issues (degradation, disrepair, illegal dumping, garbage), including their GPS location. For those without access to a Smartphone a web address (URL) could be included at trailhead signage.

*“I love how many there are around Toronto, however it’s hard to find out about them - as a recent immigrant I find a lot of this knowledge is “assumed “.”*

*- survey respondent*

*“There should be a better way of notifying people when bridges are closes for repair (and signs before)”*

*- survey respondent*

## MARKETING & EDUCATION STRATEGY - RECOMMENDATIONS

5. Undertake targeted public campaigns and communications to reach all City of Toronto communities, including diverse cultural and language groups and individuals of all abilities to promote the natural environment trail system, responsible and sustainable trail use and trail etiquette.
6. Provide educational and interpretive information on the ravine and trail system, trail maps and up to date information through a variety of mediums and outlets.
7. Add managed trail areas to any relevant ‘Park and Greenspace’ lists (i.e. Parks listing on Parks Forestry and Recreation website).
8. Encourage local stewardship, trail activity based businesses and groups to undertake education based events on the trails and to participate in trail promotion activities.
9. Focus marketing on the trails as a daily recreation resource for local residents and as a tourist destination, in connection to regional trail initiatives, or as an outdoor recreation destination on the eco-tour circuit.
10. Create a comprehensive, aesthetically fitting and approachable signage and wayfinding program for all managed trail systems that follows all Parks Forestry and Recreation signage and wayfinding guidelines and standards and is compatible with current City-wide initiatives.

# SIGNAGE AND WAYFINDING



Short Grass Prairie nature sign (Photo Credit: City of Toronto)



(Photo Credit: City of Toronto)



(Photo Credit: City of Toronto)



(Photo Credit: City of Toronto)



(Photo Credit: Hike Bruce Trail APP)



(Photo Credit: Bike Vermont Bike Trail APP)



Example of a QR code – QR codes can be put on virtually anything. When scanned with a smartphone they link to a designated website.

### 3.3 PLANNING & DESIGN STRATEGY

The Natural Environment Trail Strategy is a high level document. Following its completion, detailed planning and design will be required. Sustainable trail planning and design should be undertaken following best management practices and an adaptive management philosophy. This is key to a system such as NETS where a “one solution fits all” approach is rarely appropriate and typically hinges on site conditions, user group capacity and community involvement. A sufficient level of planning and design is required in order that volunteers and stewards can be appropriately directed, bio-physical priorities be addressed and synchronization with other City initiatives be assured. As well, it is imperative that thoughtful, open engagement opportunities are created and the future efforts of volunteers are encouraged.

The planning and design strategy includes:

- Environmental Protection & Restoration;
- Trail Users, Experience and Classification;
- Accessibility;
- Planning and Design Process, and
- Trail Standards.

#### ENVIRONMENTAL PROTECTION & RESTORATION

A healthy natural environment is the cornerstone to a successful trail. Ravines, woodlands, wetlands and natural parklands are highly sensitive. When the topography, water flow or natural plant community is altered in any way, the ecology and function of the natural features are affected, in turn, impacting forest health, water quality, flood control, wildlife habitat and natural linkages.

Although desired trail user experiences differ (according to 2012 user survey data, 24% use the trails primarily to exercise, 23% to be close to nature and equal numbers use the trail for solitude/adventure/to do an activity with friends and family), there is a commonly held belief that the environment that surrounds the trails should be protected and enhanced wherever possible. The majority of trails in Toronto parkland were not planned, designed or constructed to be sustainable and the intensity of recreational use has increased over time. As a result, many trails are degrading and creating negative impacts on the surrounding natural environment regardless of the type of user.

A trail can be planned and managed as a means to help protect and enhance a natural area. If planned and built correctly, a trail will:

- Keep trail users on a designated path;
- Introduce residents to natural areas, encouraging a sense of ownership and stewardship;

#### Unauthorized Trail Building

Unauthorized building of trails, dirt jumps and structures has serious impact to natural areas, including habitat fragmentation, erosion, soil compaction and increased sedimentation in local waterways. **Illegal trail and feature building sets a poor example for responsible stewardship of public lands and does not take into consideration the required steps to ensure a trail will have the minimal impact possible on the natural environment.** Once an unofficial trail becomes well established the compaction and disruption to native vegetation communities is severe and potentially irreversible, threatening the thing we all share - the appreciation of the beauty and ecological integrity of the natural environment.

Parks Plan consultation results show that Torontonians value the natural environment, and want to see natural areas protected and preserved.

*"Ensure trails do not have negative impacts on sensitive natural heritage features or habitats for sensitive species, please maintain a hierarchy of trails, not all trails have to be paved and 3m wide!"*

- survey respondent

- Focus resources on natural areas where trails are managed for invasive species removal, trail closures, restoration and natural area expansion;
- Increase awareness of natural environment issues through user experience and interpretive programming;
- Provide for the most effective and efficient use of resources in maintenance and management of infrastructure and natural resources while optimizing cost/benefits, and
- Manage water flow to minimize erosion on trails and along water courses.

A number of policies and regulations currently exist to protect ravines and Toronto's other natural resources. In Toronto ravines and parklands the following rules and regulations will need to be adhered to during the planning, construction and management of trails:

- Ravine and Natural Feature Protection By-Law Chapter #658
- Parks By-Law Chapter #608
- Littering and Dumping of Refuse By-Law #548
- Animals By-Law #349
- Toronto and Region Conservation Authority, Ont. Reg, 166/06;
- Migratory Birds Act;
- Fisheries Act;
- Endangered Species Act, and
- Species at Risk Act.

The following studies and documents offer general policy support for trail development and environmental protection:

- City of Toronto Official Plan;
- Environmentally Significant Areas (ESAs) in the City of Toronto;
- Review of Provincially Significant Wetlands in the City of Toronto;
- Provincial Policy Statement;
- Climate Change, Clean Air and Sustainable Energy Action Plan;
- Canopy Doubling Initiative;
- Wet Weather Flow Management Plan;
- Green Development Standards, and
- Greenbelt Plan.

See Appendix B for more detailed Environmental Protection Principles.

## ENVIRONMENTAL DEGRADATION FROM POORLY DESIGNED TRAILS

The majority of the informal, natural surface trails in Toronto parkland were not planned, designed or constructed to be sustainable. The intensity of recreational use has increased over time. As a result, many trails are degrading and creating negative impacts on the surrounding natural environment.

The most common environmental impacts from poorly designed trails are:

- Erosion from altered water flow and disturbed soils along sloped sections of trail. Serious erosion problems are often found along fall-line trails that travel straight down steep slopes. In fall-line trails, water is caught and carried along a trail, instead of traveling over the outslope of the trail. Severe erosion along fall-lines may create gullying which exacerbates the rate of erosion and can create hazards for trail users.
- Trail Widening. Muddy sections are often found along flat sections of trail where water collects or in areas with seepage. Trail users will try to avoid going through the mud by traveling around the muddy area. The vegetation on the sides of the trail becomes trampled, and eventually the size of the muddy section grows. Muddy section of trail may lead to major soil structure disruption, soil displacement and widening of trails.
- Trail proliferation and the development of multiple parallel trails. This includes shortcuts between trails and to desired destinations, or when obstacles like rocks, tree roots or gullies force trail users to walk or ride around them.
- Changes to vegetation composition from trampling. Trampling will cause injury and destruction to ground-level vegetation. Some plant species have a greater ability to survive trampling, so the species composition often changes along trails. Most often this results in an increase in invasive, non-native species. Also, seeds from invasive plants can be introduced and spread by dirt on boots and bike tires.
- Compaction of soil. Compaction is the cumulative result of hiking boots and knobby tires concentrating weight in relatively small areas. When the soil around plants is severely compacted, water cannot penetrate and delicate roots are crushed causing damage to plants. Compacted soil reduces water infiltration and increases water runoff. However, when a trail is first being established, compaction of the trail tread can contribute to more stable soil conditions and more durability.



*Eroded Trail (Photo Credit: City of Toronto)*

## PLANNING & DESIGN STRATEGY – RECOMMENDATIONS

11. Give priority to natural environment protection over trail use where they cannot coexist.
12. Strengthen the natural environment trail system as a continuous, connected system that supports recreational use and the ecological functions of the regional green space system.
13. Avoid locations where significant/sensitive species or landscapes occur by undertaking detailed vegetation mapping to species level, and assessment of soils, micro-drainage and other features in areas identified for management in order to identify opportunities and constraints, and/or need for alternative locations for trails.
14. Follow environmental protection policies and principles regarding the protection of ravines and natural area parklands in the planning, construction and management of trails and trail areas including closing or restoring trails where needed.



View from Camp of the Crooked Creek Trail (Photo Credit: City of Toronto)

*"I enjoy the natural trails on a daily basis regardless of the weather for what they are, namely NATURAL TRAILS!!! ... don't "improve" them. The ravine system in the Toronto area provides habitat for many wild animals and provides a conduit for them to move about. The more the trail system is "improved" the worse it is for the natural denizens of the ravines. Please avoid any further paving of the natural paths.*

- survey respondent

### Environmentally Significant Areas

Within the City of Toronto's natural heritage system are natural areas which are particularly significant or sensitive and require additional protection to preserve their environmental qualities and significance. These areas are referred to as Environmentally Significant Areas (ESAs).

The Toronto City Planning Division recently completed a study to identify sites within the City of Toronto that meet the Official Plan ESA criteria. A working group of City and TRCA staff has been formed to review all identified sites prior to designation in the Official Plan and to identify policies and best practices to protect ESAs on an ongoing basis. Development is not permitted within ESAs and activities are limited to those which are compatible with the preservation of the natural feature(s). As part of the ESA study, site condition assessments were undertaken. Several significant issues affected all sites, including *"ad hoc paths (non-sanctioned paths that often led to impacts on sensitive features) which would benefit from management as well as some targeted landowner and user outreach, education and stewardship, as well some City-led hands-on management"* (North-South Environmental Inc., Dougan & Associates, Beacon Environmental, 2012, p. 51).

The study identifies that simply protecting these sites from development will not be enough to ensure their continued ability to sustain the significant habitats and ecological qualities for which they have been identified. In order for the sites to remain high ecological value in the future, the study recommends ongoing management including educational signage, stewardship to involve surrounding residents and users, ecologically-sensitive trail planning and design, selective closures and monitoring of encroachments.

Trail planning, development and long term management in ESAs should follow best management practices to reduce and limit human impacts on these areas. The City of London recently completed 'Planning and Design Standards for Trails in Environmentally Significant Areas,' outlining substantial policies and strategies for trail management (See Appendix C).

The City of Toronto should follow a similar mandate regarding trails in ESAs:

- The primary reason for trail development in ESAs is to direct intensive activities away from sensitive natural areas while providing passive recreation opportunities and promoting ecological awareness;
- The development of all trails and structures will be contingent upon the environmental sensitivity of the area, and
- The number and magnitude of trails within an ESA will be minimized.

## PLANNING & DESIGN STRATEGY: ECOLOGICALLY SIGNIFICANT AREAS – RECOMMENDATIONS

15. Limit environmental impacts by following best management policies for trails in ESAs.
16. Prioritize ongoing management of the natural environment trail system for the protection of Environmentally Significant Areas including sustainable trail planning and design, educational signage, stewardship initiatives, selective closures and restoration.

### TRAIL USERS, EXPERIENCE AND CLASSIFICATION

#### Trail Users

An urban trail system faces the unique challenge of having to offer a wide range of trail experiences to a variety of users in a relatively small and constrained space. Toronto's trail system currently supports:

- Walkers;
- Hikers;
- Trail runners;
- Nature Appreciators;
- Dog Walkers;
- Cyclists: Mountain bikers and BMX riders, including cross country, freeriding, downhill and dirt jumping disciplines;
- Staff: to access ravine areas to service infrastructure or respond to emergency situations, and
- Others, including participants in geocaching, orienteering, educational programming, active commuters (i.e. school children walking to school), cross country skiing and snowshoeing.

The majority of trail users surveyed during the NETS consultation process report rarely having conflicts with other users. The two user groups with the



Winter Mountain biking  
(Photo Credit: IMBA)

*"It would be great to have trails of different difficulty. I agree that it's important to have accessible trails so everyone can enjoy the parks, but it would be nice to have some more challenging less groomed trails. All that gravel gets boring."*

- survey respondent



(Photo Credit: John Izzatt)

highest reported incidents of conflict are dog walkers and bikers, although many of these are reported on the paved trail network, rather than the natural environment trails.

Most activities regarding trail use is governed by municipal code chapters #608 Parks, #548 Littering and Dumping of Refuse and #349 Animals. Further regulations regarding Dog Walking are outlined in the City's People, Dogs and Parks Off-Leash Policy and Commercial Dog Walker Permit Policy.

There are currently very few regulations for mountain biking other than those outlined for bicycles in the Municipal Code Chapter #608. The most comprehensive guidelines regulating mountain biking in public spaces are as outlined in Appendix D, Parks Canada – Visitor Activity Guidelines for Mountain Biking. Additionally, the TRCA has developed a [Geocaching policy](#) to address an increased use of trails and parklands for this activity

**Experience**

User experience is a key consideration in the planning and design of trails, and is one that is often overlooked. The trails provide a safe space in which to recreate and have fun – from intense physical activity, to more passive activities such as nature appreciation or a gentle stroll; as individual pursuits to group outings. They should allow for nature exploration by young children through to senior citizens. The trails need to provide a safe space for a wide range of user experiences, activities and skill levels. In settings such as this, user experience is also key to the environmental protection of the ravines – if users are not satisfied with the trail system, they will likely continue to build unsanctioned components.

Please see 'User Groups' pg 126 for more detailed information on the various types of Toronto trail users.

**Classification**

The application of a formalized trail classification system would allow users to better select trails that meet their skill level and desired experience. A formalized system also allows all stakeholders with a better understanding of the requirements for a particular trail during planning, construction and maintenance. An extensive trail system should include a range of trail widths, lengths, and degrees of difficulty. As the City develops and manages more trails and a broader variety of trail experiences, a "made for Toronto" trail classification system should be considered.

Element / Rating	EASY	MODERATE	DIFFICULT	UNRATED
Symbol				

Parks Canada Trail Rating Classification Table

Until this time, the following best management practices (BMPs) should be followed:

- The trail classification system currently being developed as part of the TRCA Trail Strategy (currently being developed, see page 29 for more information)
- Parks Canada Trail Classification System (see Appendix E)

### Multi- Use vs. Single Use

The majority of City of Toronto trails are shared, or multi-use. As outlined in Parks Canada Trail Guidelines, Trail Classification System – User Guide (Parks Canada, 2012), multi-use trails can best accommodate the needs of most users.

The benefits of multi-use trails include (Parks Canada, 2012, p. 15):

- Multi-use trails best accommodate the needs of the most users. Multi-use trails disperse visitors across an entire trail system, while single-use or restricted-use trails tend to concentrate users, increasing negative social and environmental impacts through crowding;
- Multi-use trails are most cost effective to manage. They require fewer signs and staff, which simplifies monitoring and enforcement; this is because you need fewer trails to accommodate the visitors if the trail is shared than for a specific trail for each user (10 km of hiking and 10 km of biking trail rather than 10 km of multi-use hiking / bike trail);
- Multi-use trails empower responsible, experienced users. Novice and irresponsible users are exposed to conscientious, courteous users, and the opportunity for peer regulation is enhanced;
- Multi-use trails take better advantage of available space. More trails for visitors to enjoy while minimizing the footprint of the trail system, and
- Multi-use trails manage the most visitors. Trails that lead to major destinations, such as scenic vistas, should be multi-use, since all visitors want to see these points of interest.

Single-use trails are trails that are designated for a single trail activity. Single-use trails have their advantages in that they can cater more directly to a particular experience. Reasons to consider single-use trails include:

- Crowded Trails: Popular trail systems with very crowded trails can have a combination of multiuse and single-use trails. Separating visitors helps to ensure that they won't have to endure traffic jams, or a potential collision with other users on the trail;
- Crowded Trailheads: Trail systems can have separate access points that cater to specific visitors;
- Nature trails: A single-use trail can be created to provide hikers or birdwatchers with the seclusion they desire, and

- Extraordinary mountain bike trails: the experience of riding narrow, roller-coaster trails where twists and turns unfold in rhythm is highly valued by many mountain bikers.

### Preferred-Use Trails

Preferred-use trails are open to all types of trail activities but are planned and designed with a certain visitor in mind. For example, a trail that is preferred for mountain biking may be designed to have fast and flowing sections through open terrain.



(Photo Credit: Jon Watts/Joneboi Flickr Creative Commons)

This would appeal to mountain bikers more than most hikers, but would not restrict access to hikers. Or, a hiking-preferred trail may have stairs, sharp corners, or other qualities that would be less attractive to a cyclist or equestrian. Visitors will be drawn to trails that match their desired experience, but should be appropriately signed.

### Bi-directional Trails

As recommended in The International Mountain Bicycling Association's 'Trail Solutions' (IMBA, 2004) City of Toronto trails should be built as bi-directional in most cases. Trails designed with user safety in mind lend themselves to bi-directional trails, considering all aspects of trail safety including blind corners, user speed, trail hazards, volume of use and types of trail users. As appealing as single directional trails may be, they can:

- Lead to uneven wear on the trail tread;
- Limit the experience, as visitors often like to travel in both directions;
- Be difficult to monitor and enforce;

## PLANNING & DESIGN STRATEGY: TRAIL USERS, EXPERIENCE AND CLASSIFICATION – RECOMMENDATIONS

17. Plan, design and construct trails for multiple activities and user skill levels appropriate to their location and role within the overall system.
18. Incorporate connected and looped trails as part of the system.
19. Plan and design trails with user experience as a key consideration.
20. Develop a Toronto Mountain Biking Policy. In the short term, adopt the Parks Canada Visitor Activity Guidelines for Mountain Biking.
21. Develop and apply a trail classification system and related signage program appropriate for the Toronto context to allow for a range of user skill levels, activities and experiences.
22. Designate the majority of trails as multi-use and bi-directional. Determine preferred use or one-way trail exceptions based on site specific information and user demand.

- Create animosity among users, and
- Require consistent signage to educate first time users for safety concerns, and so that they do not invoke animosity of other users.

One way trails should be considered in areas where they will:

- Alleviate congestion on a crowded trail;
- Provide a more predictable experience (remove on-coming trail users), and
- Reduce the number of passes between users.

## ACCESSIBILITY

The accessibility of the trail system to all residents and visitors is an important planning and design consideration. The Accessibility for Ontarians with Disabilities Act, 2005, also known as the AODA became law on June 13, 2005. The purpose of the Act is to develop, implement and enforce mandatory accessibility standards in key areas of life. The purpose of this regulation is to accommodate individuals with disabilities as defined in the AODA.

On January 1, 2013, the Integrated Accessibility Standards Regulation (Ontario Regulation 191/11) of the AODA was amended to include accessibility requirements for the Design of Public Spaces (Accessibility Standards for the Built Environment). Beginning in 2015, public and private sector organizations will have to meet accessibility requirements when constructing and maintaining new or redeveloped elements of public spaces including recreational trails.

Thoughtful design will ensure that as many people as possible can be accommodated on these trails. People with disabilities are also looking for adventure, exploration and challenge. Providing trails with different levels of difficulty should allow individuals to select a trail that meets their needs and skill level.

Any trail planning, design and construction will follow regulations set out in the Ontario Regulation 191/11. Any future trail planning, design and construction process will include consultation with people who have disabilities and the City of Toronto's PFR Community Disability Steering Committee.

## PLANNING & DESIGN STRATEGY: ACCESSIBILITY – RECOMMENDATIONS

23. Follow all relevant regulations applicable to trail management made under the Accessibility for Ontarians with Disabilities Act, 2005.
24. All trail planning, design and construction processes should include consultation with community members who have disabilities and the City of Toronto's Parks Forestry and Recreation Community Disability Steering Committee.

## PLANNING & DESIGN PROCESS

The planning and design work undertaken on the trail system should be undertaken systematically, with intentionality, and with user safety, enjoyment and environmental protection top of mind.

A range of design activities are required – from considering connections into the broader recreation and active transportation network of City sidewalks, paved trails and bike routes, to the location and access to utilities and infrastructure (hydro towers, sewerlines), to the detailed design of signage, built features, and the trails themselves.

It is important to link trail design work with other capital, forest management and infrastructure projects planned or underway by the City. Integrating these elements is important in creating not only a functioning and aesthetic system but one that is effective and demonstrates efficient use of limited capital and operating funds. The planning process is an opportunity to build skills volunteer capacity, and facilitate knowledge transfer with the various organizations with respect to the ecosystem and social factors at play in planning and managing the trail system.

Trail planning and design should be undertaken across manageable geographic units as identified in the NETS *Action Plan* as Priority Management Areas. Processes of data collection and analysis, planning and community engagement and detailed design and construction required to take each Priority Management Area through planning to construction are detailed in the protocol in Appendix F. The trail system should be planned and designed acknowledging that it is dispersed across a large geographic area, contains a range of environmental conditions and serves diverse communities and user groups. However, within this framework, a consistent set of standards are required system wide. The trail planning process for City Wide (i.e. Earl Bales) and Destination (i.e. High Park) Parks should take place within a Parks Master Planning process in order to be planned in the context of other park uses and activities.

Each section of the trail system and priority management area will need to be thoroughly reviewed during the management plan and detailed design processes will need to be developed to best fit each unique site. Topography, soil, surrounding vegetation, hydrology, user types, season and types of use will all dictate how a trail should be designed and built. Only after extensive data collection and public consultation should the most appropriate, and site specific trail standards be selected and applied. In most cases a ‘field fit’ and an adaptive management process will be required.

### PLANNING & DESIGN STRATEGY: PLANNING & DESIGN PROCESS – RECOMMENDATIONS

25. Integrate natural environment trails to connect community destinations such as the bikeway network and multi-use paved trail network, Toronto Transit Commission stations, businesses, schools and post secondary institutions, recreation centers and residential areas.

## TRCA TRAIL STRATEGY

The Metropolitan Toronto and Region Conservation Authority (MTRCA) published Trail Planning and Design Guidelines: A handbook for an inter-regional trail system in the Greater Toronto Area in 1992. This handbook was intended to serve as a guide to the planning, design, construction and maintenance of trails in the MTRCA's watershed. The Toronto and Region Conservation Authority (TRCA) Board provided direction in 2009 to update the existing handbook so as to incorporate current best practices and to make it more useful for TRCA staff and other interested stakeholders.

Current obstacles to trail planning at TRCA include interests by an increasingly diverse range of user groups for trails, out of date mapping in TRCA databases and those of our trail partners, a lack of trail guides with maps for many properties, and no clear policy direction regarding trail uses, especially regarding which user groups are permitted and where, and the issue of single versus multi-use trails. Strategic direction on trails has come from the various Watershed Plans but TRCA is lacking a current comprehensive trail strategy.

A TRCA trail strategy would address the following questions:

- What types of trail uses are appropriate and where?
- Where are strategic connections to inter-regional trails and local trail systems needed?
- How will TRCA move to meet the requirements such as those of the AODA?
- How can TRCA promote the availability of its trail systems?

TRCA is updating the Trail Planning and Design Guidelines Handbook as part of the Trail Strategy project, in consultation with municipal and trail partners. Building on the Handbook content, the Strategy will establish strategic directions for trails in the TRCA watershed, and provide guidance on trail planning, design, implementation, management, use and promotion. Major components of the Strategy include background and supporting information, strategic direction, trail planning and design guidelines, trail construction specifications, and maintenance and monitoring guidelines.

*Contributed by Brittany Reid, TRCA, Landscape and Trail Designer*



*Moore Ravine (Photo Credit: Peter Heinz)*

Best management practices should take into consideration:

- Off trail impacts
- Surface water flow
- Tread wear
- Vegetation
- Environmentally Sensitive Areas (ESAs)
- Wildlife
- Habitat restoration
- Use of native materials
- Technical trail features
- Trail maintenance ecological sensitivity preparation
- New trail construction
- Tools



*Informally Built Teeter Totter*  
(Photo Credit: City of Toronto)



*Informally Built Drop Ramp*  
(Photo Credit: City of Toronto)

## TRAIL STANDARDS

To date, standards and best practices have been identified and field tested to work in a variety of trail scenarios and should be used as a guide for trail planning. TRCA is developing trail construction standards and guidelines as part of the TRCA Trail Strategy, which will provide useful recommendations for Toronto's trails (see page 29)

The following trail standards, specifications and best practices can also be considered and used as appropriate:

- Parks Canada Trail Guidelines: Trail Classification System – Trail Specifications;
- Whistler Trail Standards: Environmental and Technical Trail Features;
- U.S. Federal Highway Administration's Recreational Trails Program;
- American Motorcyclist Association's Off-Highway Motorcycle and ATV trails Guidelines for Design, Construction, Maintenance and User Satisfaction;
- Mountain Bike Trail Guidelines, A Guide to Locating, Building and Maintaining Mountain Bike trails in the Lower Seymour Conservation Reserve;
- Managing Mountain Biking, IMBA's Guide to Providing Great Riding;
- Trail Solutions, IMBA's Guide to Building Sweet Singletrack;
- Lightly on the Land, The Student Conservation Association Trail Building and Maintenance Manual;
- Natural Surface Trails by Design, and
- The Complete Guide to Trail Building and Maintenance.

### Structures

Many informally built features such as bridges, boardwalks and technical trail features have been documented throughout the City's trail system. Even in an urban setting any infrastructure built within the natural environment poses challenges regarding access for construction, monitoring and long term maintenance.

Although all built features have been created with the intent of increasing safety and providing challenging trail experiences, as trail management plans for specific areas are developed and implemented, all informally built trail features will be removed. Features will be replaced accordingly, if deemed appropriate during the trail planning process.

All built features should meet standards set by existing BMPs, use the highest quality materials while minimizing cost and utilizing simplest technology to achieve the desired outcome. All built features will be visually compatible within the natural environment setting. Local materials, if deemed safe and compatible for use, shall be used as permissible. These built features, although mostly functioning as solutions for terrain and hydrological issues, can also be incorporated into a trail to offer challenges, add additional trail experiences and be used to control the speed of trail users.

Although there are several examples and standards identified for ‘small scale’ built features in natural environments, the City of Toronto will continue to work with other land management agencies and groups (i.e. Professional Trail Builders Association) to accumulate and develop these standards and BMP’s for back country, low impact, low maintenance aesthetically appropriate structures.

The three most common trail structures found in Toronto include:

- Boardwalks;
- Bridges, and
- Technical Trail Features (TTFs).

### Boardwalks

Where trails must pass through wet or consistently damp, heavily rooted or other terrain where a natural surface trail is not appropriate, a boardwalk structure may be required to maintain the integrity of the trail and to minimize environmental damage.

Boardwalks offer a unique, accessible and environmentally sensitive trail experience and should be used where deemed appropriate - taking into consideration the volume and types of use for the trail system. In areas such as the Forest Valley Outdoor Education Centre, operated by the Toronto and District School Board in the Don Valley, who use their trail system primarily for outdoor education and natural interpretive purposes, a boardwalk offers a stable, aesthetically pleasing and user friendly trail experience for larger groups and first time trail users.

As part of their *Construction Standards and Guidelines Handbook* the TRCA has developed a very successful standard for boardwalks that are durable, aesthetically appropriate, low maintenance and site adaptable that will continue to be used on the City of Toronto’s trails.



Crawford Lake Boardwalk (Photo Credit: Robin Rumins/robinkrumins Flickr Creative Commons)

*“I am glad to see the city taking more of an interest, the trails are a true slice of heaven for a mountain biker like me and it would be nice to see the network improve. The one thing I want to point out is that certain trails feature very difficult terrain, like roots sticking out and sharp rocks, and this is done on purpose to create a higher level of difficulty. I notice from your answer options under ... above that you are considering the possibility of removing such rocks and roots. While this would be great on some trails, I think others should be left to be difficult for a more challenging ride.”*

- survey respondent

## Bridges

The number of bridges within the trail system will be minimized through trail design and layout that will help avoid areas where a built structure is required. When required, bridges will be built to protect ecological features and functions and to blend in with the surrounding natural environment.



East Don (Photo Credit: John Izatt)

For some locations a small wooden structure or “step-bridge”, constructed on site, may be appropriate to span a small swale or gully. These structures will be built according to BMPs as outlined by land management agencies such as the TRCA, and will be aesthetically compatible, high quality materials (e.g. rough cut cedar or hemlock), that will offer long term durability and minimal maintenance.

Where a bridge is required for a river, stream or ravine gully crossing, the size, span and engineering design requirements and materials will vary for every crossing type. City of Toronto staff have partnered with the TRCA to develop bridge standards and specifications for this type of structure and will use these features where appropriate.

## Technical Trail Features (TTFs)

There are natural (i.e. rocks and logs), enhanced natural (i.e. stacked rocks, planed logs), and man-made (i.e. skinnies, ladder bridges) technical trail features, or TTFs, on the majority of the existing informal natural environment trail system throughout the City. These are utilized by all trail users to increase the challenge of the trail and to further develop trail skills such as balance.

TTFs and challenging trails are an important component to the natural environment trail system. However, they need to be managed accordingly:

- TTFs will be minimized and limited to existing natural features such as local logs and rocks in all Environmentally Significant Areas in order to reduce the negative aesthetic impacts and potential for increased introduction of invasive species;
- Increasing technical challenges on a trail will focus on utilizing existing challenging terrain while providing existing and enhanced natural features, minimizing maintenance requirements and limiting aesthetic disturbances;
- Engineered structures such as ladder bridges, wooden ramps and teeter totters requiring artificial or manufactured materials will be limited to skills parks, maintained and managed park grounds and ecologically impaired lands. Engineered structures in natural areas will only be considered where aesthetics and nature appreciation trail experiences will not be impaired and where built features will require minimal maintenance, and

- Best management practices (i.e. IMBA ‘Secrets to Designing Challenging Trails’ in ‘Managing Mountain Biking’) will be followed when planning for advanced trail users and technical trail features.

## PLANNING & DESIGN STRATEGY: TRAIL STANDARDS – RECOMMENDATIONS

26. Design, construct and maintain the trail system to the highest standards to ensure the protection of the natural environment while offering safe and enjoyable recreational opportunities for all trail users.
27. Adopt the trail construction standards and guidelines developed by the Toronto and Region Conservation Authority, which offers a range of trail specifications applicable to Toronto’s trails.
28. Minimize the number of bridges and boardwalks through trail design and layout. Where required, construct to protect ecological features and functions and blend in with the surrounding natural environment. Construct to Toronto and Region Conservation Authority standards and specifications.
29. Utilize existing challenging terrain to achieve technical trail challenges, providing existing and enhanced natural features.
30. As trail management plans for specific areas are developed and implemented, all informally built trail features will be removed. Features will be replaced accordingly, if deemed appropriate during the trail planning process.
31. Build any new structures to comply with best management practices using high quality materials, and simple technology. Make use of local materials where safe and compatible, and ensure visual compatibility within the natural environment setting.
32. Continue to develop standards and best management practices for back country, low impact, low maintenance aesthetically appropriate structures.
33. Engineered structures (i.e. ladder bridges, wooden ramps and teeter totters) in natural areas should only be considered where aesthetics and nature appreciation experiences would not be impaired and minimal maintenance would be required.
34. Limit technical trail features in Environmentally Significant Areas to existing natural features and limit engineered structures requiring artificial or manufactured materials to skills parks, maintained and managed park grounds and ecologically impaired lands.
35. Consider the incorporation of additional bike skills parks in areas with high user demand and appropriate site conditions.

## 3.4 MANAGEMENT STRATEGY

The management strategy is two-fold; it includes service delivery options, as well as providing management policies. Given the incredibly high use of the trails, the burgeoning interest in active living and connection with nature and the place making importance of the ravines it is important that the management of these landscapes and uses be deliberate, professional and funded. In the absence of a sufficiently robust management framework risks associated with slope stability, injury, disturbance of culturally significant sites and other impacts associated with an ad hoc approach are likely to arise.

Management policies include:

- Risk Management, Safety & Liability;
- Permitting, and
- Heritage & Archaeology.

### SERVICE DELIVERY

In order to effectively implement the recommendations in the Natural Environment Trail Strategy and to meet present and future demand on the trails, a formalized service delivery model including an approved mandate, adequate staffing, organizational, data management and financial resources, and a maintenance and inspection protocol are required.

In conjunction with other divisional and City-wide budgeting initiatives, coordinated capital and operating budget should be established for the management, maintenance, planning and construction of the trails.

Despite the high value Toronto residents place on the ravines and their use of them there has been very little in the way of capital or operating resources to plan, manage or maintain this asset. Although more work is required to fully understand the daily, seasonal and annual usage of the trails, the research undertaken for this project gives a clear understanding of the importance and use of the system of trails. This usage, in addition to the anticipated future user loads, in combination with sensitive soil and tree patterns necessitate the need for a specific staff team with a clear mandate to manage the trails sustainably. That mandate should also include commitments to adequate funding in order that volunteers can be coordinated, risk management and public education programs implemented and sensitive lands protected.

## Staff Resources

The NETS includes a significant number of recommendations. In order to plan, manage, augment and maintain the trail system, additional staff resources will be required:

- 2 Natural Environment Specialists;
- 1 Natural Resource Specialist;
- 1 Natural Resource Supervisor;
- 2 Parks Program Officers;
- 3 Natural Environment Trails Program Crews (3 staff each), and
- 2 Trail Ambassadors.

Details on additional staffing resources can be found in Appendix G.

Trails are located in areas where there are often competing interests and uses. There are a number of divisions and stakeholders within the City of Toronto that will be involved in the planning, construction and maintenance of these areas.

*“Due to the unique watershed topography and the different forest environments they support in the middle of a major metropolitan city it is important for us to keep these areas healthy and functioning. The city needs to invest and keep staffing levels appropriate for such an important city resource.”*

*- survey respondent*

Roles and responsibilities are shown below in Table 1:

	DEPARTMENT	RESPONSIBILITIES
<b>FORESTRY</b>	Natural Environment and Community Programs Unit (NECP)	<ul style="list-style-type: none"> <li>▪ Coordinates planning, design and construction of trails outside of City Wide and Destination Parks and where no other planning process is underway or on the horizon (i.e. Parks Master Plan, Transportation Plan, etc.);</li> <li>▪ Advise on infrastructure projects and Parks Master Plans where trails may be impacted or constructed as part of the project;</li> <li>▪ Coordinate volunteer trail maintenance and trail building events for public and private events, for the purpose of education and providing opportunities for trail stewardship and community building between different user groups;</li> <li>▪ Comment on and approve special events permits and other permit activities in managed trail areas;</li> <li>▪ Work with Communications and Design Services to develop communications materials, and</li> <li>▪ Work with Recreation staff to ensure that recreation programming does not damage trails or forest resources.</li> </ul>
	Tree Nursery & Natural Resource Management Unit	<ul style="list-style-type: none"> <li>▪ Coordinate ravine management plans incorporating trail management and ecological restoration as required;</li> <li>▪ Review, assist with or undertake ecological restoration projects in trail management areas, and</li> <li>▪ Coordinate with NECP group regarding inventory of natural environment areas vegetation, informal trail building, monitoring and invasive species management.</li> </ul>
	Forestry Operations	<ul style="list-style-type: none"> <li>▪ Remove hazard trees and larger trail tree blockages on an as needed basis, and</li> <li>▪ Implement hazard tree abatement program by inspecting &amp; monitoring hazards on trails.</li> </ul>
	Ravine and Natural Feature Protection	<ul style="list-style-type: none"> <li>▪ Review trail development plans to address tree protection &amp; restoration requirements.</li> </ul>

<b>PARKS</b>	<b>Parks Operations</b>	<ul style="list-style-type: none"> <li>▪Address day-to-day public concerns that may arise regarding use of trail areas;</li> <li>▪Coordinate response of divisions and departments for day-to-day issues such as hazard tree removal, garbage removal, addressing vandalism, etc.; and</li> <li>▪Monitor trails on an annual basis to ensure signage and safety issues are addressed.</li> </ul>
	<b>Ravines &amp; Watercourse Maintenance</b>	<ul style="list-style-type: none"> <li>▪ Monitor and remove garbage from dumping and littering in ravine trail areas.</li> </ul>
	<b>Parks Development and Capital Projects</b>	<ul style="list-style-type: none"> <li>▪Assist with the development and implementation of trail management projects;</li> <li>▪Address trails through parks master planning processes and include trails in park-specific management plans;</li> <li>▪Advise on connectivity with parks and paved trails on parkland, and</li> <li>▪Lead planning, design and construction of associated recreational cycling infrastructure (i.e. bike parks) located outside of natural environment areas.</li> </ul>
	<b>Policy and Strategic Planning</b>	<ul style="list-style-type: none"> <li>▪Assist with policy formation and promotion of trails (i.e. website updates), and</li> <li>▪Support alignment with applicable Parks design and development standards.</li> </ul>
	<b>Sign Shop</b>	<ul style="list-style-type: none"> <li>▪Manufacture temporary and permanent wayfinding, regulatory, information and trailhead signs.</li> </ul>
	<b>Technical Services</b>	<ul style="list-style-type: none"> <li>▪Provide construction expertise for trail infrastructure including boardwalks, trailheads, minor water crossings and technical trail features, and</li> <li>▪Assist with material procurement.</li> </ul>
	<b>Management Services</b>	<ul style="list-style-type: none"> <li>▪Assist with financial planning and purchasing;</li> <li>▪Partnerships Office to develop sponsorship opportunities to help funding capital and operations costs for trails program, and</li> <li>▪Work with relevant divisions for comment and approval regarding any permits for the use of trails.</li> </ul>
	<b>Communications</b>	<ul style="list-style-type: none"> <li>▪Develop public education, communications and marketing materials to promote sustainable, respectful use of trails (i.e. trail locations, trail types, appropriate uses, code of conduct, etc.).</li> </ul>
	<b>Stores</b>	<ul style="list-style-type: none"> <li>▪Purchase specialized tools and equipment for trail crews and volunteers.</li> </ul>

CITY OF TORONTO	Recreation	<ul style="list-style-type: none"> <li>▪ Incorporate use of trails into recreation programming, and</li> <li>▪ Ensure that programmed recreational use of trails is sustainable and incorporate opportunities for education on trail etiquette and stewardship.</li> </ul>
	Solid Waste Management	<ul style="list-style-type: none"> <li>▪ Address garbage, litter and dumping issues that may be associated with trails areas.</li> </ul>
	Legal Services	<ul style="list-style-type: none"> <li>▪ Review and advise on all regulatory and code of conduct text for trailhead signs and other forms of communication materials for trail users, and</li> <li>▪ Review all proposed trail management plans to ensure standard of care is being met under the Occupiers' Liability Act.</li> </ul>
	Emergency Services (Police, Fire, EMS)	<ul style="list-style-type: none"> <li>▪ Ensure that trail maps are available to staff for emergency response;</li> <li>▪ Train staff on how to address emergency situations in trails areas, and</li> <li>▪ Police services should support by-law enforcement in trails areas.</li> </ul>
	Municipal Licensing and Standards	<ul style="list-style-type: none"> <li>▪ Provide adequate enforcement of relevant bylaws (i.e. dogs on leash, cycling speed limits, dumping, illegal trail building, removal/damage to plant material etc.).</li> </ul>
	311	<ul style="list-style-type: none"> <li>▪ Provide information about trail locations, trail types, trail code of conduct, etc. to the public.</li> </ul>
	Transportation	<ul style="list-style-type: none"> <li>▪ Work closely with NECP to ensure that planning, construction and management of trails will be coordinated with Toronto's transportation network, particularly the bikeway network and TTC transit connections.</li> </ul>
	Toronto Water	<ul style="list-style-type: none"> <li>▪ Work with NECP on trail planning, especially with respect to areas that require trails or service roads to monitor and maintain sewer lines in the ravines.</li> </ul>
	Culture	<ul style="list-style-type: none"> <li>▪ Promote trails through programming and outreach activities.</li> </ul>
	Archaeological Services	<ul style="list-style-type: none"> <li>▪ Review and approve any trail management plans and detailed designs for trails.</li> </ul>
	Public Health	<ul style="list-style-type: none"> <li>▪ Promote use of trails for fitness and health.</li> </ul>
	Geospatial Competency Center	<ul style="list-style-type: none"> <li>▪ Provide assistance with trail mapping and data management.</li> </ul>
	Design Services	<ul style="list-style-type: none"> <li>▪ Assist with the development and design of educational and outreach materials including brochures, signage and wayfinding.</li> </ul>
AGENCIES	TRCA	<ul style="list-style-type: none"> <li>▪ Provide expertise in trail standards, planning, design, construction and maintenance, and</li> <li>▪ Provide feedback and appropriate approvals for trail management and construction projects.</li> </ul>
	Tourism Toronto	<ul style="list-style-type: none"> <li>▪ Promote trail facilities to general public and tourists, and</li> <li>▪ Work with Partnerships Office to develop special events and sponsorship opportunities to highlight trail facilities and appropriate and sustainable uses.</li> </ul>

Table 1: Internal Stakeholder Responsibilities

## Trail Data Management

The GIS trail data currently housed by the City of Toronto is located in numerous files from various consultants and internal staff data collection projects. There is a need to prepare a comprehensive geodatabase to record the inventory of all trails and trail features and associated data surveyed to date. The creation of a comprehensive trail data management strategy is recommended to facilitate future trail planning projects as well as improved ease of maintenance and operations and address other risk management issues i.e. hazard tree abatement. Undertaking this exercise would help with data exchange and the ability to effectively communicate trail data to partners, project teams, stakeholders and the public. It will enable the City to perform spatial data analysis which would facilitate the scientific study of the trail system as it relates to ecology, connectivity, design, demographics, density, use patterns, and any number of other patterns and relationships.

This would involve the compilation, analysis and “cleanup” of all GIS based trail data from various departments and project phases, with the following goals:

- Build an appropriate data model for trail information that suits the needs of all divisions who use the data. This would include the definition and publication of standardized trail data attributes and values;
- Ensure trail geometry conforms to appropriate topology rules:
  - Remove duplicate trail geometry
  - Break trails at intersections
  - Extend undershoots and remove overshoots
  - Snap clustered nodes
- Retain the most accurate, current, detailed and appropriate attribute data from each dataset during comparison or amalgamation;
- Ensure metadata that describes the data sources (with dates) is accurate and is managed moving forward, and
- Data is managed consistently within the projection and coordinate system used by the City (MTM NAD 27), while making the appropriate trails data available in UTM NAD83 for stakeholder groups working to amend the data in various areas.

The development of data management strategies should include consultation with land management partners such as the TRCA, neighbouring municipalities, Parks Canada, and provincial trail authorities such as the Ontario Trails Council and the Ministry of Natural Resources (Land Information Ontario). These organizations are currently working on their trail data standards and best practices which could be of great value to the City of Toronto.

Additional, ongoing data collection should also occur through the installation and monitoring of trail counters, and through the inclusion of trails related questions in the City-wide omnibus survey.

### Inspection & Maintenance

A maintenance program is a critical component of every successful trail system. Regular trail assessments and prompt attention to maintenance issues can add to a trail system's sustainability as well as reduce safety and liability concerns.

The majority of trail monitoring and maintenance is currently undertaken by trail users in an unofficial capacity. Internally, limited ongoing trail monitoring and maintenance is currently undertaken by Urban Forestry staff, usually through staff led volunteer opportunities. Other recommended methods include:

- Hiring contractors through RFQs to assess and maintain sections of trails;
- Partnering with TRCA to utilize specialized skills of staff;
- Through the provision of additional Staff resources including trail crews who specialize in sustainable trail design and ecological protection;
- Community engagement/stewardship events, and
- Formal agreements with trail user and neighbourhood groups.

See Appendix H for Trail Assessment and Monitoring Report and Appendix I for Inspection Protocol.

## MANAGEMENT STRATEGY – RECOMMENDATIONS

36. Recognize the system of trails in natural areas as an important City-wide resource that needs to be managed and adequately resourced. Support ongoing interdepartmental cooperation in managing the natural environment trail.
37. Increase staff resources for the purpose of planning, public consultation, design, construction, monitoring and maintenance, data collection and management, by-law enforcement, partnership building, coordination of stewardship and public outreach, communications, educational and interpretive materials.
38. In conjunction with other divisional and City-wide budgeting initiatives, establish coordinated capital and operating budgets for the management, maintenance, planning and construction of trails.
39. Provide the City's 311 service with detailed trail system maps and improve inter-departmental coordination to allow the public to more effectively alert the City regarding trail issues.
40. Provide emergency services (police, fire, Emergency Medical Services) with detailed trail system maps and improve inter-departmental coordination such that emergency teams understand how to respond to issues in the trail system.
41. Implement a combination of educational and enforcement measures to improve trail use behaviour and curtail illegal activities.
42. Develop a comprehensive data management protocol for trails spatial data in conjunction with land management partners.
43. Develop a trail maintenance program including an inspection schedule, prioritization, documentation procedures, inspection logistics, and inspection crews. Prioritize serious concerns or hazards and expedient garbage pick-up and waste management.
44. Additional, ongoing data collection should continue through the installation and monitoring of trail counters, user surveys and through the inclusion of trails related questions in the City-wide surveys.
45. Place garbage and recycling bins at trailheads and key trail intersections and collect garbage/recycling on a regular basis.

### POLICIES

Management policies are required to allow users to safely and consistently access the trails without fear of injury and if or when injuries occur there are protocols in place to handle them properly. It is also imperative that sufficient plans are in place to prevent loss of life or injury due to land slippage, flooding, fire or due to nefarious activities. Fortunately, to date, there have been few incidents, but past minimal management practices should not be relied upon as trail usage rates and demands on these landscapes increase in the future. This section of the Strategy provides an outline of management policies that should be considered in the coming years.

### Risk Management, Safety & Liability

Trail user safety and security is a primary concern for the City. Planning and designing new trails and modifying existing trails with sustainable trail guidelines and construction methods provides a safer user experience, one of the tenets of risk management. Proper signage and provision of a variety of trail experiences and progression of trail difficulty levels, will result in users being more likely to choose the most appropriate trail for their skill level, lowering the risk of injury, and leading to more enjoyable experiences.

Safety and security of the trails can be enhanced through:

- Sustainable trail planning, design and construction using best management practices;
- Signage;
- Public education;
- Creation, approval, and implementation of trail maintenance standards, and
- Hazard tree abatement program.

The implementation of a coordinated, comprehensive trail management system – including the elements referenced above – will both improve the user experience and limit liabilities that the City could face in the future if and when a trail user is injured. The key is to create a system that is reasonably safe, managed and maintained to standards that have been adopted by this strategy.

#### The Occupier's Liability Act

The *Occupiers' Liability Act* (R.S.O. 1990, c. O.2 ("the Act")) establishes the standard of care that the City is obligated to provide to people on its property. It states that as an occupier, the City must take positive action to make the premises *reasonably* safe for the public. The matter of cautionary warning signs has been reviewed in civil liability claims against municipalities. As a result of these assessments the City has a sense of what future courts will be looking for and consequently that forms the guidelines municipalities should follow in designing effective signage.

As described in the Marketing and Education Strategy, all formalized trails in the trail system will have appropriate signage with relevant information pertinent to trails users including signage to warn visitors regarding the inherent risks of using the trails system across the City. With signs posted at trailheads, users will assume the risk of entry and use of the trails. By doing so, the City is able to take advantage of a lower standard of care available under s. 4 of the *Occupiers' Liability Act*.

In order to increase the legal effectiveness of warning signage:

- Records should be kept of installation and removal dates in order to confirm that the sign was present at the time of an incident, and
- Records should be kept of inspections in order to confirm that the sign was present at the time of an incident.

Users should have sufficient information to be able to make an informed, conscious decision about their use of trails. This is a primary aspect of sharing the risk associated with recreating in natural areas. The City, of course, has a responsibility to provide that information (signage, education, engagement, etc.) and to manage the trails to approved standards.

## MANAGEMENT STRATEGY: RISK MANAGEMENT, SAFETY & LIABILITY

46. Plan, design and construct trails to the highest standards and best management practices as identified in the Natural Environment Trail Strategy.
47. Use signage, outreach and educational materials to inform trail users about rules and responsibilities.
48. Keep records of all regulatory signage including installation, inspection and removal dates.
49. Review trail management plans with Legal Services to ensure standard of care is being met under the Occupiers' Liability Act.
50. Follow recommended natural environment trails maintenance standards and protocol as outlined by the Natural Environment Trail Strategy.

### Permitting

The City of Toronto currently has policies governing permitted uses in parks and recreation facilities, commercial recreation activities in open green space parkland and special events in parks. These policies will cover most of the anticipated permitted uses for trails:

- [Permit Allocation Policy](#): addresses permits for use of facilities for recreational and other programming by external organizations including indoor and outdoor facilities. Trail areas, such as Crothers Woods, should be added to this list for future programs such as learn to ride, outdoor education or camp programs. The area would need to be classified as Premier, A, B, or C as per current classification criteria for facilities, based on the amenities available and an appropriate fee structure will need to be developed;
- City of Toronto Special Events Guidelines for City Parklands [http://www.toronto.ca/special\\_events/pdf/seguidelines.pdf](http://www.toronto.ca/special_events/pdf/seguidelines.pdf): designed to address special event uses such as festivals, races or other one-time events in City parks. Any Special Events applications that use or may impact trails should be sent to NECP for comment and approval;

- Policy for Operating Commercial Recreation Activities in City of Toronto Open Green space Parkland <http://www.toronto.ca/parks/pdf/policy/Business/policy-commercial-rec.pdf>: was developed to address the growing private commercial fitness activities in City parks. This policy does not allow activities on pedestrian pathways, boardwalks and linkages; natural or environmentally sensitive areas including: designated ravines, wooded or savannah areas, sites of natural and/or scientific interest, areas which have undergone significant habitat restoration, wetlands or their buffer zones. As such, trail areas are currently excluded from commercial activity covered by this policy. While it may be possible to address a small amount of commercial activity through special events permitting, if there is a growing interest in commercial activities on trails, such as for biking or trail running clinics, or international mountain biking tourism, it may be necessary to amend this policy to address the demand for this type of commercial activity where appropriate, and

The Commercial Dog Walker Permit Policy was developed to help ensure accountability by limiting the number of dogs allowed under the control of a Commercial Dog Walker to a maximum of 6 at any one time when using city parks, green spaces or waterfront areas. According to this policy, commercial dog walkers must keep their dogs on leash at all times, unless they are in a designated off leash area. They are prohibited from bringing dogs into natural or environmentally sensitive areas including: designated ravines, wooded or savannah areas, sites of natural and/or scientific interest, areas which have undergone significant habitat restoration, wetlands or their buffer zones."All events on trails should follow the outlined regulations regarding permitted activities that use or impact trails:

- Cancel the event/program in the event of rain or muddy trails. It is unsafe to use the trails when they are wet and can cause significant damage to the trail;
- Do not block access to the trails by other members of the public;
- Post marshals at every access point during races or activities that may cause safety issues for other users by blocking the trail or using the trail at high speed to ensure that members of the public are aware of the day's activities;
- Gain approval for routes for races, tours and programs from staff, and
- All participants must adhere to the trail code of conduct.

## MANAGEMENT STRATEGY: PERMITTING – RECOMMENDATIONS

51. Add managed trail areas to any relevant lists applicable to the Permit Allocation Policy and classified accordingly based on the amenities available.
52. Develop appropriate fee structures and application form for permitting managed trail areas where appropriate.
53. Natural Environment and Community Programs Staff should be circulated on any permits that may impact natural environment trail areas for comment and approval.
54. Pending high volume of interest, amend the current commercial permitting policy to include commercial activities such as biking or trail running clinics and tourism.

### Land Ownership and Management Agreements

The trail system is located in an urban setting with a complicated patchwork of land ownership. The majority of trails are located in ravine lands, many of which have a mix of ownership - some portions of the ravine floor are privately owned while others are in public ownership and may have surface or buried infrastructure. The majority of these areas are owned by the TRCA and managed by the City of Toronto's Parks, Forestry and Recreation. Some other properties fall within City owned lands managed by various divisions including Parks, Forestry and Recreation; Toronto Water; and Transportation Services where there may be other existing compatible or conflicting uses with the trails. Public land ownership may include entities such as Ontario Hydro; the Toronto District School Board; or the Toronto Catholic District School Board. Still other lands may be held privately by corporations and individual home owners.

Easement corridors for public infrastructure such as those by Hydro, Enbridge, and Toronto Water may cross lands held by multiple land owners. It may be possible to negotiate public access along these easements to create a trail system along the easement, or on top of service roads for recreational purposes by the public while still providing access to these utilities for periodic monitoring and maintenance. Trails that cross easements located on City owned or managed lands need to be negotiated with the holder of the easement.

Where landownership or conflicting uses are in question, it may be necessary to purchase the land, purchase an easement to cross the property, or work with the land owners and land managers to develop an agreement that will ensure long term public access to the land.

## MANAGEMENT STRATEGY: LAND OWNERSHIP & MANAGEMENT AGREEMENTS – RECOMMENDATIONS

55. Enhance or establish partnerships with land owners, managers, trail users and regional municipalities.

## Heritage & Archaeology

The City of Toronto's cultural history began approximately 11,000 years ago. Due to the richness of its natural environment and extent of human habitation, the City has identified many archaeological sites; physical remains of this lengthy settlement history and a fragile and non-renewable cultural legacy. Protecting these sites has become especially important in southern Ontario, where landscape change has been occurring at an ever increasing rate since 1950 and has resulted in extensive losses to the non-renewable archaeological record. Trails can offer residents the opportunity to interact with, and learn about, Toronto's rich cultural history.

The City of Toronto is developing an archaeological management plan to identify areas of archaeological potential and to introduce requirements for archaeological assessments on land prior to development or land alteration. The primary objective of the management plan is to prepare an innovative tool that will assist the City in making informed planning decisions regarding archaeological resource conservation early in the development review process, and in planning capital and maintenance projects on City-owned land.

The TRCA has developed an Archaeological Resource Management Program to manage the archaeological resources found on TRCA lands with respect to legislative requirements and approved technical practices, with guidance and input from culturally descendant communities whenever possible.

When well planned, built and maintained, the trails can enhance the cultural landscape by allowing trail users to intimately interact with and experience both the natural and cultural environment. For more information on archaeology in the City of Toronto visit <http://www.toronto.ca/heritage-preservation/archaeology.htm>

### MANAGEMENT STRATEGY: HERITAGE AND ARCHAEOLOGY - RECOMMENDATIONS

56. Protect known and potential archaeological sites through the adoption of planning and management guidelines for the conservation of archaeological resources in accordance with the Archaeological Management Plan.
57. Consult City of Toronto Heritage Preservation Services and Toronto and Region Conservation Authority (TRCA) staff early in the project planning process to ensure that archaeological resources are evaluated, documented, conserved and protected at every step of natural environment trail planning, construction and maintenance.
58. Ensure that information about cultural and archaeological heritage and the conservation and protection of these resources is included in any public education campaign or site interpretation.
59. Undertake archaeological assessments for trail management areas that have been identified as having the potential to hold archaeological resources in accordance with the Archaeological Management Plan and implement any recommendations for routing modifications, construction, interpretation and site maintenance as required.

## 4.0 PROPOSED ACTION PLAN

The strategies and recommendations in this report detail an approach to promoting, planning, designing, maintaining and managing the trails system over the next 10 years. It is an ambitious program, including a broad range of recommendations – from those which should be applied through system wide changes and initiatives, to detailed recommendations in design and day to day practices.

The recommendations are organized into 5 categories, under 2 broad groupings.

The first comprises of actionable items that will require additional resources for implementation. These are prioritized as short, medium or long term. The second relates to protocol and approaches that should be adopted within the first year of the Strategy for application to all work undertaken on the trails throughout the course of the Strategy’s life. These are broken into two categories: ongoing policy and protocol, and ongoing planning and design directives.

Table 2: Prioritization of Recommendations

<b>LEGEND</b>	
	Short Term Priority Actions (1-2 years)
	Medium Term Priority Actions (3-5 years)
	Long term Priority Actions (6-10 years)
	Ongoing Policy/Protocol
	Ongoing Planning and Design Directives
<b>Short Term Priority Actions (1-2 years)</b>	
3	Provide community volunteers with varied and structured volunteer opportunities.
6	Provide educational and interpretive information on the ravine and trail system, trail maps and up to date information through a variety of mediums and outlets.
10	Create a comprehensive, aesthetically fitting and approachable signage and wayfinding program for all managed trail systems that follows all Parks Forestry and Recreation signage and wayfinding guidelines and standards and is compatible with current City-wide initiatives.
16	Prioritize ongoing management of the natural environment trail system for the protection of Environmentally Significant Areas including sustainable trail planning and design, educational signage, stewardship initiatives, selective closures and restoration.
27	Adopt the trail construction standards and guidelines developed by the Toronto and Region Conservation Authority, which offers a range of trail specifications applicable to Toronto’s trails.
37	Increase staff resources for the purpose of planning, public consultation, design, construction, monitoring and maintenance, data collection and management, by-law enforcement, partnership building, coordination of stewardship and public outreach, communications, educational and interpretive materials.
38	In conjunction with other divisional and City-wide budgeting initiatives, establish coordinated capital and operating budgets for the management, maintenance, planning and construction of trails.
43	Develop a trail maintenance program including an inspection schedule, prioritization, documentation procedures, inspection logistics, and inspection crews. Prioritize serious concerns or hazards and expedient garbage pick-up and waste management.

44	Additional, ongoing data collection should continue through the installation and monitoring of trail counters, user surveys and through the inclusion of trails related questions in the City-wide surveys'.
<b>Medium Term Priority Actions (3-5 years)</b>	
1	Create and enhance partnerships with all stakeholders to strengthen the Natural Environment Trails Program and ensure the long term success of trails in Toronto.
4	Explore all opportunities for developing sponsorship and fundraising partnerships.
5	Undertake targeted public campaigns and communications to reach all City of Toronto communities, including diverse cultural and language groups and individuals of all abilities to promote the natural environment trail system, responsible and sustainable trail use and trail etiquette.
21	Develop and apply a trail classification system and related signage program appropriate for the Toronto context to allow for a range of user skill levels, activities and experiences.
32	Continue to develop standards and best management practices for back country, low impact, low maintenance aesthetically appropriate structures.
35	Consider the incorporation of additional bike skills parks in areas with high user demand and appropriate site conditions.
39	Provide the City's 311 service with detailed trail system maps and improve inter-departmental coordination to allow the public to more effectively alert the City regarding trail issues.
40	Provide emergency services (police, fire, Emergency Medical Services) with detailed trail system maps and improve inter-departmental coordination such that emergency teams understand how to respond to issues in the trail system.
41	Implement a combination of educational and enforcement measures to improve trail use behaviour and curtail illegal activities.
45	Place garbage and recycling bins at trailheads and key trail intersections and collect garbage/recycling on a regular basis.
56	Protect known and potential archaeological sites through the adoption of planning and management guidelines for the conservation of archaeological resources in accordance with the Archaeological Management Plan.
59	Undertake archaeological assessments for trail management areas that have been identified as having the potential to hold archaeological resources. In accordance with the Archaeological Management Plan and implement any recommendations for routing modifications, construction, interpretation and site maintenance as required.
<b>Long term Priority Actions (6-10 years)</b>	
9	Focus marketing on the trails as a daily recreation resource for local residents and as a tourist destination, in connection to regional trail initiatives, or as an outdoor recreation destination on the eco-tour circuit.
42	Develop a comprehensive data management protocol for trails spatial data in conjunction with land management partners.
54	Pending high volume of interest, amend the current commercial permitting policy to include commercial activities such as biking or trail running clinics and tourism.
55	Enhance or establish partnerships with land owners, managers, trail users and regional municipalities.

Ongoing Policy/Protocol	
2	Include trail users, the general public and all stakeholders in trail planning, design, construction and maintenance processes.
7	Add managed trail areas to any relevant 'Park and Greenspace' lists (i.e. Parks listing on Parks Forestry and Recreation website).
8	Encourage local stewardship, trail activity based businesses and groups to undertake education based events on the trails and to participate in trail promotion activities.
11	Give priority to natural environment protection over trail use where they cannot coexist.
13	Avoid locations where significant/sensitive species or landscapes occur by undertaking detailed vegetation mapping to species level, and assessment of soils, micro-drainage and other features in areas identified for management in order to identify opportunities and constraints, and/or need for alternative locations for trails.
19	Plan and design trails with user experience as a key consideration.
20	Develop a Toronto Mountain Biking Policy. In the short term, adopt the Parks Canada Visitor Activity Guidelines for Mountain Biking.
26	Design, construct and maintain the trail system to the highest standards to ensure the protection of the natural environment while offering safe and enjoyable recreational opportunities for all trail users.
30	As trail management plans for specific areas are developed and implemented, all informally built trail features will be removed. Features will be replaced accordingly, if deemed appropriate during the trail planning process.
36	Recognize the system of trails in natural areas as an important City-wide resource that needs to be managed and adequately resourced. Support ongoing interdepartmental cooperation in managing the natural environment trail.
47	Use signage, outreach and educational materials to inform trail users about rules and responsibilities.
48	Keep records of all regulatory signage including installation, inspection and removal dates.
49	Review trail management plans with Legal Services to ensure standard of care is being met under the <i>Occupiers' Liability Act</i> .
50	Follow recommended natural environment trails maintenance standards and protocol as outlined by the Natural Environment Trail Strategy.
51	Add managed trail areas to any relevant lists applicable to the <a href="#">Permit Allocation Policy</a> and classified accordingly based on the amenities available.
52	Develop appropriate fee structures and application form for permitting managed trail areas where appropriate.
53	Natural Environment and Community Programs Staff should be circulated on any permits that may impact natural environment trail areas for comment and approval.
57	Consult City of Toronto Heritage Preservation Services and Toronto and Region Conservation Authority (TRCA) staff early in the project planning process to ensure that archaeological resources are evaluated, documented, conserved and protected at every step of natural environment trail planning, construction and maintenance.
58	Ensure that information about cultural and archaeological heritage and the conservation and protection of these resources is included in any public education campaign or site interpretation.

<b>Ongoing Planning and Design Directives</b>	
12	Strengthen the natural environment trail system as a continuous, connected system that supports recreational use and the ecological functions of the regional green space system.
14	Follow environmental protection policies and principles regarding the protection of ravines and natural area parklands in the planning, construction and management of trails and trail areas including closing or restoring trails where needed.
15	Limit environmental impacts by following best management policies for trails in ESAs.
17	Plan, design and construct trails for multiple activities and user skill levels appropriate to their location and role within the overall system.
18	Incorporate connected and looped trails as part of the system.
22	Designate the majority of trails as multi-use and bi-directional. Determine preferred use or one-way trail exceptions based on site specific information and user demand.
23	Follow all relevant regulations applicable to trail management made under the Accessibility for Ontarians with Disabilities Act, 2005.
24	All trail planning, design and construction processes should include consultation with community members who have disabilities and the City of Toronto's Parks Forestry and Recreation Community Disability Steering Committee.
25	Integrate natural environment trails to connect community destinations such as the bikeway network and multi-use paved trail network, Toronto Transit Commission stations, businesses, schools and post secondary institutions, recreation centers and residential areas.
28	Minimize the number of bridges and boardwalks through trail design and layout. Where required, construct to protect ecological features and functions and blend in with the surrounding natural environment. Construct to Toronto and Region Conservation Authority standards and specifications.
29	Utilize existing challenging terrain to achieve technical trail challenges, providing existing and enhanced natural features.
31	Build any new structures to comply with best management practices using high quality materials, and simple technology. Make use of local materials where safe and compatible, and ensure visual compatibility within the natural environment setting.
33	Engineered structures (i.e. ladder bridges, wooden ramps and teeter totters) in natural areas should only be considered where aesthetics and nature appreciation experiences would not be impaired and minimal maintenance would be required.
34	Limit technical trail features in Environmentally Significant Areas to existing natural features and limit engineered structures requiring artificial or manufactured materials to skills parks, maintained and managed park grounds and ecologically impaired lands.
46	Plan, design and construct trails to the highest standards and best management practices as identified in the Natural Environment Trail Strategy.

## 4.1 MANAGEMENT ZONES

In order to best implement many of the strategies involving site specific, community driven processes and actions, the five watersheds have been broken down into a series of more manageable sized areas, referred to as management zones.

These zones were used throughout the analysis, development and consultation processes of NETS. Each management zone includes a diverse trail system, offering a variety of difficulty levels, experiences and lengths. Management zones or land units are of an appropriate scale and complexity for use by the NETP in future, more detailed, studies, in the development of trails and in environmental rehabilitation efforts. Each is comprised of a section of a watershed, and consists of a relatively large geographic area spanning numerous parks and natural areas within Toronto's ravine system.

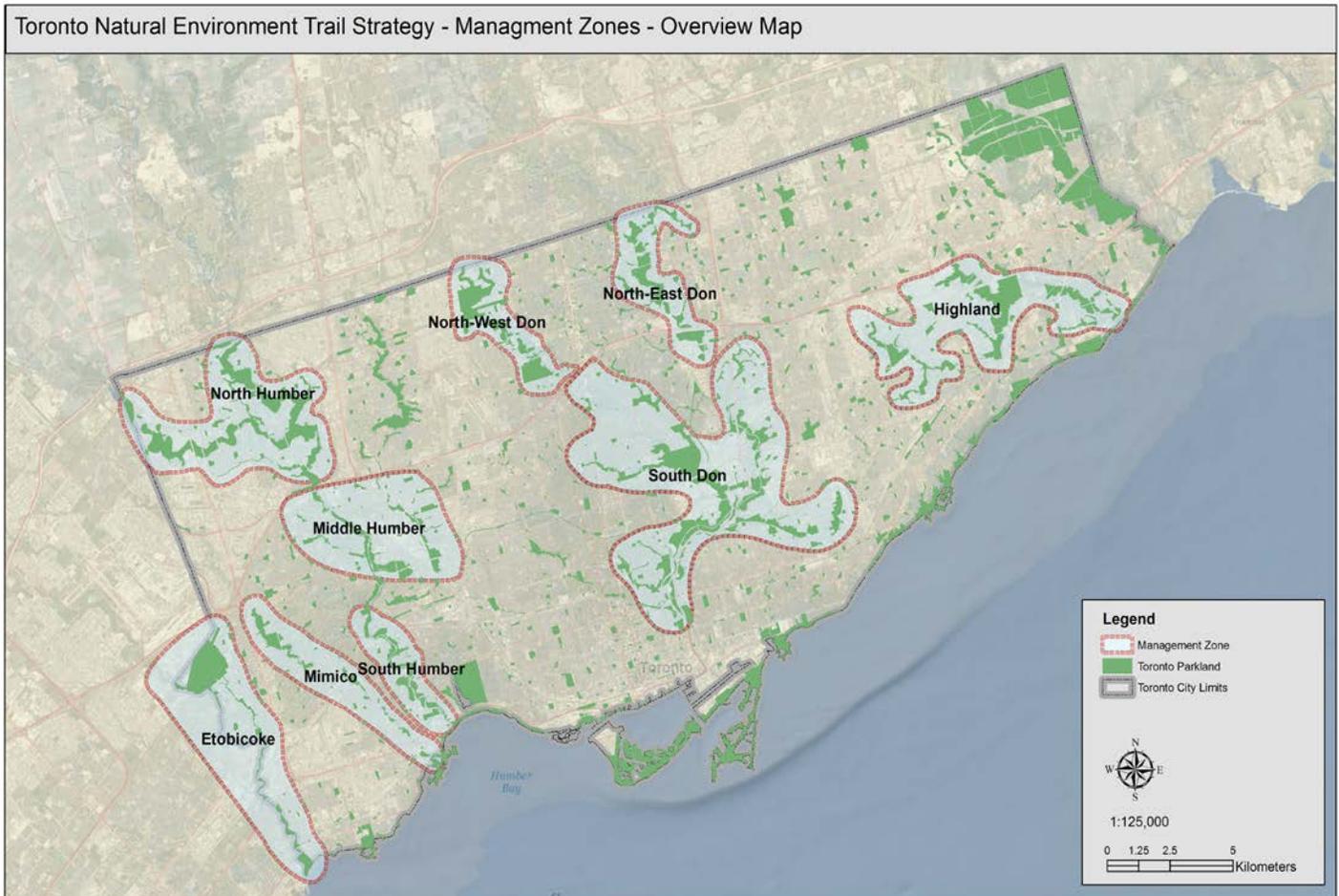
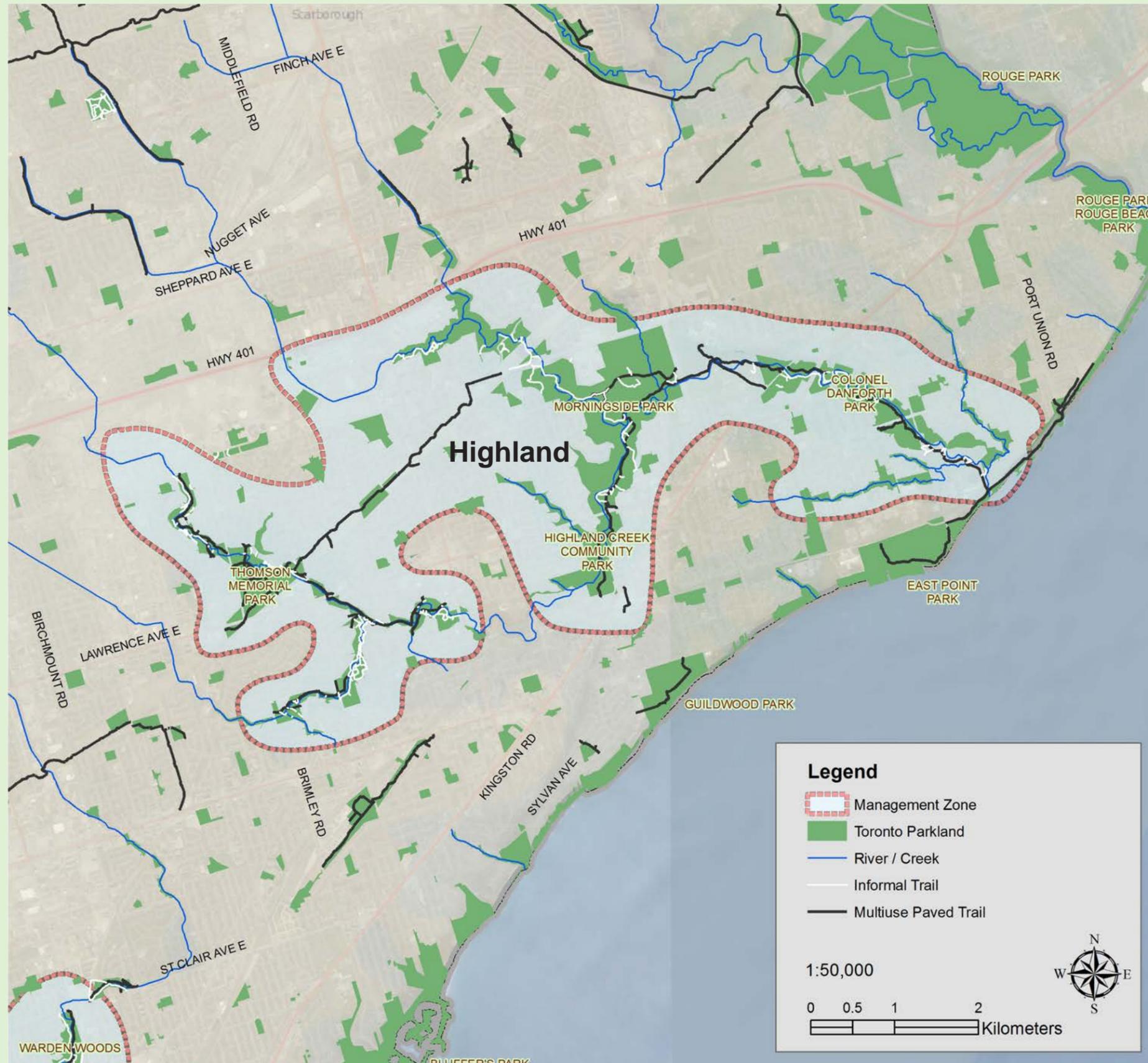


Figure 4: Management Zones Map

The management zones were developed through a rigorous process: beginning with feedback from the Watershed Sounding Board meetings, “Live Web Mapping Sessions” of City of Toronto Staff, project team consultants and resident experts before being further refined through public consultation. Criteria used to identify these boundaries included:

- Geographic area that the NETP can successfully manage;
- User experience (cover 10-14 km/hour and value a larger network of trails at least 25-35 km where walks/hikers require a shorter distance on average of about 3-5 km), and
- Demographics.
- The management zones, detailed on the following pages and maps, were delineated as follows:
  - The entire Highland Watershed south of highway 401 is defined as a single management zone;
  - Currently the most developed system and with a long history of use and active community participation, the Don Watershed was defined as three (3) separate management zones. Hwy 401 roughly separates the South Don from the North East and North West management zones;
  - The Humber River trail system, made up of a series of small neighbourhood trail systems and connected by the paved Humber River trail, was divided into three (3) management zones. The South Humber is defined by a long history of off road cycling; the Middle Humber’s activity dominated by a paved trail; and the North Humber separated by Hwy 401, and
  - Etobicoke and Mimico Watersheds frequently shown together throughout the analysis and consultation processes, each form a management zone.

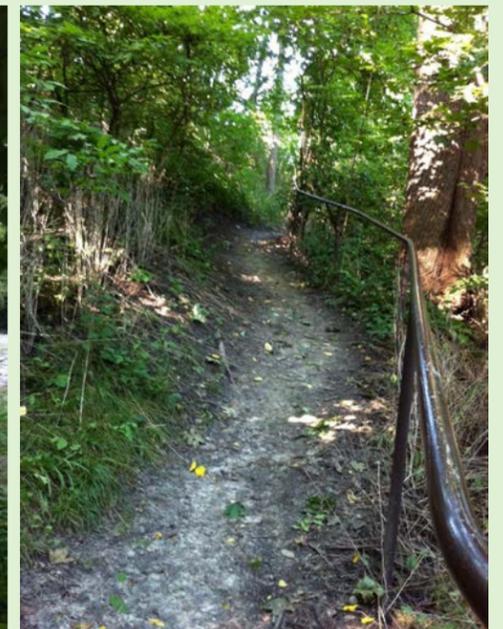
# HIGHLAND MANAGEMENT ZONE



- Located within Wards 37, 38, 43 and 44;
- Covers a number of neighbourhoods including Bendale, Woburn, Morningside, West Hill, and Centennial Scarborough;
- Includes Neighbourhood Investment Area (NIA) Kingston Galloway, and is bordered by four other NIAs;
- Includes the University of Toronto Scarborough Campus and Centennial College;
- Major parks: Morningside Park, Thomson Memorial Park, Hague Park, Highland Creek Park, Colonel Danforth Park;
- Trail loops are relatively small (1-3km), primarily used by surrounding residents and are commonly 'offshoots' or 'side trails' to paved trails or follow the edge of the creek;
- Areas that are the subject of parks planning exercises (Morningside Park) and Toronto Water capital improvements (Morningside Park, Hauge Park, Markham Branch);
- Toronto and Region Conservation Authority (TRCA) completed the Highland Creek Neighbourhood Greening Project in September 2012;
- Significant additions to paved multi-use trail network in this area include the Gatineau Corridor Trail along hydro corridor;
- Needs improved east west trail connections between parkland areas;
- Adjacent to Rouge Park, a proposed National Urban Park;
- This was the only Management Zone with any significant slope detected at this scale of analysis. Morningside Park had the most significant slope results – portions of the trail system are in areas over 30%, and much of the trail system is in areas over 15% slope. Cedar Ridge Park was also found to have some areas over both 15% and 30%, and
- Highland Creek Geomorphic Systems Master Plan completed, implementation underway.



View from 'Camp of the Crooked Creek'  
(Photo Credit: City of Toronto)



Cedar Ridge (Photo Credit: City of Toronto)

# SOUTH DON MANAGEMENT ZONE



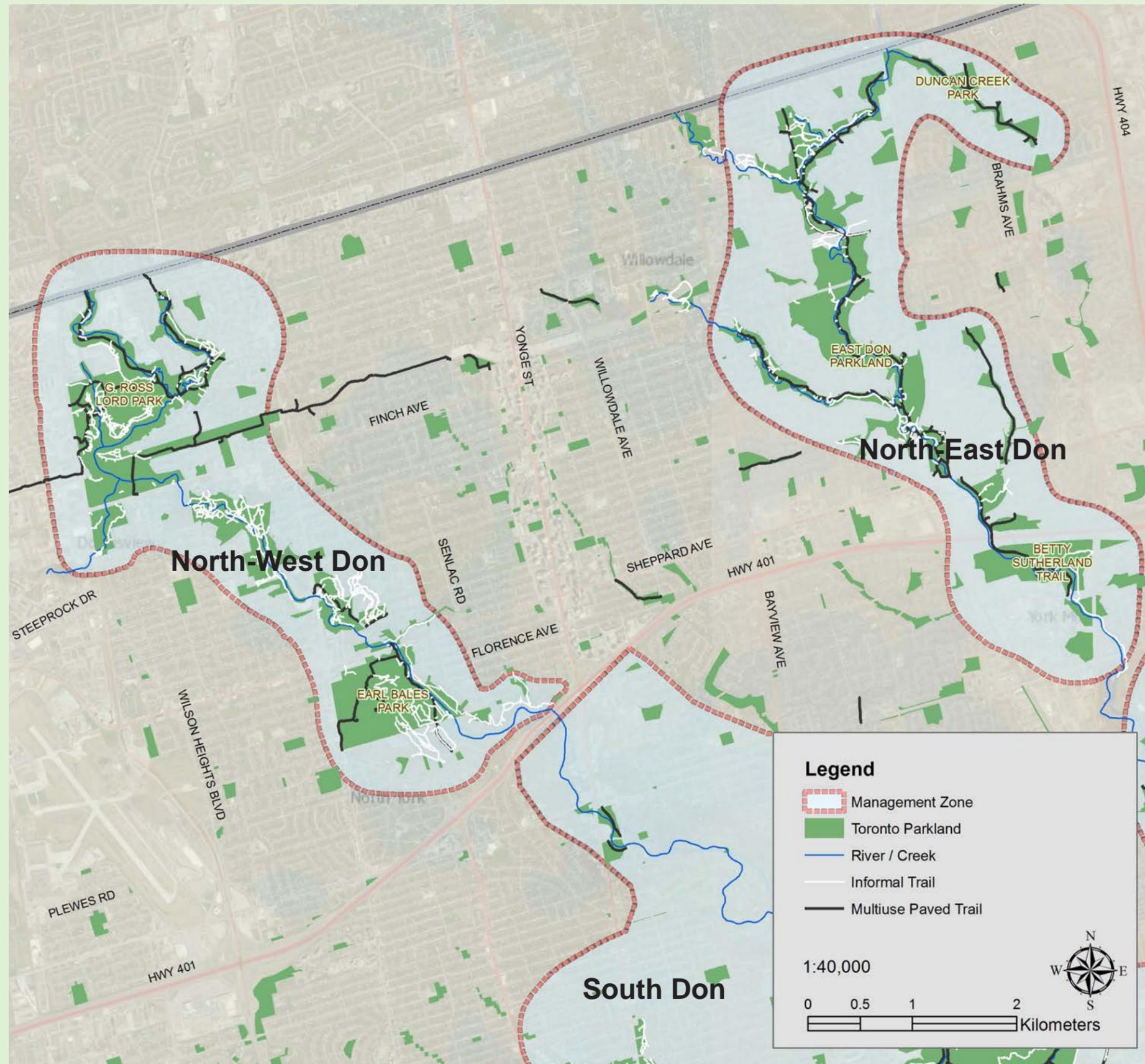
- Located within Wards 25, 26, 27, 28, 29, 30, 31, and 34;
- Includes over 25 neighbourhoods, including: Bridle Path – Sunnybrook – York Mills, Victoria Village, Parkwoods-Donalda, Flemingdon Park, O’Connor-Parkview and Rosedale-Moore Park;
- Includes Neighbourhood Investment Areas Flemingdon Park-O’Connor and Crescent Town;
- Adjacent to downtown, and some of the highest density in the city. The population south of this zone is expected to grow significantly with development in the lower Don and Portlands area;
- Major parks in the area include: ET Seton Park, Sunnybrook Park, Charles Sauriol Conservation Reserve, Don Valley Brick Works;
- Significant sections of this management zone are a part of the paved multi-use trail network i.e. the Lower Don Trail, Taylor Massey Creek Trail, East Don and Beltline Trails. A study is currently underway for improvements to the Beltline. A proposed extension to the East Don Trail is currently under an Environmental Assessment Review Process;
- Contains Crothers Woods, the first, and currently only, natural environment trail area with a management plan;
- Significant public interest and involvement has been seen in this management zone;
- Wide variety of trail types and experiences;
- Many areas of ‘advanced’ or ‘technical’ mountain biking trails;
- Many areas of illegal trail and trail feature building;
- Some areas within this zone have slopes over 15%, but not 30%, and
- Geomorphic systems studies for Massey Creek, Mud Creek, Wilket Creek, Burke Brook completed; Yellow Creek to start.



Technical Trail Feature at Dr. Quads (Photo Credit: City of Toronto)



Beltline (Photo Credit: DeCarto Consulting Ltd.)

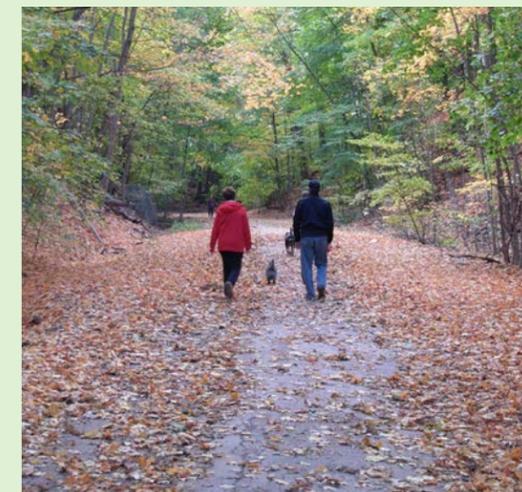


## North-East Don

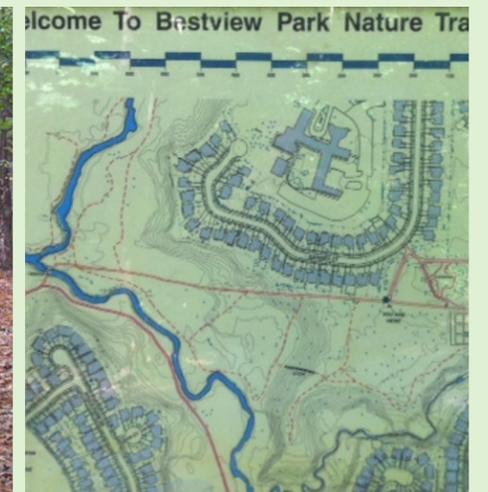
- Located within Wards 24 and 33;
- Includes portions of seven neighbourhoods, including Hillcrest Village, Don Valley Village, Bayview Woods-Steeles and Bayview Villages;
- Includes the East Don Parkland, Bayview Bike Park, Finch Corridor Trail, Betty Sutherland Trail and the proposed Duncan Creek Trail;
- Location of Bestview trails, an old formalized trail system developed over 20 years ago;
- Trail systems are relatively small (1-3km), primarily used by surrounding residents and are commonly 'offshoots' or 'side trails' to paved trails or follow the edge of the creek or river, and
- High density community along Don Mills Rd. (The Peanut) with increasing density along Sheppard subway line.

## North-West Don

- Located within Wards 10 and 23;
- Centered on Westminster-Branson, Bathurst Manor and Lansing-Westgate neighbourhoods;
- Centered on Neighborhood Investment Area Westminster-Branson;
- Includes Earl Bales Park, G. Ross Lord Park, Gwendolen Park, West Don Parklands, Forest Valley Outdoor Education Center, Finch Corridor Trail and York Cemetery.
- 1km from high density Yonge Street;
- An extensive system of trails well used by the local community;
- School groups use trails adjacent to the Forest Valley Outdoor Education Center on a daily basis during the school year;
- Disconnected from South Don by HWY 401 and 2 golf courses, and
- Earl Bales Park Area Stormwater Systems Management Plan has been completed.



Earl Bales Park (Photo Credit: DeCarto Consulting Ltd.)



Bestview Park Nature Trail (Photo Credit: City of Toronto)

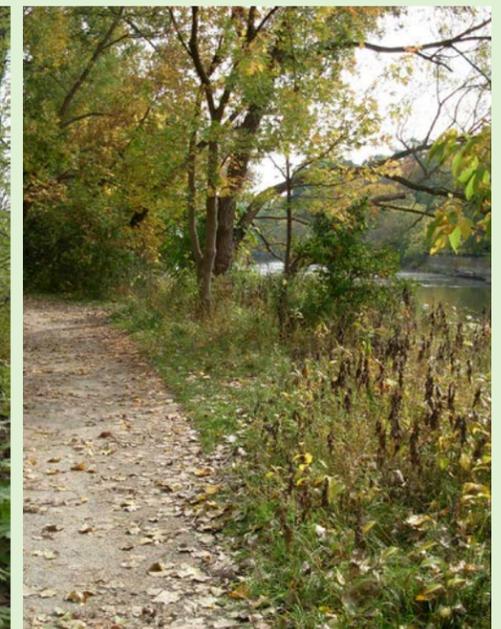
# SOUTH HUMBER MANAGEMENT ZONE



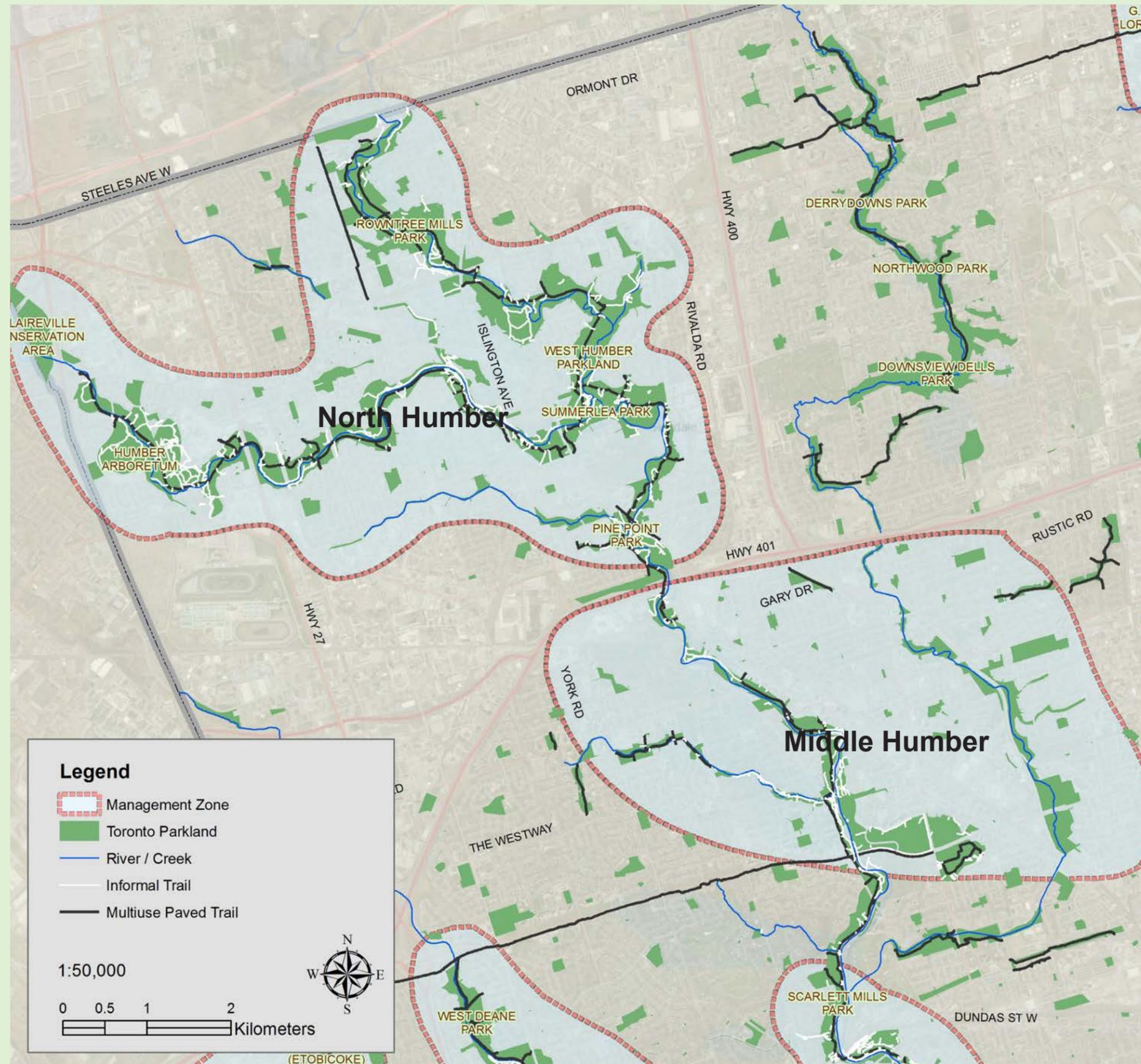
- Located within Wards 5 and 13;
- Includes five neighbourhoods, including Kingsway South, Stonegate Queensway, Lambton Baby Point, and High-Park-Swansea;
- Major parks include South Humber Park, Kings Mill Park, Etienne Brule Park, and Lambton Park;
- Well connected by paved multi-use Humber River Trail;
- 4-5 smaller natural environment trail systems located in ecologically and archaeologically sensitive areas;
- New Discovery Walk, the Shared Path, situated along Humber River south of Dundas St. W;
- Very few areas within this zone are over 15% slope, and
- A natural environment trail system should be developed through a parks master planning process for High Park.



South Humber Park (Photo Credit: City of Toronto)



Beltline Trail (Photo Credit: DeCarto Consulting Ltd.)



## Middle Humber

- Located within Wards 4, 11 and 12;
- Includes nine neighbourhoods including Weston, Brookhaven-Amesbury, Keelesdale-Eglinton West, Mount Dennis, and Humber Heights-Westmount;
- Centered on Neighbourhood Investment Area Weston-Mt. Denis;
- Includes Raymore Park, Chapman Valley Park, Cruickshank Park, Westview Greenbelt, Trethewey Park and Coronation Park;
- Includes Humber River and Black Creek;
- Well connected by paved Humber River Trail;
- Transportation currently undertaking paved multi-use trail connection between Cruickshank and Mallaby Parks;
- Toronto Water is currently undertaking capital improvements in Chapman Valley, and
- Silver Creek Geomorphic Systems study completed.

## North Humber

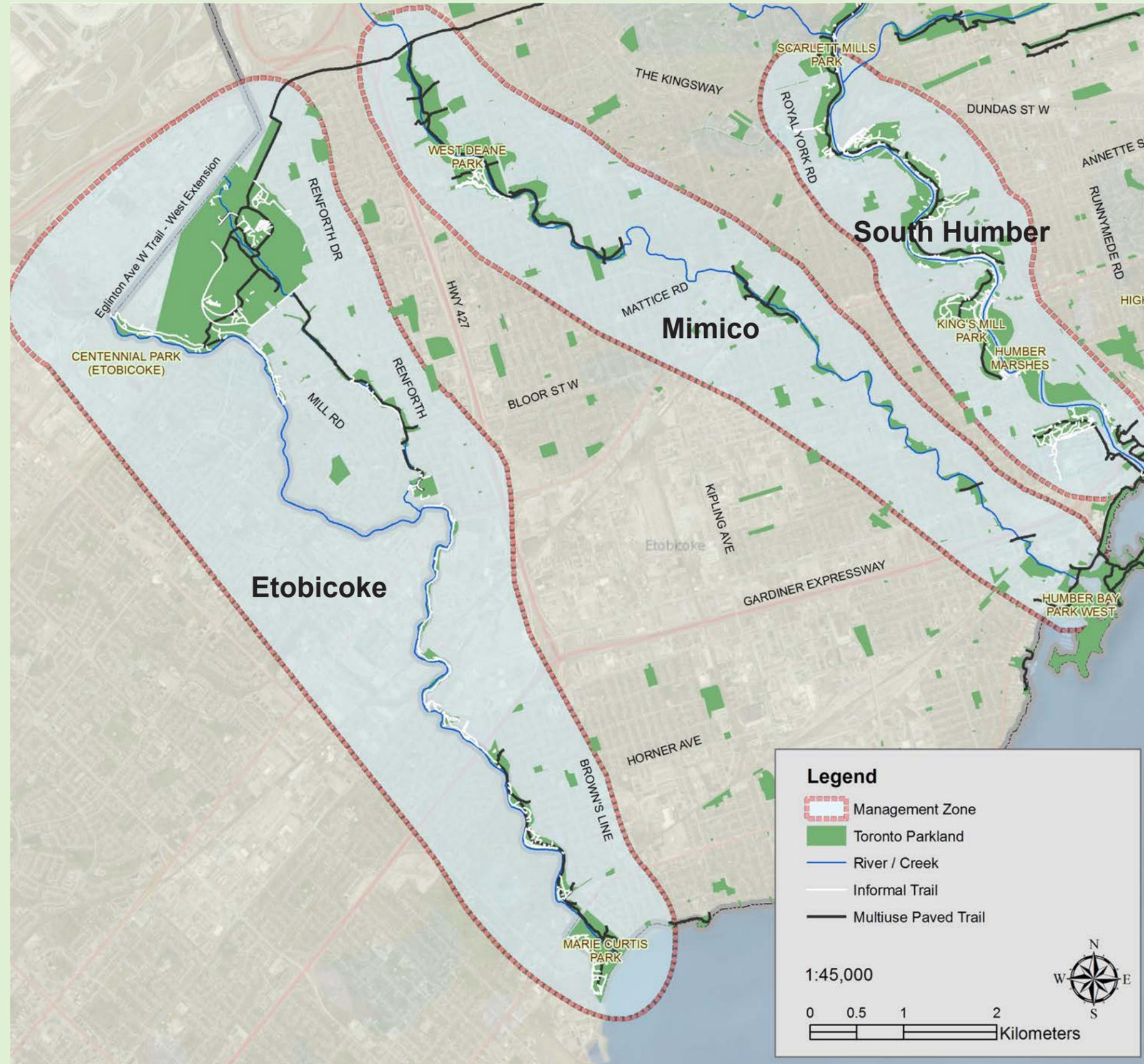
- Located within Wards 1 and 2;
- Includes portions of eight neighbourhoods, including Mount Olive-Silverstone-Jamestown, Thistletown-Beaumont Heights, Rexdale-Kipling, Elms-Old Rexdale, and Humbermede;
- Includes Neighbourhood Investment Areas Jamestown and Jane-Finch;
- Humber College and the Humber Arboretum are located in this area. The Arboretum uses natural environment trails for outdoor education programming for school groups;
- Parks include Humberwoods Park, West Humber Parkland, Summerlea Park, and Rowntree Mills Park;
- Well connected by paved Humber River Trail;
- Transportation and TRCA currently undertaking paved multi-use trail connection to Claireville Conservation Area, and
- Berry Creek Geomorphic Systems study completed.



Black Creek Trail (Photo Credit: G. Horvath, Black Creek Conservation Project)



Humber Arboretum (Photo Credit: Humber Arboretum)



## Etobicoke

- Located within Wards 3, 5 and 6;
- On the boundary of the GTA, this management zone includes portions of Long Branch, Alderwood, Islington-City Centre West, Etobicoke West Mall, Markland Wood and Eringate-Centennial-West Deane neighbourhoods;
- Parks include Marie Curtis Park, Neilson Park, Centennial Park;
- Includes paved multi-use Etobicoke Creek Trail
- A BMX park is planned for the Pan Am Games in Centennial Park creating an opportunity for related cycling activities;
- 5 very distinct trail systems exist in this management zone - with considerable potential for management;
- Opportunity exists for partnership with Mississauga trails program for improved continuity and connectivity;
- Very scenic and isolated, with many commercial properties abutting trail system;
- Areas within this Management Zone were all under 15% slope, and
- Garbage and dumping is a key issue in this zone.

## Mimico

- Located within Wards 3, 5 and 6;
- Includes Stonegate-Queensway, Islington-City Centre West, and eastern Eringate-Centennial-West Deane neighbourhoods;
- Includes West Deane Park which has a very well used informal trail system.
- Limited trail opportunities in southern part of zone due to land ownership constraints;
- Areas within this Management Zone were all under 15% slope, and
- High density community along Bloor Street W and Dundas Street W.



Marie Curtis Park (Photo Credit: City of Toronto)



View from Etobicoke Creek South Trail (Photo Credit: City of Toronto)

## 4.2 TRAIL IMPROVEMENT PRIORITIES

Following recommendation #16, areas requiring more comprehensive trail planning within the nine Management Zones were identified during the course of this project. These have been divided into Priority Management Areas and Areas of Interest. Priority Management Areas are distinguished as areas on which to focus the development of management plans in the short term. Areas of Interest are longer term priorities. Some may become Priority Management Areas in the medium to long term. In the meantime, City Staff should continue to manage these areas with the overarching recommendations in the NETS. They include areas with significant infrastructure work planned by others, as well as a small number of large parks, where Staff should seek involvement as a stakeholder in broader park management planning processes, but should not initiate a specifically trails focused management plan.

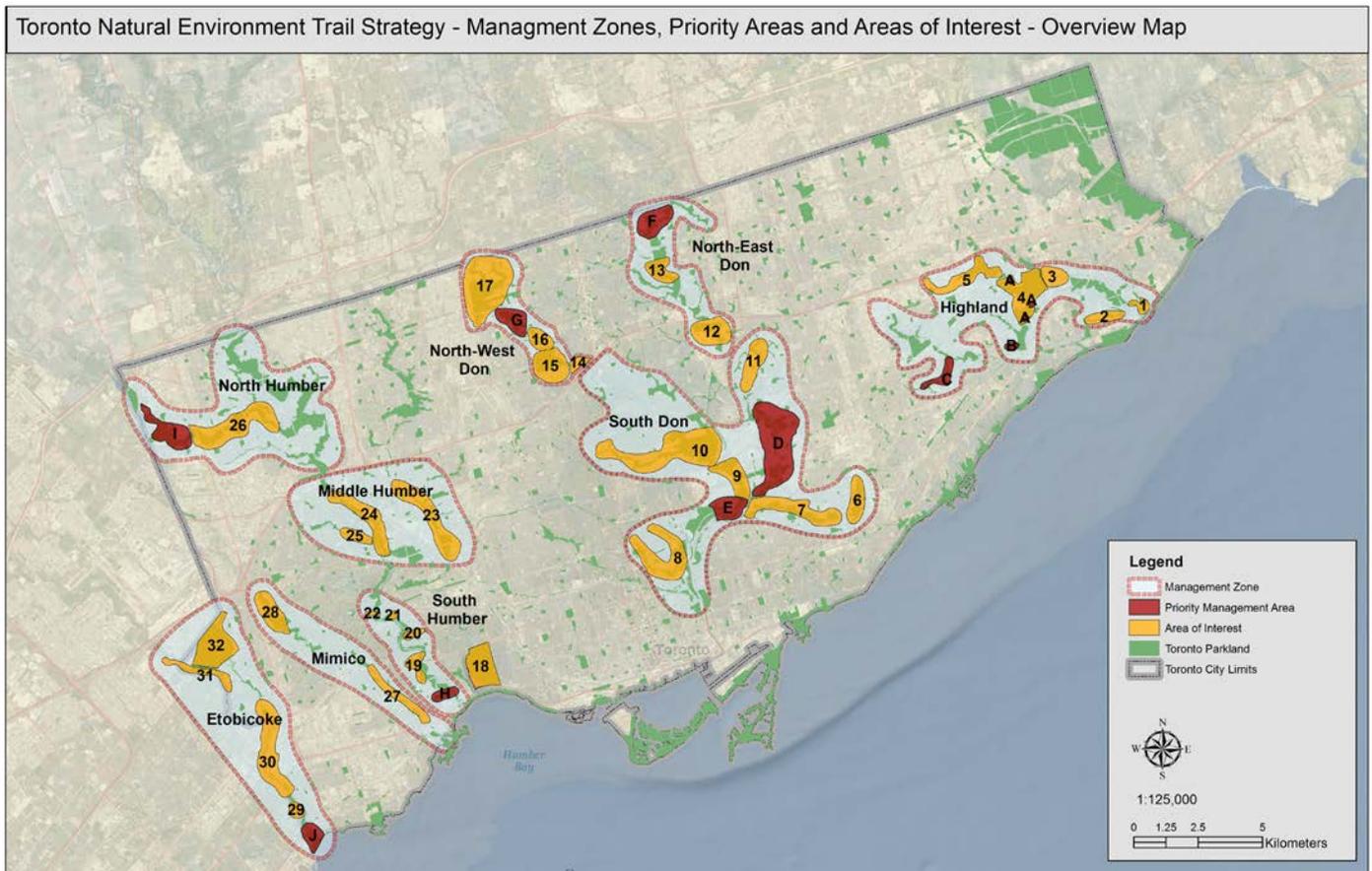


Figure 6: Management Zones, Priority Areas and Areas of Interest Map

*"I think the City is doing a great job with trail building, clean up and planting days within the Don River Watershed. I am hopeful that the City will recognize the remaining trail system beyond Crother's Woods and extend the same initiatives throughout."*

- survey respondent

Criteria for both the Priority Management Areas and Areas of Interest will continue to be used as a guide in recommending future priorities for trail management. The criteria used to select Priority Management Areas include:

- Areas that are underserved or under-resourced based on 13 Neighbourhood Investment Areas and high density communities with low investment in public services and amenities;
- Areas of high environmental sensitivity (where informal trail development is already occurring and where a formal trail will help to manage access through/to a sensitive area);
- Areas with environmental opportunities (where trail development could occur in tandem with stewardship and restoration efforts);
- Areas with few environmental constraints to trail development;
- High volume of current use, or high unmet trail demand;
- High level of community interest in participating in the planning, management, construction and monitoring of trails;
- High degree of connectivity to paved trails and bikeways – or, potential to better connect existing trails and bikeways;
- Continuity of other trail management initiatives, and
- Other complimentary infrastructure planning (such as Toronto Water emergency works, TRCA erosion control, local development etc).

10 Priority Management Areas and 31 Areas of Interest have been identified and are shown on the following pages. These areas should be planned and designed following the Ongoing Planning and Design Directive recommendations and Ongoing Policy/Protocol recommendations outlined in the Strategy Action Plan.

## 4.3 COST ESTIMATE

The order of magnitude cost estimates required over the next 5 years to execute the recommendations in this Strategy are:

### Annual Capital Impact

	2014	2015	2016	2017	2018
Total Capital Budget	\$500,000	\$750,000	\$750,000	\$750,000	\$750,000

The Capital Budget will be used for the development of trail management plans, trail construction and trail infrastructure.

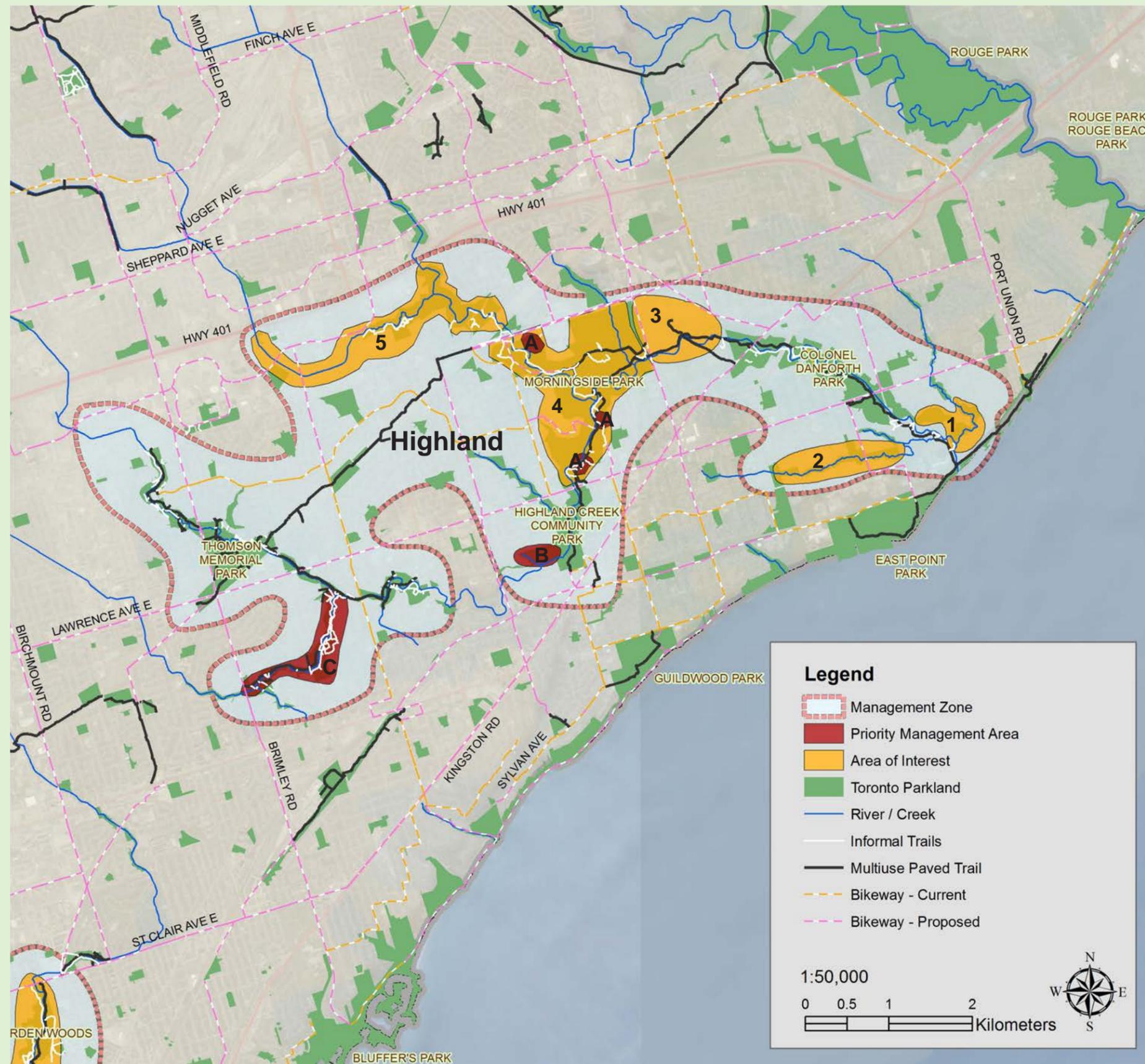
### Annual Operating Impact

	2014	2015	2016	2017	2018
Operating Budget	\$163,000	\$420,000	\$551,000	\$1,019,000	\$1,408,000

Funding for the Operating Budget is essential to ensuring a safe, healthy and sustainable trail system. A primary focus will be on increasing staff resources for the planning and maintenance of trails. New staff will be hired for specialized Trail Restoration Crews dedicated to maintaining the sustainable trail systems and restoring natural areas that have been degraded by overuse. Additional staff positions will be hired to lead community environmental stewardship and promote healthy and safe trail activities. Staffing levels will ramp up each year as planning, restoration and maintenance activities expand to new areas.



# HIGHLAND PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST

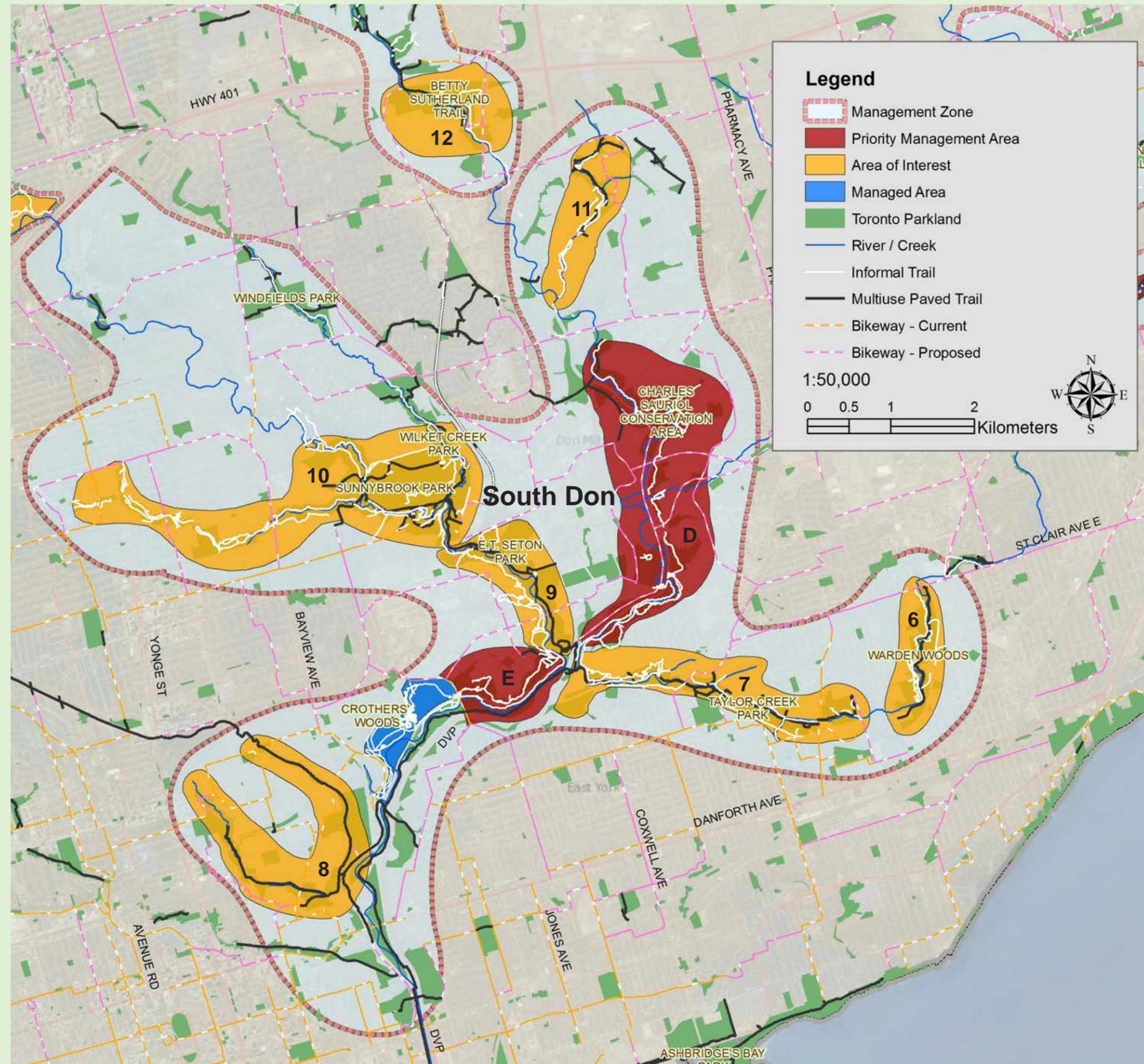


ID	CLASSIFICATION	NAME	SUMMARY
A	PRIORITY MANAGEMENT AREA	Morningside Park (3 areas)	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area</li> <li>ESA and ANSI;</li> <li>High user volume recorded;</li> <li>TRCA greening initiative completed, potential stewardship activities;</li> <li>Park Master Plan currently under review;</li> <li>All 3 areas would improve access to the Park, and</li> <li>Steep Slopes.</li> </ul>
B	PRIORITY MANAGEMENT AREA	Cedar Ridge Park	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Steep slopes;</li> <li>Potential partnership with Cedar Ridge Creative Centre, and</li> <li>Opportunity for improvements and management of existing natural environment trail system.</li> </ul>
C	PRIORITY MANAGEMENT AREA	Hague & McCowan Park	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>45% designated as potential ESA;</li> <li>High user volume recorded;</li> <li>Existing multi-use paved trails and extensive network of informal trails, and</li> <li>Current and future Toronto Water Projects.</li> </ul>
1	AREA OF INTEREST	Lower Highland Creek	<ul style="list-style-type: none"> <li>Includes wetland, potential ESA;</li> <li>Half of area is degraded, opportunity for stewardship and ecological restoration, and</li> <li>Some areas of moderate slope.</li> </ul>
2	AREA OF INTEREST	Beechgrove Ravine	<ul style="list-style-type: none"> <li>Small areas and known invasive species, opportunity for stewardship and ecological restoration, and</li> <li>Existing informal trails not mapped identified through NETS community engagement</li> </ul>
3	AREA OF INTEREST	University of Toronto - Scarborough	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Significant environmental considerations*;</li> <li>Degraded area, opportunity for stewardship and ecological restoration;</li> <li>Potential partnership with U of T, and</li> <li>Existing multi-use paved trails.</li> </ul>
4	AREA OF INTEREST	Morningside Park	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Recreation infrastructure is well used;</li> <li>Significant environmental considerations*;</li> <li>One third of area is degraded, opportunity for stewardship and ecological restoration;</li> <li>Interest from Plover Road Residents, Curran Hall Community Association, East Scarborough Storefront;</li> <li>Existing and proposed multi-use paved trail</li> <li>Toronto Water capital projects ongoing.</li> </ul>
5	AREA OF INTEREST	Morningside Park - Markham Branch	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Significant environmental considerations*;</li> <li>Degraded areas and invasive species, opportunity for stewardship and ecological restoration;</li> <li>Proposed multiuse paved trail, and</li> <li>Toronto Water capital project area.</li> </ul>

**\*NOTE:** This area includes 3 or more of the following: CoT "Erosion Control Hazard"; Area of Natural & Scientific Interest (ANSI), CoT Potential ESA, Provincially Significant Wetlands (PSW), potential habitat for Species at Risk.

HIGHLAND PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST

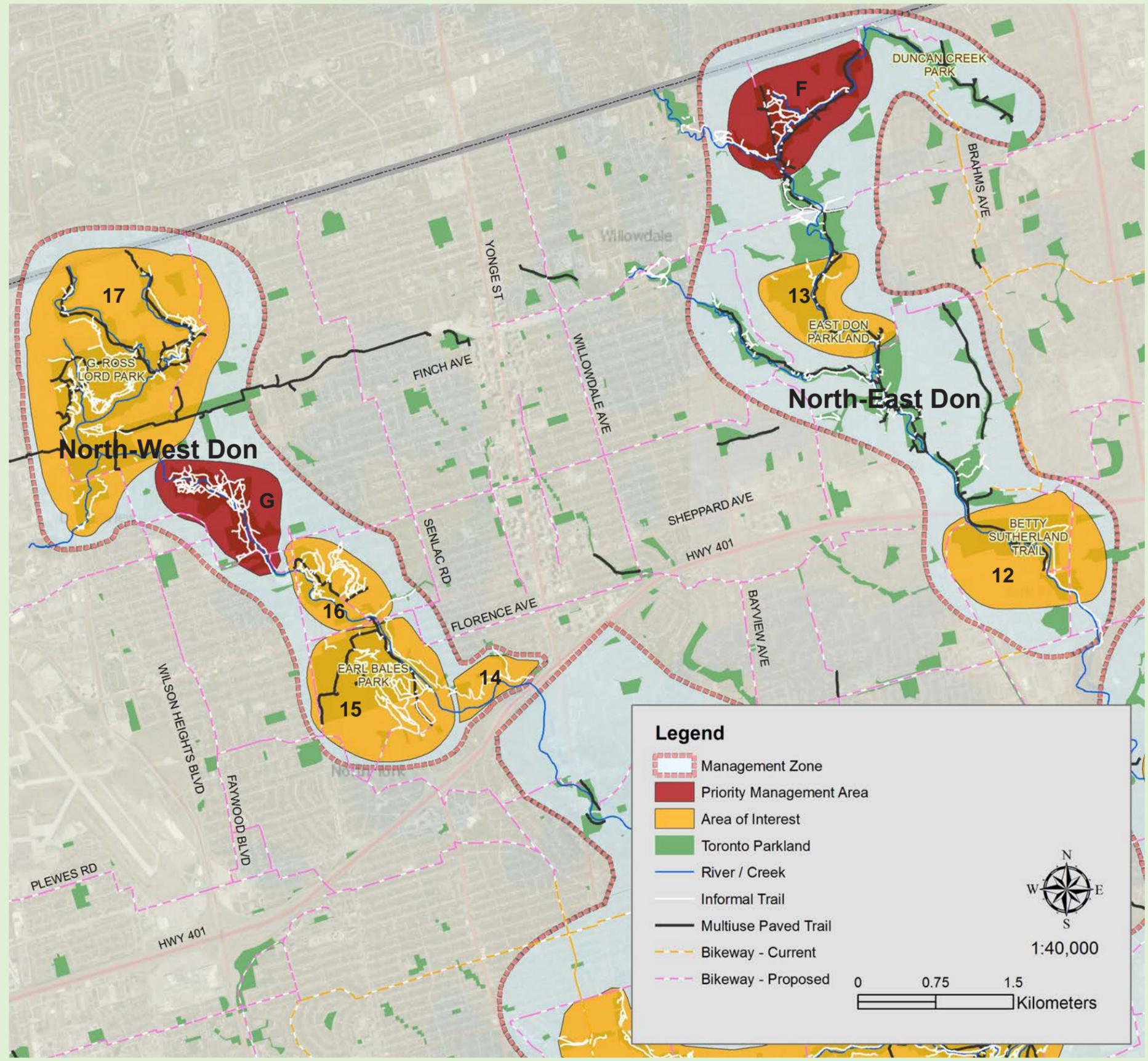
# SOUTH DON PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST



ID	CLASSIFICATION	NAME	SUMMARY
D	PRIORITY MANAGEMENT AREA	East Don	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Erosion Control Hazard, ESA/ANSI;</li> <li>Community interest from trail user groups;</li> <li>Current site of Environmental Assessment for proposed extension of East Don multi-use paved trail;</li> <li>Existing informal trails including Dr. Quads, Motown, Hustle and Flow, and</li> <li>Near Crothers Woods Mgmt. Area.</li> </ul>
E	PRIORITY MANAGEMENT AREA	The Ridge	<ul style="list-style-type: none"> <li>Some areas of moderate slope, some wetland areas;</li> <li>Degraded area with invasive species, opp. for stewardship and ecological restoration;</li> <li>Exst. community involvement in trail building;</li> <li>Exst. informal trail known as the "Ridge Trail"</li> <li>Exst. multi-use paved trails with proposed extensions;</li> <li>Adjacent to Crothers Woods Mgmt. Area;</li> <li>Dumping and litter is a key issue in this area;</li> <li>Adjacent to Thorncliffe Park, high density, low income community, Thorncliffe N'hood Office, potential community partner.</li> </ul>
6	AREA OF INTEREST	Warden Woods	<ul style="list-style-type: none"> <li>Designated as an ESA;</li> <li>Existing multi-use paved trails, informal trails and off road trail features, and</li> <li>Bikeway network connection planned from Kennedy Station Corridor to Warden Woods/ Lower Don Connection.</li> </ul>
7	AREA OF INTEREST	Taylor Creek Park	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area and ESA;</li> <li>Degraded areas and invasive species, opp. for stewardship and ecological restoration;</li> <li>High user volume recorded on trail counter;</li> <li>Community Interest: Friends of the Don East</li> <li>Existing and planned multi-use paved trail.</li> </ul>
8	AREA OF INTEREST	Beltline	<ul style="list-style-type: none"> <li>Erosion Control Hazards, ESA;</li> <li>Some degraded areas and invasive species, opportunity for stewardship and ecological restoration;</li> <li>Beltline Trail Study currently underway, and</li> <li>Opportunity for improvements and management of existing natural environment trail system at Vale of Avoca.</li> </ul>
9	AREA OF INTEREST	West Don	<ul style="list-style-type: none"> <li>ANSI, possible ESA, 20% is wetlands;</li> <li>Significant degraded areas and invasive species, opportunity for stewardship and ecological restoration, and</li> <li>Well connected informal trails including Party Atmosphere and Catalyst; and existing multi-use paved trail.</li> </ul>
10	AREA OF INTEREST	Burke Brook/ Sunnybrook Park	<ul style="list-style-type: none"> <li>ESA, some degraded areas and invasive species, opportunity for stewardship and ecological restoration, and</li> <li>Trail improvements and Toronto Water capital projects currently underway.</li> </ul>
11	AREA OF INTEREST	Brookbanks Park	<ul style="list-style-type: none"> <li>Erosion Control Hazards, 25% as ESA, and</li> <li>Existing and proposed multi-use paved trail.</li> </ul>

SOUTH DON PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST

# NORTH-EAST & NORTH-WEST DON PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST



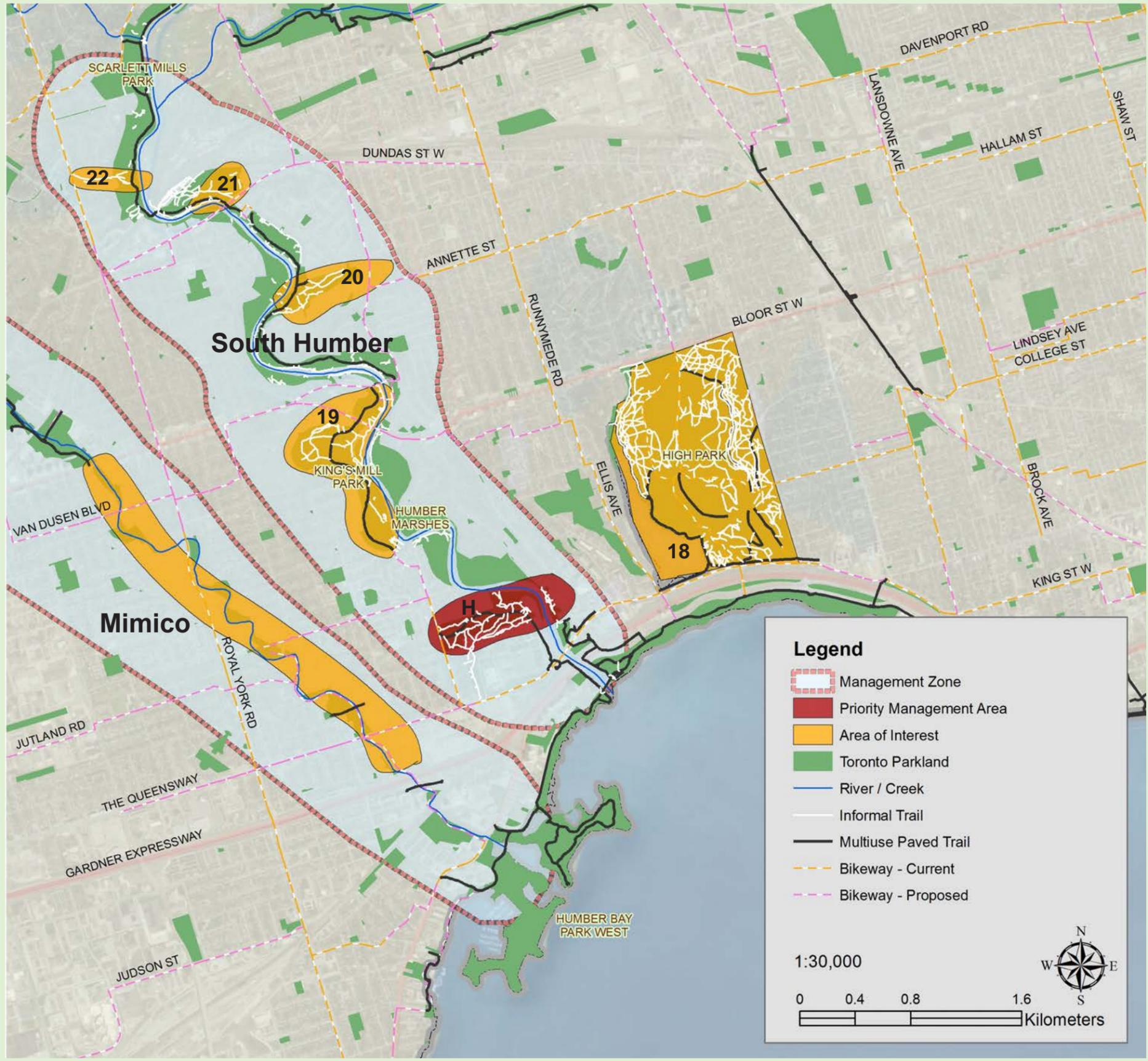
ID	CLASSIFICATION	NAME	SUMMARY
F	PRIORITY MANAGEMENT AREA	Bestview Trails	<ul style="list-style-type: none"> <li>Erosion Control Hazards, 20% wetlands;</li> <li>Existing multi-use paved trail system</li> <li>Proposed bikeway network connections would increase connectivity, and</li> <li>Opportunity for improvements and management of existing natural environment trail system.</li> </ul>
12	AREA OF INTEREST	Betty Sutherland Trail	<ul style="list-style-type: none"> <li>75% of site is potential ESA, and</li> <li>Existing and proposed multi-use paved trails.</li> </ul>
13	AREA OF INTEREST	East Don Parkland	<ul style="list-style-type: none"> <li>Significant environmental considerations*, and</li> <li>Existing multi-use paved trail.</li> </ul>
G	PRIORITY MANAGEMENT AREA	Forest Valley Outdoor Education Centre TDSB	<ul style="list-style-type: none"> <li>Priority Investment Neighbourhood;</li> <li>15% wetlands;</li> <li>Some invasive species - opportunity for stewardship and ecological restoration;</li> <li>High volume of use on existing trail system daily by children through education programming;</li> <li>Proposed bikeway network connection planned between G. Ross Lord Park and Earl Bales Park;</li> <li>Trails currently managed by TDSB, significant improvements required, and</li> <li>Future Toronto Water projects planned.</li> </ul>
14	AREA OF INTEREST	Gwendolen Park & Stuart Greenbelt	<ul style="list-style-type: none"> <li>ESA;</li> <li>High volume of users recorded by trail counters, and</li> <li>Local interest from West Lansing Homeowners Association.</li> </ul>
15	AREA OF INTEREST	Earl Bales Park	<ul style="list-style-type: none"> <li>Natural environment trails to be considered in any future parks master planning process;</li> <li>Significant recreation infrastructure and programming exists;</li> <li>ESA;</li> <li>Some invasive species, opportunity for stewardship and ecological restoration, and</li> <li>Current and future Toronto Water projects.</li> </ul>
16	AREA OF INTEREST	Hinder Area	<ul style="list-style-type: none"> <li>Some invasive species, opportunity for stewardship and ecological restoration;</li> <li>Existing and proposed multi-use trails, and</li> <li>Some landownership constraints.</li> </ul>
17	AREA OF INTEREST	G. Ross Lord Park	<ul style="list-style-type: none"> <li>Natural environment trails to be considered in any future parks master planning process;</li> <li>Neighbourhood Investment Area;</li> <li>25% contains wetlands, and</li> <li>Some invasive species, opportunity for stewardship and ecological restoration.</li> </ul>

*\*NOTE: This area includes 3 or more of the following: CoT "Erosion Control Hazard"; Area of Natural & Scientific Interest (ANSI), CoT Potential ESA, Provincially Significant Wetlands (PSW), potential habitat for Species at Risk.*

NORTH-EAST&NORTH-WESTDONPRIORITYMANAGEMENTAREAS&AREASOFINTEREST

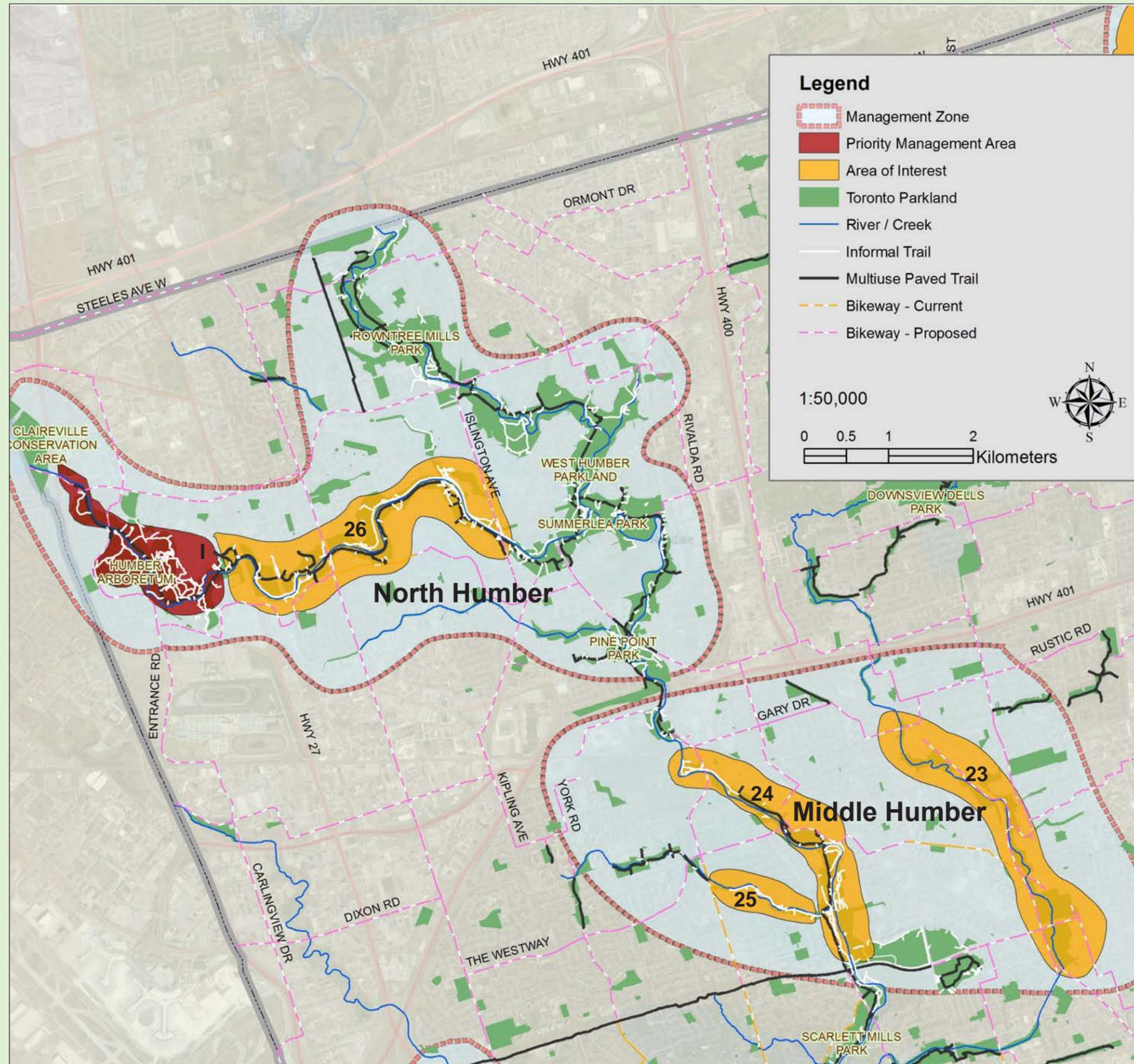
# SOUTH HUMBER PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST

SOUTH HUMBER PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST



ID	CLASSIFICATION	NAME	SUMMARY
H	PRIORITY MANAGEMENT AREA	South Humber Park	<ul style="list-style-type: none"> <li>Long standing area for mountain biking, and</li> <li>Existing informal trail network, existing multi-use paved trail intersects western portion of area.</li> </ul>
18	AREA OF INTEREST	High Park	<ul style="list-style-type: none"> <li>Natural environment trails to be considered in any future parks master planning process;</li> <li>Significant recreation infrastructure and programming exists;</li> <li>Environmental sensitivity, ESA and ANSI;</li> <li>Community Interest in volunteer trail management, and</li> <li>Extensive informal trail network and existing multi-use paved trail.</li> </ul>
19	AREA OF INTEREST	King's Mill Park	<ul style="list-style-type: none"> <li>Erosion Control Hazards, 85% of site is ANSI, and</li> <li>Existing and proposed multi-use paved trails.</li> </ul>
20	AREA OF INTEREST	Magwood Park	<ul style="list-style-type: none"> <li>20% wetland;</li> <li>Small area currently managed for Garlic Mustard invasive species;</li> <li>Existing cultural and recreation site with significant damage to habitat areas, and</li> <li>Existing multi-use paved trail in north-west. Proposed multi-use trail would increase connectivity from west side of area.</li> </ul>
21	AREA OF INTEREST	Lambton Woods - East	<ul style="list-style-type: none"> <li>Small parkland with existing trails. Currently significant damage to habitat areas;</li> <li>90% ANSI/ESA, and</li> <li>Existing multi-use paved trail intersects area.</li> </ul>
22	AREA OF INTEREST	Lambton Woods - West	<ul style="list-style-type: none"> <li>90% ANSI/ESA, and</li> <li>Existing multi-use paved trail intersects area. Proposed multi-use paved trail would improve connectivity.</li> </ul>

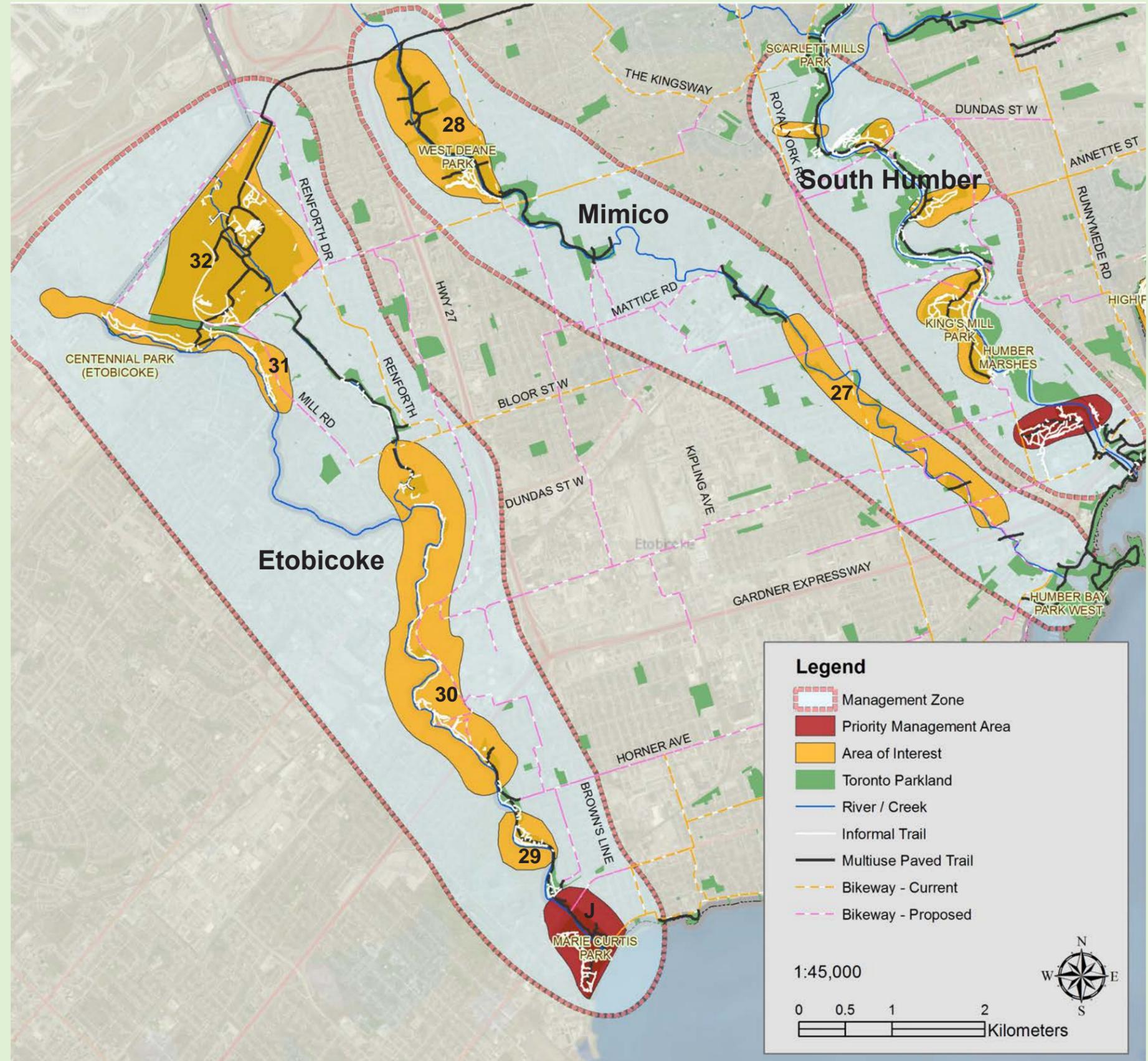
# MIDDLE & NORTH HUMBER PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST



ID	CLASSIFICATION	NAME	SUMMARY
23	AREA OF INTEREST	Upwood Greenbelt, Westview Greenbelt & Keelesdale Park	<ul style="list-style-type: none"> <li>Adjacent to Neighbourhood Investment Area;</li> <li>Proposed multiuse paved trail would improve connectivity (Black Creek Connection);</li> <li>North section of West Toronto Railpath planned, and</li> <li>8-10km of unmapped informal trails.</li> </ul>
24	AREA OF INTEREST	Cruikshank, Weston Lions, Raymore Park, Mid-Humber Gap	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Erosion Control Hazards;</li> <li>Existing multi-use trail, proposed bikeway network connections would improve connectivity, and</li> <li>Construction for Mid-Humber gap planned.</li> </ul>
25	AREA OF INTEREST	Chapman Valley Park	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>50% of site is ESA;</li> <li>Multi-use trail. Existing bikeway network connections to west of area, and</li> <li>Toronto Water capital projects planned.</li> </ul>
I	PRIORITY MANAGEMENT AREA	Humber Arboretum	<ul style="list-style-type: none"> <li>Includes Humber and Claireville Gap;</li> <li>Heavy use and degraded trails;</li> <li>Erosion Control Hazards, 25% wetlands;</li> <li>50% of site is degraded, opportunity for stewardship and ecological restoration;</li> <li>High volume of use by school children for outdoor education programming by Humber Arboretum;</li> <li>Currently managed by Humber Arboretum. Some volunteer projects undertaken by Humber College students. Further partnership and volunteer opportunities;</li> <li>Existing multi-use trail. Proposed bikeway network connections would improve connectivity;</li> <li>Currently managed by Humber Arboretum, and</li> <li>Claireville Extension - Humber Trail planned.</li> </ul>
26	AREA OF INTEREST	West Humber Parkland - West	<ul style="list-style-type: none"> <li>Neighbourhood Investment Area;</li> <li>Erosion Control Hazards, and</li> <li>Existing multi-use trail. Proposed bikeway network connections would improve connectivity.</li> </ul>

# MIMICO & ETOBICOKE PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST

MIMICO & ETOBICOKE PRIORITY MANAGEMENT AREAS & AREAS OF INTEREST



ID	CLASSIFICATION	NAME	SUMMARY
27	AREA OF INTEREST	South Mimico	<ul style="list-style-type: none"> <li>Erosion Control Hazards, 25% wetlands;</li> <li>Small section of multi-use trails. Existing bikeway network intersects. Proposed bikeway network connections would improve connectivity;</li> <li>Toronto Water recently completed preliminary stream bank work, and</li> <li>Land ownership will be a constraint for connectivity.</li> </ul>
28	AREA OF INTEREST	West Deane Park	<ul style="list-style-type: none"> <li>Natural environment trails to be considered in any future parks master planning process;</li> <li>High volume of users recorded by trail counters;</li> <li>Well known by mountain biking community as an area for trail riding and technical trail features, and</li> <li>Existing multi-use paved trail.</li> </ul>
J	PRIORITY MANAGEMENT AREA	Marie Curtis Park	<ul style="list-style-type: none"> <li>20% wetland;</li> <li>Existing Marie Curtis Master Plan includes improvements to trails in the Park, and</li> <li>Existing and proposed multi-use paved trail connect to area from east.</li> </ul>
29	AREA OF INTEREST	Etobicoke Valley Park - South	<ul style="list-style-type: none"> <li>Existing multi-use trail system, and</li> <li>Short unpaved trails well used for access to paved trail and access to creek.</li> </ul>
30	AREA OF INTEREST	Etobicoke Valley Park	<ul style="list-style-type: none"> <li>15% of site is potential ESA;</li> <li>Multi-use paved trail in north only. Proposed bikeway network connections would improve connectivity;</li> <li>Informal trail located in areas of severe erosion posing high risk and liability issues, and</li> <li>Community Interest from Oxygen Bike Co., TORBA &amp; Lapdogs.</li> </ul>
31	AREA OF INTEREST	North-end Etobicoke (Mill Valley Park)	<ul style="list-style-type: none"> <li>Erosion Control Hazards, 25% wetland;</li> <li>Small section of multi-use trail connects area to Centennial Park. Proposed multi-use paved trail would improve connectivity, and</li> <li>Bikeway network connections construction planned for; Etobicoke Creek North and Etobicoke Creek Trail Upgrade - Lakeshore Bridge.</li> </ul>
32	AREA OF INTEREST	Centennial Park	<ul style="list-style-type: none"> <li>Natural environment trails to be considered in any future parks master planning process;</li> <li>Significant recreation infrastructure and programming exists;</li> <li>Existing multi-use trail;</li> <li>Eglinton West Trail Extension planned, and</li> <li>Pan Am games BMX race course to be located here with potential for future connections to related mountain biking activity.</li> </ul>

## 5.0 NEXT STEPS

By providing a strategic plan to guide future planning exercises, The City

of Toronto Natural Environment Trail Strategy (NETS) will help ensure the protection, restoration and enhancement of natural areas while offering safe recreational opportunities and improved access to all natural environment trail users. The NETS underpins the future promotion, planning, design, construction, maintenance and management of the trails in the Don, Humber, Highland, Etobicoke and Mimico ravine ecosystems over the next 10 years. This Strategy is a significant step towards the further development of a consistent and sustainable natural environment trail network in the City of Toronto.

All future work should be undertaken with the Strategy's goal and principles front of mind:

*Ensure the protection of the City of Toronto's natural areas while offering safe and enjoyable recreational opportunities for all natural environment users by creating a sustainable multi-use trail system.*

Through:

1. Parks and Trails as City Infrastructure
1. Equitable Access
2. Environmental Protection
3. Community Engagement

The Strategy presents an ambitious program, including a broad range of recommendations – from those which should be applied through system wide changes and initiatives, to detailed recommendations in design and day to day practices.

Strategies for implementation are presented through four core areas:

- Stewardship & Partnership;
- Marketing & Education;
- Planning & Design, AND
- Management (including service delivery and policies).

The focus of the next steps should be the implementation of the 59 recommendations presented in this Strategy including short, medium and long-term actionable items, ongoing policy and protocol and ongoing planning and design directives.

Within these recommendations, it is recommended that the following short-term priority actions are addressed within the first 12 to 24 months of approval of the Strategy:

- Provide community volunteers with varied and structured volunteer opportunities;
- Provide educational and interpretive information on the ravine and trail system, trail maps and up to date information through a variety of mediums and outlets;
- Create a comprehensive, aesthetically fitting and approachable signage and wayfinding program for all managed trail systems that follows all PFR signage and wayfinding guidelines and standards and is compatible with current City-wide initiatives;
- Prioritize ongoing management of the natural environment trail system for the protection of ESAs including sustainable trail planning and design, educational signage, stewardship initiatives, selective closures and restoration;
- Adopt TRCA Construction Standards and Guidelines Handbook which offers a range of trail specifications applicable to Toronto's trails;
- Increase staff resources for the purpose of planning, public consultation, design, construction, monitoring and maintenance, data collection and management, by-law enforcement, partnership building, coordination of stewardship and public outreach, communications, educational and interpretive materials;
- In conjunction with other divisional and City-wide budgeting initiatives, establish coordinated capital and operating budgets for the management, maintenance, planning and construction of trails;
- Develop a trail maintenance program including an inspection schedule, prioritization, documentation procedures, inspection logistics, and inspection crews. Prioritize serious concerns or hazards and expedient garbage pick-up and waste management, and
- Additional, ongoing data collection should continue through the installation and monitoring of trail counters, user surveys and through the inclusion of trails related questions in the City-wide surveys.

The Natural Environment Trail Program (NETP) should build off the success and “buzz” of the Crothers Woods Trail Management Strategy as a template and promotional tool in the development of further Area Management Plans. It is further recommended that NETP begin with “quick wins” or areas in which they are already engaged, such as Humber Arboretum and Forest Valley Outdoor Education Centre.

The recommendations identified in the Action Plan as Ongoing Policy/Protocol and Ongoing Planning and Design Directives should be formally adopted and considered in all future trail management initiatives.



# CROTHERS WOODS – LESSONS IN TRAIL MANAGEMENT

Crothers Woods is a 52 hectare mature and relatively undisturbed forest within the Lower Don Watershed designated as an Environmentally Significant Area.

The trails within the ravines and valleys of Crothers Woods have become a popular recreation destination for hikers, trail runners, nature enthusiasts, dog-walkers and mountain bikers. Prior to 2002, many of the trails were unsanctioned and as a result of heavy use degraded the natural environment through soil compaction, erosion and damage to the forest habitat. The significant increase in degraded trail conditions also led to poor trail user experiences and increased conflict between users.

From 2008 to 2012, Urban Forestry worked with a wide range of stakeholders in the implementation of the Crothers Woods Trail Management Strategy, including the TRCA, contractors specializing in sustainable trail construction and community stewards to provide safer, well built and more enjoyable trails, this has allowed recreational activity to continue, while protecting the natural environment that originally drew trail users to the area.

The management of the trails has resulted in the following “lessons learned”. These are just a small number of the valuable experiences that has helped to shape the development of NETS:

- Community engagement - from planning to construction - was key to solidifying support and fostering a sense of ownership. Encouraging the community to 'build with us' during weekend and evening events helped start to keep trail users up to date on construction progress and instilled a sense of ownership to those who helped;
- Working with trail builders who had experience in sustainable trail building, understood user experiences and could work with a 'light footprint' to ensure minimal disturbance to the natural environment was very important;
- The importance of moving and importing materials carefully during construction due to invasive species;
- Trail building is very site specific. Even the most detailed plans can change during construction due to very specific site conditions;
- Even with extensive community engagement, there was a significant amount of negative feedback during construction. Staff found that it was more of a reaction to change, not necessarily the purpose of the work itself and the reaction tended to come from the 'extreme' spectrum of users. It proved the value and power of 'ownership' of an area by those who use it;
- As an organization, it is very helpful to have everyone on board, from park supervisors, local councilors to middle and upper management, before construction unified and consistent response to any feedback;



*Crothers tour (Photo Credit: City of Toronto)*



*Trail Pinflagging and Botanical Inventory (Photo Credit: City of Toronto)*



*Rock Armouring (Photo Credit: City of Toronto)*

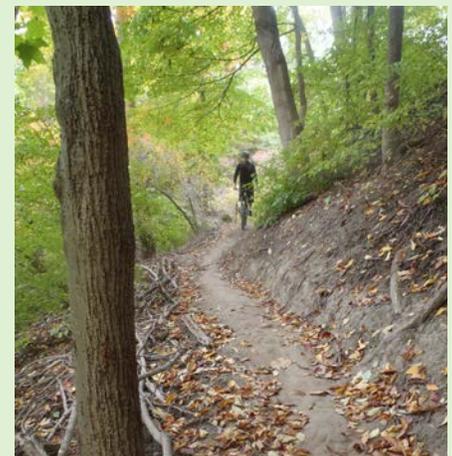
- Closing trails was challenging at first. It takes up to five years to close a trail. Even using the philosophy where a trail is only closed when a better alternative is made available, 'better' is sometimes subjective depending on the trail user. It is better to not restore and replant a closed trail for a few years. Allow users time to adapt to a new trail, although not all of them will. Continue to fence, inform and enforce. Plants won't stop determined users but over time the new trails become the new normal;
- Instilling a 'sense of place' was very important to Crothers Woods – where there was a hole in the fence was now a trailhead with maps, contact information and its own website. Crothers Woods is no longer the backwater of the parks system;
- After trail building was completed it became clear that we were building trails within a geographic bubble. We tried to fit an entire trail system into one area (stacked loop system, beginner, intermediate and advanced) which is when we realized that a City-wide strategy was required in order to spread the system over a larger area. Each time we manage a smaller trail area, we need to know where in the system it fits, and
- Existing standards for parks signs didn't fit the trailhead template. Natural environment trail signage needs to be a fine balance between messaging and natural environment aesthetics.



*Volunteers (Photo Credit: City of Toronto)*



*Crothers Trail (Photo Credit: City of Toronto)*



*Mountain Bike on Crothers Trail (Photo Credit: City of Toronto)*

The greatest lesson learned was a simple one. There is a need to manage the natural environment areas because people are already, and will always, use them. As population densities increase and the awareness of the availability of this valuable recreational resource increases, more and more Torontonians will be using ravine and natural area trails and although users can have a negative impact, this is usually through poorly planned and built trails, not the use itself. Well planned, built and managed trails can go a very long way to provide trail users with the experience they desire, while protecting the natural environment.

For more information on Crothers Woods, trail maps, an interactive map outlining historical, trail building and natural environment information visit <http://www.toronto.ca/parks/trails/crothers/>.

## QUICK WINS

The Natural Environment Trail Strategy will provide a detailed plan for action for trail management for the next decade and will be a living and evolving document. At the time of the launch of the strategy, the following trail initiatives are already being implemented and supported by the recommendations in NETS:

### HUMBER ARBORETUM

Humber Arboretum was identified as a priority area for trail management due to the high volume of use the trails receive and the ecological integrity of the surrounding forest. NECP staff have partnered with Humber Arboretum and the TRCA to help manage and repair a very well used outdoor education trail system. In 2013 NECP and TRCA will be working with Arboretum staff to remove and build new boardwalks, re-grade and resurface existing granular trails as well as build a new granular switchback down a steep slope where a well used existing trail is currently eroding away.

### FOREST VALLEY OUTDOOR EDUCATION CENTRE (FVOEC)

Similar to Humber Arboretum, the FVOEC was identified as a priority area for trail management due to high volume of use and protection of the surrounding environment. NECP staff are currently partnering with FVOEC and TRCA to rebuild extensive sections of well used trails in the West Don. These trails are used by thousands of students annually for outdoor education and exploration activities. Work will commence in 2013 and will include the construction of several hundred meters of boardwalk, re-grading and alignment of trails, closing and restoring old trails as well as the construction of several small bridges and water crossings using recently developed standards by the City and the TRCA.

### DATA COLLECTION AND ANALYSIS

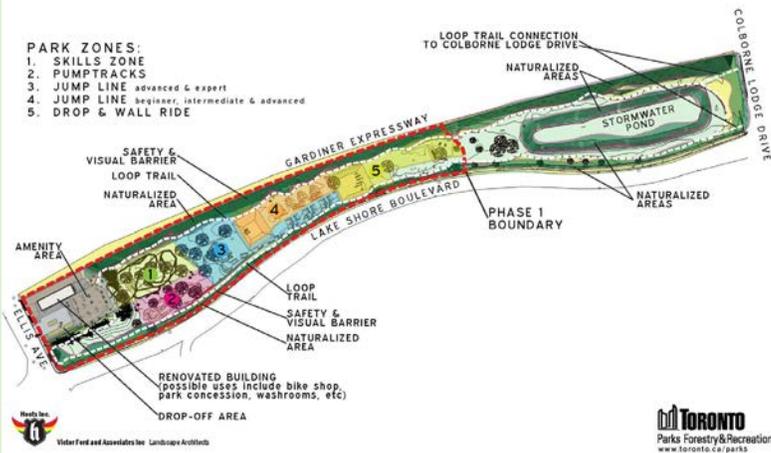
NECP are currently working with the TRCA on continued monitoring and data collection of areas identified as priority management areas. Trail counters, user surveys, ecological inventories and other relevant information will be collected in the Don Watershed on the Ridge Trail, in Highland Creek at Cedar Ridge Park as well as in Magwood Park and South Humber Park in the Humber Watershed. This data will help build a solid foundation for management plans and future trail detailed designs in these areas in 2014.

### SUNNYSIDE BIKE PARK

To meet the demand of the local cycling community, NECP staff are proposing to build a bike park in Sunnyside (Ellis Avenue at Lakeshore) which will provide a professional facility offering technically challenging riding in an accessible and controlled environment. In 2012, PFR staff worked with accomplished skills park designer, Jay Hoots [www.hoots.ca](http://www.hoots.ca), to develop a concept plan for a world class facility that will include appropriate off-road cycling features, skills areas and landscape amenities. The park, scheduled to be built in 2013, will help protect surrounding forests and parkland currently being impacted by the many informal skills parks in and around High Park and the Lower Humber River area.

### THORNCLIFFE/RIDGE TRAIL

In anticipation of work on the Ridge Trail, NECP staff have connected with staff at the Thorncliffe Neighbourhood Office (TNO) and an Outdoor Education teacher at Thorncliffe Public School, both located in the community overlooking the Ridge Trail in the South Don Management Zone. TNO is a community based, multicultural agency, providing information, services and support to residents in Thorncliffe Park which includes many low income and new immigrant families. They are currently developing an environmental action plan for the community as part of the City's Tower Renewal Project, which includes improving access to the ravine and trails. Up to 750 school children access these trails every week as part of their outdoor education class at Thorncliffe Public School. NECP staff have provided support to the University of Toronto Mountain Biking team and the Toronto Off-Road Bicycling Association in organizing community garbage clean up events in this area, by providing equipment and connecting them with the local community. Input from this community will be important as we develop a plan and detailed design for the Ridge Trail.



(Photo Credit: Forest Valley Outdoor Education Centre)



Sunnyside Bike Park Concept (Photo Credit: City of Toronto)



Thornccliffe Park (Photo Credit: Brendan Martin - Tumblr)



Ridgeline Trail (Photo Credit: City of Toronto)



Pinflagging a new trail at Humber Arboretum (Photo Credit: city of Toronto)





*(Photo Credit: IMBA)*

# Project Background

# CONTEXT

Significant background review, analysis and consultation was undertaken in the development of the City of Toronto Natural Environment Trail Strategy. This includes:

- A review of the benefits of trails;
- A background review including other regional and municipal natural environment trail initiatives and related City of Toronto work undertaken to date;
- Existing legislative policy and context;
- Biophysical opportunities and constraints;
- Community engagement key findings, and
- Trail supply & demand and associated gap analysis.

## 6.0 BENEFITS OF TRAILS

The natural environment trail system provides a broad spectrum of benefits to the City of Toronto and its residents. These range from social, educational, health and environmental benefits, as well as economic opportunities.

### ENVIRONMENTAL BENEFITS

By educating and clearly identifying areas for protection, greater appreciation and respect of the ravine landscape can be expected. Protecting these natural areas from further degradation and restoring habitat and ecological function is important for wildlife, biodiversity and hydrologic function. This can result to decreased incidents of pollution to the ravine watercourses, as well as an increased community environmental conscience which can lead to less user created trails and more environmentally responsible decision making. Carefully planning and managing the natural environment trails within the ravines, and therefore lightly managing the ravines, protects the ecological systems from the harm often associated with ravines in highly urban environments (such as illegal dumping, contamination). Managing trail use and building trails properly results in less environmental degradation than typically arises when users build unsanctioned trails. Trails can provide a site for active transportation – walking and cycling – which can reduce a community's transportation based emissions. Trails within the ravines also provide access for litter removal, unstable slopes that need protective measures and elimination of invasive species.

### SOCIAL BENEFITS

Trails have been associated with social benefits ranging from increased opportunities for social interactions to better connection to the landscape and to other trail users. They foster social relationships and shared responsibility. Active Living – Go Green (Leisure Information Network, 1996) stated that improved self-image and social relationships, reduced crime rates, and a lifestyle encouraging youth to find their entertainment in healthy, wholesome pursuits, are all found to be by-products of local trail systems. As a municipal open space system, user fees are not collected, making it economically accessible to all residents of the City.

A 2009 study by Parks and Recreation Ontario found that "Ontario residents overwhelmingly recognize that recreation and parks boost social cohesion and quality of life."

(Parks and Recreation Ontario, 2009).

# FOREST VALLEY OUTDOOR EDUCATION CENTER

Located along the west Don River, Forest Valley Outdoor Education Centre (O.E.C.) is one of ten outdoor education centres within the Toronto District School Board where students have the opportunity to engage and connect with the natural world. At Forest Valley O.E.C, students create valuable connections with nature through a variety of curriculum based lessons including mapping as a life skill, visual art and discovery hikes. Overall, more than 17,000 students from over 150 schools visit Forest Valley O.E.C. every year.

As a component of almost all of our programs, students use many of the public trails connected with our centre as classroom space to learn about and engage with the world around them. This type of authentic learning supports students in developing a connection with our natural environment. We appreciate and value the opportunity to collaborate with the TRCA and the City of Toronto to manage and develop a safe and accessible trail system. This partnership is essential in allowing us to continue offering meaningful outdoor education opportunities to TDSB students.

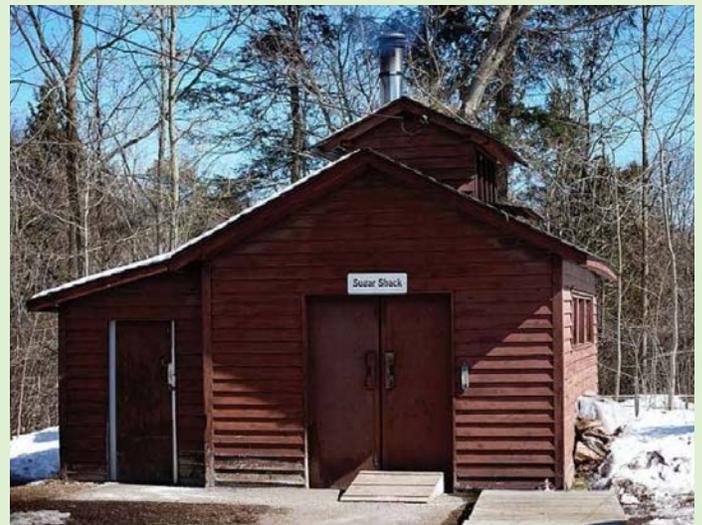
*Contributed by Stephanie Miskew, TDSB, Site Supervisor, Forest Valley Outdoor Education Center*



Forest Valley Staff (Photo Credit: City of Toronto)



(Photo Credit: Toronto District School Board)



Maple Syrup Shack (Photo Credit: Merryfieldsphotography)

## EDUCATIONAL BENEFITS

Trails play an important role in supporting environmental education and building a public commitment to environmental conservation. The natural trail system provides a setting for natural history lessons, experiential education, and opportunities for a reconnection and learned respect for nature that is often lost in highly urbanized environments. There are also opportunities to learn about Toronto's cultural and archaeological history in these natural environment areas.

## HEALTH BENEFITS

A healthy, active life style is associated with a longer, disease free life, decreased stress levels and decreased change of depression. Regular physical activity reduces the risk of developing a number of chronic illnesses, including cardiovascular disease, non-insulin dependent diabetes and colon cancer (Transportation Research Board (TRB), 2005). Other benefits of regular physical activity such as walking, cycling and jogging, include reduced risk of osteoporosis, obesity and depression, as well as an increased psychological well-being and quality of life (TRB, 2005). Such lifestyles help to develop and maintain motor and social skills in all ages and taking part in outdoor recreational pursuits leads individuals to a heightened awareness of their environment. Trails bring people into contact with nature which is associated with a range of physical and mental health benefits.

Over the last few decades, the Canadian government has changed its health promotion platform from the encouragement of vigorous physical activity to more moderate activities such as walking and cycling. Lower exertion activities like these impose fewer barriers on participants and are easier to adopt and adhere to over the long term (Frank, Engelke & Schmid, 2003; TRB, 2005; Lee & Moudon, 2004).

## ECONOMIC BENEFITS OF TRAILS AND THE MANAGED RAVINE SYSTEM

### Direct Economic Value and Benefits of Trails

With the rising popularity of outdoor recreation activities the economic value of trails over recent years has become increasingly evident. In 2011, a draft of the Simcoe County Trails Strategy was released. 50% of the trails within Simcoe County are classified as natural surface single tracks and are used by bikers, hikers, cross country skiers, walkers and runners.

It is estimated that chronic diseases related to inactivity in adults costs the Canadian health care system \$5.1 billion dollars.

(Katzmarzyk, 2004)

*"I often see a grouping of teens riding Canadian Tire (or similar) entry level bikes, in their regular civic clothing (ie: not fancy sports gear).... To see them pursuing a healthy activity in a group setting, building friendships and fitness is fantastic!"*

- survey respondent

“The Ontario Trails Council estimates that trails contribute at least \$2 billion a year to the provincial economy.”

(Ontario Trails Strategy, 2005)

*“I am so very pleased that we have these nature trails. I find them my “time away” it lets me feel like I am in Algonquin for an hour.”*

*-survey respondent*

The strategy included a well documented account of the economic benefits, pertaining specifically to trail use in southern Ontario. Key findings include:

- Trails increase property values - offering residents scenic views and on-hand recreational opportunities (Dunbar, 1999);
- Trail availability outranked 16 other options, including security, ball fields, golf courses, parks and access to shopping or business centre, according to a 2002 National Association of Realtors/National Association of Home Builders Survey. Only highway access was ranked as more important amenity by the 2000 home buyers surveyed, and
- The Canadian Fitness and Lifestyle Research Institute and Federation of Canadian Municipalities for Sustainable Community Development both relate municipal savings and increased revenues with active transportation.

Both recreational and active transportation based trail users are likely to spend money adjacent to trails, if the spending opportunities exist. If the economic revenue generating potential of trails and by trail users is considered early on, trails can be planned and built to encourage local spending in conjunction with trail use. Some examples of planning initiatives to increase trail use include:

- Connect community destinations such as businesses, schools and universities and recreation centres with residential areas;
- Create links between a hierarchy of bikeway and natural surface trail networks (connecting bike lanes, urban paved trails and natural environment trails);
- Facilitate trail user safety (regularly maintained, hazard areas addressed, clear signage), and
- Provide trail amenities (washrooms, bike racks, benches, parking).

If designed with these features trails provide economic cost savings by attracting residents to use the trails in reaching businesses, attract businesses to set up near the trail system and generate increased tax revenues.

In addition, by providing trails that link to destinations, more residents are likely to walk or bike, eliminating or reducing impacts on the roads and on air quality, which may be connected to greater automobile use. Trail systems can also provide indirect savings to the healthcare system, as an increase in accessible based recreational opportunities, such as trails, can be connected to lower rates of obesity and other medical issues. Supporting findings are documented below (Simcoe County Trails Strategy, 2011):

- A Transport Canada issue paper finds that a shift to greater levels of active transportation will lead to lower roadway costs, reduced congestion, decreased road maintenance costs, less costly infrastructure and increased road safety;

- The Canadian Fitness and Lifestyle Research Institute found that costs associated with obesity were 4.3 billion dollars in 2001 and that the economic cost associated with physical inactivity represented 2.7% of total health care costs in Canada. In Simcoe, Muskoka approximately 46% of adults are inactive, and
- The same bulletin states that physically active employees are absent less frequently and are more productive, saving employers money.

A recent Economic Impact Analysis conducted by PriceWaterhouseCoopers (Dunbar & Associates, 2011) studied the economic impacts of attracting local users and tourists to Ontario's regional trail systems such as the Trans Canada Trail. The study found that the majority of users were locals, and although they tended to spend less money associated with their trail use per day than a tourist, at \$7-8 a trip, they are still generating the majority of the economic activity and expenditures on items such as food and cycling equipment.

Although the Toronto Natural Environment Trail network might not presently be marketed as a tourist destination it could be in the future – and as such, could further become a spending catalyst for businesses adjacent to the trails. Several municipalities in Canada (i.e., Kelowna, Whistler) have produced and implemented plans to increase the economic impact of tourism related to mountain biking on natural surface trails and bike facilities. Strategies to do the same have also been produced by the Scottish government (Scottish Mountain Bike Development Consortium, 2009) and the Australian province of Tasmania (Sport and Recreation Tasmania, 2009). Some estimated economic findings from these precedents are noted below:

- Whistler's network of cycling trails, Bike Park and Crankworx Freeride Mountain Bike Festival generated more than \$34 million in direct spending over a three month period in 2006. The Crankworx Festival alone attracted 55,000 visitors and generated more than \$11.5 million in non-resident expenditures (Western Canada Mountain Bike Tourism Association, 2007);
- Tourism to Scotland based solely on visitors specifically travelers to use the mountain bike trails and facilities generates £46.5 million each year for the Scottish economy (Bryden et al., 2010), and
- The Teton County trail system in Wyoming generated an estimated \$18 million in economic activity in 2010. Almost \$17 million was generated by non-local trail users. 213 workers with total wages of \$3.6 million were supported by the trail system in the summer and fall of 2010 (Kaliszewski, 2011).

There are numerous economic benefits that the trails could yield the City of Toronto from local impacts on small business to becoming a top outdoor recreation destination on the eco-tour circuit. A key first step to this is in providing local recreation users with access to trails that they can use on a daily basis.

*"I have been riding these trails for decades now and they are a significant influence on me living in Toronto. In fact, despite the cost we bought a house very close to the trailhead so my family can enjoy mountain biking on the trails."*

*- survey respondent*

*"They are the most redeeming feature of our neighbourhood. I would gladly pay more for improvements."*

*-survey respondent*

*"Please consider working closer with local IMBA groups for developing quality mountain bike trails, these trails can attract trail users from far outside the city to travel and visit the city. Bringing with them a great tourism opportunity. As a mountain biker I have travelled internationally to cities and towns with who have embraced mountain bikers and made a great trail network."*

*- survey respondent*

## ECONOMIC BENEFITS OF TORONTO'S MANAGED RAVINE SYSTEM

Toronto's trail network is predominately located within the ravine system, which is also where the largest stands of urban forest are located. Unknown to many, the urban forest provides many benefits including economic value. These benefits are documented in the Every Tree Counts - A Portrait of Toronto's Urban Forest (2010):

- Toronto's trees are estimated to store 1.1 million metric tonnes of carbon equal to \$31.6 million worth of carbon sequestration;
- Toronto's urban forest is estimated to reduce heating and cooling energy costs by \$9.7 million annually, and
- A large tree with a diameter of 75cm can intercept up to ten times more air pollution than a small tree with a diameter of 15cm, suggesting that the older tree stands offer greater economic benefits to younger, small stands within the system.

The City of Toronto's extensive ravine system overlaps or is adjacent to numerous private properties. In order to protect and educate property owners a Ravine By-Law was enacted which specifies steps to help protect the natural environment and public safety. This equates to fiscal economic savings to the City, tax payer and property owners:

- The cost associated with maintaining erosion control structures, dredging channels and harbours and repairing damaged infrastructure in floodplains represents a significant tax burden to the public. It is therefore in the public interest to prevent damage by maintaining the features that function to reduce stormwater flows and reduce or prevent erosion;
- Well-vegetated ravines contribute to reducing storm flows that may otherwise cause significant impact and loss to private and public property, infrastructure, and amenities in local and downstream watercourses and ravines;
- A healthy cover of trees and vegetation on or above slopes can provide critical protection against surface erosion of soil and/or slumping of slopes, either of which can result in the loss of property, and
- Alteration (changes/disturbances) of grades on, above or below slopes can compromise slope stability, leading to erosion and/or slumping.

There are many benefits to protecting the trees, ravines, and natural features in the City of Toronto. This includes economic cost savings, private and public duty to maintain property, and personal security. The NET strategy will help to protect ravine and natural areas from degradation and ensure future long term benefits.

## 7.0 BACKGROUND STUDIES

A background review was undertaken of:

- Other regional and municipal natural environment trail initiatives, focusing on similarities to the issues facing NETS, and detailing some of the recommended solutions presented, and
- Other City of Toronto initiatives with information pertinent to the trail system.

### 7.1 TRENDS: OTHER REGIONAL AND MUNICIPAL NATURAL ENVIRONMENT TRAIL INITIATIVES

#### BRUCE TRAIL

The Bruce Trail is a public footpath running from Niagara to Tobermory, Southern Ontario. It is entirely built and maintained by volunteers for the purpose of protecting the Niagara Escarpment, the most significant landform in southern Ontario. It is Canada's oldest and longest footpath and provides the only continuous public access to the magnificent Niagara Escarpment, a UNESCO World Biosphere Reserve. It is one of only fifteen such reserves in all of Canada. The idea for the Bruce Trail formed in 1960. After years of door-to-door landowner contact the trail was officially opened in 1967.



*(Photo Credit: Bruce Trail Conservancy)*

The primary trail is 890 km with an additional 400 km of side trails located on public and private lands along the Escarpment. Nine Bruce Trail Clubs support the Bruce Trail Conservancy, with each club managing a section of the Bruce Trail responsible for maintaining, stewarding and promoting their section.

**Bicycles, motorized vehicles, and horses are not allowed** on the trail except where explicit permission is posted. It is mandated as a single use pedestrian trail to respect landowner wishes, safety and ecological protection (Bruce Trail Conservancy, 2012)

#### CITY OF COQUITLAM, BC

Coquitlam, a Metro Vancouver suburban City with a population of just over 100,000 recently completed an Off-Road Cycling Strategy (ORCS; Coquitlam 2008). Similar to the context facing the City of Toronto, an increase in unauthorized trail work and technical feature installation has resulted in municipal concerns over liability, natural environment damage and trail user conflicts. The City produced the ORCS to address these concerns and meet an obvious recreational need in the community. Primary to the Strategy is a Trail Network Park that includes skill-graded trails, technical trail features, and several bike skills parks. Although the Strategy's main focus is multi-use trails, it also recommends that some sections of trail be designated as bike or pedestrian only if factors such as safety, physical barriers, or inappropriate trail surface material warrant specific user group designations.



Mountain biking path (Photo Credit: Passport BC)

“Epic trails” are designated by IMBA and are generally about 30km in length, physically challenging and include spectacular views or other unique natural features. There are only 44 recognized epic trails in the world.

The Strategy addresses risk management but also recognizes that “mountain biking is intrinsically linked to the perception of risk involved in the experience” (p.23), recommending that risk management focus on eliminating unreasonable ‘hazards’ from the trail network and establish broadly accepted standards for trail and TTF construction, such as the Whistler Trail Standards (Whistler 2003). The Strategy also refers to BC’s provincial mountain bike policy statement (BC, 2006) for guidance on risk management issues and management principles.

#### FROMME MOUNTAIN SUSTAINABLE TRAIL USE AND CLASSIFICATION PLAN

The District of North Vancouver’s (DNV) Fromme Mountain Sustainable Trail Use and Classification Plan (LEES+Associates, 2007) focused on the formalization of a trail system within an eco-based, adaptive management framework. At the heart of achieving the vision for this plan was a commitment to balancing environmental protection with recreational activity.

As with the City of Toronto Natural Trail System, Fromme Mountain trails include a range of user groups, and a combination of informal and planned trails. The Fromme Mountain Area trail network consists of a mix of informal social trails, purpose built trails and relic logging skid roads. The network had developed over past decades with little formal planning with respect to ecological sensitivity, neighbourhood interface, local and regional connectivity or recreational use. Historically, trail construction and maintenance had been conducted primarily by independent volunteers and organized clubs via a permit system, with increasing inputs by the District in recent years.

Trail classification was broken into: multi-use, hiking only and mountain biking primary (where walkers are allowed, but right of way is given to mountain bikers). Select trails were assigned to commercial dog walking and equestrian use. Four levels of difficulty were applied to the trail system in order to accommodate a range of skill levels.

#### CITY OF KELOWNA, BC

The City of Kelowna and Area Mountain Bike Strategy was completed in 2009 (Cascade Environmental, 2009). The Strategy’s vision is that: “The Central Okanagan will be recognized world-wide for its excellence in mountain bike trails, facilities, and management” (p.v). The Strategy provides 28 recommendations to help achieve this vision, and includes plans to develop five skills parks and upwards of three ‘epic’ trails over a ten year period. A primary focus of the Strategy is economic development through tourism, and includes recommendations for marketing in part based on these trails.

The Strategy is similar to the Coquitlam Strategy in its approach to risk management (it also recommends adopting Whistler Trail Standards) and user conflict (recommends single-use trail if and where necessary). The Kelowna Strategy promotes volunteer trail stewardship supported by grants, municipal in-kind support, training and planning direction.

## SCOTLAND

Scotland is recognized internationally as one of the premier off-road mountain biking destinations with upward of 84,000km of trails, 20,000km of which are signed (Scottish Mountain Bike Development Consortium 2009). Government support extends to several agencies who work to develop mountain biking (as well as trails and associated facilities) for the purpose of active living and public health, tourism and economic growth, and natural environment protection.

One such agency is [Cycling Scotland](#), a registered charity that receives funding from the Scottish Government to promote all forms of cycling, providing various bike-riding courses, including mountain bike proficiency courses, offered through accredited centres located throughout the country. '[Go Mountain Bike](#)' for example covers themes such riding skills, first aid and sharing the outdoors, with the goal of making individuals safe and independent mountain bike trail riders.

## SIMCOE COUNTY TRAIL STRATEGY

The Simcoe County Trails Strategy (2011) describes itself as “a catalyst for change” (p.104), creating a cohesive framework for an already “abundant, diverse and high quality” collection of trails. Located just north of the Toronto Area, Simcoe County – made up of 16 municipalities, two cities, a First Nations reserve and Armed Forces Base - consists of approximately 4,800km<sup>2</sup>, and is home to many who commute into the Toronto Area. Simcoe County faces unprecedented growth and is one of the fastest growing areas north of the GTA. 50% of the trails within Simcoe County contain sections classified as natural surface single tracks and are readily used by cyclists, hikers, cross country skiers, walkers and runners.

The Simcoe County Trails Strategy referenced research and best practices as well as identifying opportunities associated with the creation of a cohesive trail network. The Strategy provides significant information on current trail trends, benefits and economic impacts of trails in addition to an inventory of hundreds of kilometers of trails including Bruce Trail – Canada’s oldest and longest footpath.

The Strategy includes the following parallels with the NETS:

- There had yet to be an initiative that encompassed the trails under one strategy, and
- A response to user conflicts and gaps in the existing trail system – seeking the identification of key required connections and the creation of more loop trails.
- Relying on a broad base of trail operators, the plan identifies key risk management mandates. This includes:
- Trail builders should be trained, and should have knowledge of basic trail safety design guidelines, and
- Signage should address areas which the “user may need to be aware of and then take more care than regular”, with acknowledgment of the line between inadequate signage and user negligence.



*Linear Trail (Photo Credit: Simcoe County Trails)*

## 7.2 SUMMARY OF KEY CITY OF TORONTO BACKGROUND REPORTS

The work undertaken in the Natural Environment Trail Strategy has been developed in conjunction with current initiatives and follows on the heels of previous relevant reports. The following is a summary of this work.

### CITY OF TORONTO PARKS PLAN

The City of Toronto Parks Plan recognizes the City's parks and trails as City infrastructure. This plan expresses the need for the City's natural heritage system to be protected, restored and expanded, and identifies that environmentally responsible practices must be incorporated into the day-to-day planning, design, operation and maintenance of parks and trails. The plan identifies the following specific goals with respect to trails:

- Provide a connected off-road system of multi-use trails that accommodate recreation as well as transportation functions;
- Connect the trail system to the on-road system of bikeways that are part of the Toronto Bike Plan network;
- Connect the trail system to public sidewalks and the pedestrian environment within streetscapes and other open spaces;
- Recognize the system of unpaved hiking and biking trails in natural areas as an important City-wide resource that needs to be managed;
- Promote parks and trails as inclusive environments that are welcoming to users of all abilities, including those with physical, sensory and intellectual disabilities;
- Enhance, protect and expand existing natural areas, wildlife habitats and corridors;
- Bring children and youth into the parks and trails system to learn the function and value of the City's natural systems;
- Incorporate current sustainability criteria and green goals and objectives in the planning and design of specific parks and trails;
- Align divisional goals for the development and operation of the system of parks and trails with the City's goals for greenhouse gas and air pollution reduction, and
- Continue the development of infrastructure to promote cycling, walking and alternative transportation.

## SUSTAINING AND EXPANDING THE URBAN FOREST: TORONTO'S STRATEGIC FOREST MANAGEMENT PLAN

The City of Toronto forestry management plan is based on 6 strategic goals which are reflected in the NETS:

1. **Increase Canopy Cover:** Protect, maintain and expand the urban forest to achieve a healthy, sustainable forest with a canopy cover of 30% to 40%;
2. **Achieve Equitable Distribution:** Achieve an equitable distribution of the urban forest, increasing canopy where it is most needed;
3. **Increase Biodiversity:** Increase biodiversity to improve urban forest resiliency and respond to climate change;
4. **Increase Awareness:** Increase awareness of the value of trees, the natural environment and the sensitivity of these resources;
5. **Promote Stewardship:** Promote stewardship and education of the multiple benefits of the urban forest and build collaborative partnerships for expanding the forest, and
6. **Improve Monitoring:** Improve information management systems and enhance the ability to inventory, monitor and analyze the urban forest.

## CITY OF TORONTO RECREATION SERVICE PLAN

The City of Toronto Recreation Service Plan, approved by Council on November 29, 2012, is based off 4 guiding principles, which are reflected in NETS:

- **Equitable Access:** providing equitable recreation access on a geographic and demographic basis for all residents of Toronto;
- **Quality:** providing the highest quality of programs and services to enhance the health, quality of life and well-being of residents;
- **Inclusion:** ensuring that everyone has the opportunity to access and participate in programs and services that are planned, delivered, and managed to recognize diversity and encourage participation of marginalized and racialized people and groups, and
- **Capacity Building:** provides programs and services of social, economic and physical benefit to all participants and creates a sense of community, belonging, and vitality.

### **CROTHERS WOODS TRAIL MANAGEMENT STRATEGY (The Planning Partnership, Bird & Hale, IMBA, 2007)**

The first strategy of its kind within the City of Toronto, the Crothers Woods Trail Management Strategy provides the City with a strategy for integrating improvements to the 52 hectare study area, within the Don Watershed. The strategy provides recommendations for the trail network while ensuring protection, restoration and enhancement of the area.

The strategy includes guiding principles, management approaches, and a series of recommendations through which to manage the Crothers Woods trail system. Many of the general approaches and recommendations can be applied to other discrete natural areas in the City, as well as at a larger strategy scale.

These include recommendations on:

- Access;
- Signage;
- Surfacing;
- Trail network planning;
- Trail design;
- Safety and risk management;
- Technical trail features, and
- Off-leash dogs.

The Crothers Woods Trail Management Strategy is a primary precedent for future detailed management strategies.

### **EAST DUFFINS HEADWATERS USER SURVEY DEC 2008 - NOV 2009 (TRCA)**

Undertaken in the Town of Uxbridge (64km northeast of Toronto) by the TRCA to inform the creation of an East Duffins Headwaters Management Plan. In 2008/09 they undertook a three part survey, seeking trail use proportions, user preferences and opinions on the trails, as well as 16 trail counters to track the number of visitors over a one year period. The results showed the most popular trailheads in each season, proportion of individual versus group visits, and typical user profiles.

Typical respondents were those who:

- Visit the EDH once/week (47%);
- In the morning (44%) or afternoon (41%);
- Mountain bikes (70%) or hikes (42%), and
- Believe in a multi-use trail system (72%).

Profiles were established for the different type of trail users identified to assess preferences by user groups. This approach will be taken in the assessment of the NETS survey.

In undertaking a detailed survey and trail counts, the TRCA are able to better assess areas requiring improvements, while also predicting impacts on the forest and mitigating where necessary. The TRCA is now better informed as to where infrastructure development is required and have the figures required to obtain funding to support these projects.

#### EVERY TREE COUNTS: A PORTRAIT OF TORONTO'S URBAN FOREST (2010)

Detailing the benefits of an urban tree canopy composed of mature trees such as carbon sequestration, reductions in energy consumption, improvements to air quality and mitigating storm water runoff, the study found that the majority of the City of Toronto's trees are in the ravine system or valley lands. Forest cover in the City of Toronto is concentrated in the Don, Highland Creek and Rouge River watersheds. The most effective strategy identified for increasing average tree size and tree canopy was to preserve and manage existing trees on City property.

#### OUR COMMON GROUNDS: PARKS AND RECREATION STRATEGIC PLAN (2004)

*Our Common Grounds: Parks and Recreation Strategic Plan* contains a fifty-three recommendation action plan to turn Toronto into the City within a Park. The plan focuses on the promotion of environmental stewardship, development of children and youth, and the promotion of lifelong activity for everyone.

The Strategic plan includes recommendations to:

- Implement ecological restoration and preservation programs including conversion of dirt pathways to sustainable natural trails;
- Institute a Trailblazers program involving the improvement and expansion of trail system and provision of interpretive and wayfinding signage, and
- Increase public awareness and demonstrate the value of lifelong activity through the use of trails.

**OTHER BACKGROUND STUDIES** include:

- Toronto Official Plan (2009) highlights the role of the ravines in the City's open space network, and their significant natural heritage and recreational value.
- Environmentally Significant Areas (ESAs) in the City of Toronto (North-South Environmental Inc., Dougan & Associates, Beacon Environmental, 2012) includes maps of existing and potential Environmentally Sensitive Areas (ESAs) and description of both, Area of Natural and Scientific Interest (ANSI) locations, landform analysis and recommended field work still required. This information was used to inform the biophysical analysis undertaken in the development of the NETS.
- The Trail Ambassador Summary (2006) provides an overview of work conducted by the PFR and City Planning Staff over summer of 2006 through the hiring of two Trail Ambassadors. Two experienced mountain bikers were hired to promote trail etiquette, educate users regarding the natural environment, monitor trail conditions, and conduct surveys. The summary includes brief assessments of Black Creek, Humber River, Etobicoke Creek trails.
- Impact of Mountain Biking Activities in Metro Parks (Marshall Macklin Monaghan, 1996) inventoried and assessed the impact of mountain biking activity on parks in area formerly known as Metropolitan Toronto. The most common impacts encountered were trail compaction and erosion, loss of trail side vegetation through trail widening and informal trail development. The three sites identified as having the highest impact were Crothers Woods, Glendon Forest (Don River system) and Lambton Woods (in Humber River system). Signage, promotion of on-trail use, trail narrowing and enhancement, protected revegetated areas, trail closure and restoration of impacted drainage areas were recommended as priority management strategies moving forward.
- Inventory of Mountain Bike Trails and ESAs within the Don Valley (Don Valley Consultants, 1994) identifies and describes ESAs and potential ESAs in the Don Valley ravine system south of the 401, as of 1994.

### **7.3 SUMMARY OF KEY CITY OF TORONTO INTERNAL BACKGROUND REPORTS (NOT FORMALLY APPROVED)**

**TORONTO TRAIL STANDARDS** (Kaplan-Freed, McMahon, 2007)

The Toronto Trail Standards provides a City wide approach to trail specifications, signage, utility easement guidelines and maintenance recommendations and includes information on natural and paved trails. Although the NET strategy will focus on "broader strokes" these larger strategic recommendations will

be consistent with, and will encourage the guidelines of, the Toronto Trail Standards. This document should be consulted during the design of new trails as well as upgrades of existing trails.

### **MOUNTAIN BIKING & TRAILS STRATEGY (2008)**

The Parks, Forestry and Recreation Department undertook a Mountain Biking and Trails Strategy in 2008. The strategy included a call for public input and a collection of written public comments as well as the development of guiding principles to provide recreation opportunities, protect the natural environment, reduce safety & liability concerns and use City resources effectively. The strategy makes recommendations, which are directly relevant to the NETS:

- Implement a Trail Management Program:
  - Trail Builds and Assessments;
  - Adopt natural surface trail guidelines;
  - Signage program, including safety and warning signs, and
  - Develop mapping of permitted and prohibited areas.
  
- Develop Education and Engagement Program:
  - Develop partnerships;
  - Continue Trail Ambassador's program, and
  - Develop website and brochure.

### **STAKEHOLDER SURVEY 2008 - CYCLING ASSOCIATIONS**

A collection of survey responses and public input was collected leading up to the Mountain Biking & Trails Strategy. Off road cycling was identified as including cross-country, dirt jump (BMX/MTB), downhill, freestyle/north shore, cyclo-cross and BMX racing. Key findings of off-road cyclists include:

- Mountain biking appeals to a large wide range of age groups;
- Cross-country was identified as the most popular type of off-road cycling - riders over 30 prefer Cross-country Mountain biking, while those under 30 are more likely to participate in a variety of styles;
- The majority of riders self-identified as intermediate. There are few informal trails in Toronto that meet the needs of advanced or Black Diamond level riders;
- Trails and facilities are used all times of the week with slightly higher participation on weekends and weekday evenings, and
- The majority of respondents find word-of-mouth to be their main source of information on mountain biking/BMX in Toronto, followed by bike shops. Future promotion and educational campaigns should therefore reach out to bike shops and on-the-ground outreach.

## STUNT INVENTORY (SUSTAINABLE TRAILS LTD & DECARTO CONSULTING LTD, 2009)

This inventory project included mapping and photographing all existing mountain and BMX bike stunts that had been constructed illegally in ravine areas throughout City of Toronto Parkland. The focus of the study was to document areas of heavy use and damage to the natural environment to strategize remedial efforts.

## 7.4 BIOPHYSICAL OPPORTUNITIES & CONSTRAINTS

### ENVIRONMENTAL DEGRADATION FROM POORLY DESIGNED TRAILS

The majority of the informal, natural surface trails in Toronto parkland were not planned, designed or constructed to be sustainable. The intensity of recreational use has increased over time. As a result, many trails are degrading and creating negative impacts on the surrounding natural environment.

The most common environmental impacts from trail use are:

- **Erosion:** from altered water flow and disturbed soils along sloped sections of trail. Serious erosion problems are often found along fall-line trails that travel straight down steep slopes. In fall-line trails, water is caught and carried along a trail, instead of traveling over the out slope of the trail. Severe erosion along fall-lines may create gullying which exacerbates the rate of erosion and can create hazards for trail users. The impacts of erosion can be far-reaching as eroded sediment may be deposited some distance from the source, effectively smothering and ultimately destroying aquatic or terrestrial habitats.
- **Trail Widening:** Muddy sections are often found along flat sections of trail where water collects or in areas with seepage. Trail users will try to avoid going through the mud by traveling around the muddy area. The vegetation on the sides of the trail become trampled, and eventually the size of the muddy section grows. Muddy sections of trail may lead to major soil structure disruption, soil displacement, widening of trails and loss of vegetation/habitat.
- **Trail proliferation and the development of multiple parallel trails:** This includes shortcuts between trails and to desired destinations or when obstacles like rocks, tree roots or gullies force trail users to walk or ride around them.
- **Changes to vegetation composition from trampling:** Trampling will cause injury and destruction to ground-level vegetation. Some plant

species have a greater ability to survive trampling, so the species composition often changes along trails. Most often there is an increase in invasive, non-native species. In addition seeds from invasive plants can be introduced and/or spread by boots and bike tires.

- **Compaction of soil:** Compaction is the cumulative result of hiking boots and knobby tires concentrating weight in relatively small areas. When the soil around plants is severely compacted, water cannot penetrate and delicate roots are crushed causing damage to plants. Compacted soil reduces water infiltration and increase water run-off. However, when a trail is first being established, compaction of the trail tread can contribute to more stable soil conditions and more durability.

## BIOPHYSICAL CONDITIONS

As part of the background study a biophysical analysis was prepared on the project study area. Mapped features included wetlands, watercourses, Species at Risk (SAR), Area of Natural and Scientific Interest (ANSI), Provincially Significant Wetlands (PSW), Areas that meet ESA criteria identified by the City of Toronto, Erosion Control Hazards identified by the TRCA, disturbances (flood/silt, dumping, fill, erosion, tree decline, noise, trampling/trails) and invasive plant species (Garlic mustard, Japanese knotweed, Lily-of-the-valley, etc). This biophysical data was used in the analysis of Priority Management Areas and Areas of Interest. It will also form a starting point for future more detailed planning, initiatives. Similar information was used in the development of the 2007 Crothers Woods Trail Management Strategy. The following are more detailed descriptions of the biophysical data used in this analysis:

- **COT Environmentally Sensitive Areas (ESAs)** - These areas were identified based on consideration of sensitive habitat size, diversity, ecological functions and special features. Minimizing the amount of trail and trail impact in these areas is recommended. Identifying “positive control points” (i.e. wetland wildlife viewing areas, beach areas on river’s edge, etc) in future planning and design initiatives will be important in order to provide lowest impact access.
- **TRCA and Toronto Erosion Control Hazards** - Areas were identified to mitigate the risk to public safety and infrastructure due to erosion problems. Preventative measures were deemed insufficient and impractical to address the observed risk for these areas. Instead, remedial works will be required such as retaining walls, slope treatment, weir or revetment.
- **Area of Natural and Scientific Interest (ANSI)** - Criteria used for evaluating significance of ANSIs are similar to those used to delineate ESAs in some respects: size, condition, ecological functions, special features and diversity are taken into account. However, ANSI is based on its representation of unique landform/vegetation associations within a particular geographic ecosystem or eco-district.

- **Provincially Significant Wetlands (PSW)** - Are designated on the basis of a scoring system produced by Ontario Ministry of Natural Resources. The scoring criteria includes attributes related to wetland function such as biological, social, hydrological, and special features.
- **Species at Risk (SAR)** - Any naturally-occurring plant or animal in danger of extinction or of disappearing. Species at Risk are listed both by the Province of Ontario and the Federal Government. The SAR designations used in this analysis includes: Special Concern, Threatened and Endangered.

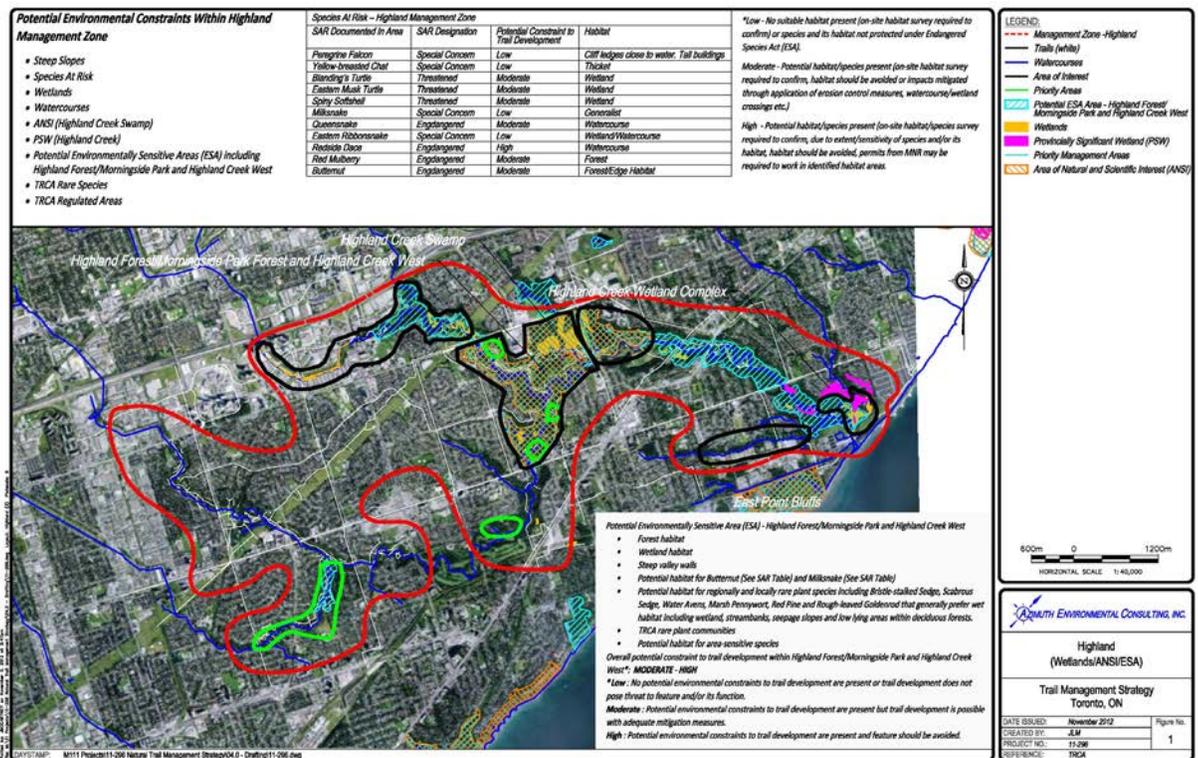


Figure 6: Example Environmental Constraints Map for the Highland Management Zone

In addition to the overall study area analysis, a focused set of recommendations have been provided for five representative potential ESAs, as identified by the City of Toronto NETP Staff. The areas are spread across the five study area watersheds and will help inform which areas have the highest potential for sensitive environments so that the appropriate approach to trail restoration and/or development is taken. These areas are listed in the following table:

ESA Name	Environmental Sensitivity Rating*
Earl Bales	Moderate
Morningside Park	Moderate-High
Silverthorn area	Moderate-High
Magwood Park	Moderate-High
Taylor Massey Creek	Moderate-High

\*These ratings were based off the following criteria:

Environmental Sensitivity Rating	Description
Low	No suitable habitat present (on-site habitat survey required to confirm) or species and its habitat not protected under Endangered Species Act (ESA).
Moderate	Potential habitat/species present (on-site habitat survey required to confirm, habitat should be avoided or impact mitigated through application of erosion control measures, watercourse/wetland crossings etc.).
High	Potential habitat/species present (on-site habitat/species survey required to confirm, due to extent/sensitivity of species and/or its habitat, habitat should be avoided, permits from MNR may be required to work in identified habitat areas).

The overall management zone analysis prepared by Azimuth takes a higher level approach than the above five representative potential ESA analysis. This analysis incorporated GIS biophysical features as noted earlier and the 2012 *Environmentally Significant Areas (ESAs) in the City of Toronto* report findings (North-South Environmental Inc., Dougan & Associates, Beacon Environmental, 2012).

The findings of this environmental analysis have been included in the descriptions and analysis of the Priority Management Areas and Areas of Interest and will guide trail management and future master planning. The analysis highlights not only areas for protection, but in many cases, also areas where environmental stewardship activities could occur in tandem with sustainable, sensitive trail design. Before further master plan design can be completed Priority Management Areas and Areas of Interest that have the most significant environmentally sensitive areas identified will require additional detailed on-site habitat/species survey. After the presence of sensitive species is confirmed it may be recommended that specific habitat areas are avoided completely, permits from MNR may be required to work in these areas and/or trail development may be permitted on specific conditions.

### SLOPE ANALYSIS

An analysis was undertaken to determine areas with slopes of less than 15%, slopes greater than 15% but less than 30%, and slopes greater than 30%; a conservative analysis showing where trail development could become constrained. It should be noted that this is a high level assessment and site specific features and field survey will ultimately determine the detailed feasibility of trails for these areas. Steep slopes, as high as 25%, may be desired for challenging mountain bike and running/hiking trails. Where steep slopes are not desired, switchback trails or stairs can be integrated.

#### Key Findings:

- Priority management areas and Areas of Interest in Etobicoke and Mimico were all less than 15% slope;
- Priority management areas and Areas of Interest in Humber had an insignificant area greater than 15% slope;
- Priority management areas and Areas of Interest in the Don included areas of slopes greater than 15%, but less than 30%. Small areas of Priority management areas A and E had slopes of less than 15%, and
- The only Zone with any significant slope detected at this scale analysis was Highland. Morningside Park had the most significant slope results – portions of the trail system are in areas with slopes greater than 30%, although much of the trail system is in areas with slopes greater than 15%. Cedar Ridge Park B was also found to have slopes greater than 30%

Toronto Natural Environment Trail Strategy - Slope Analysis Map

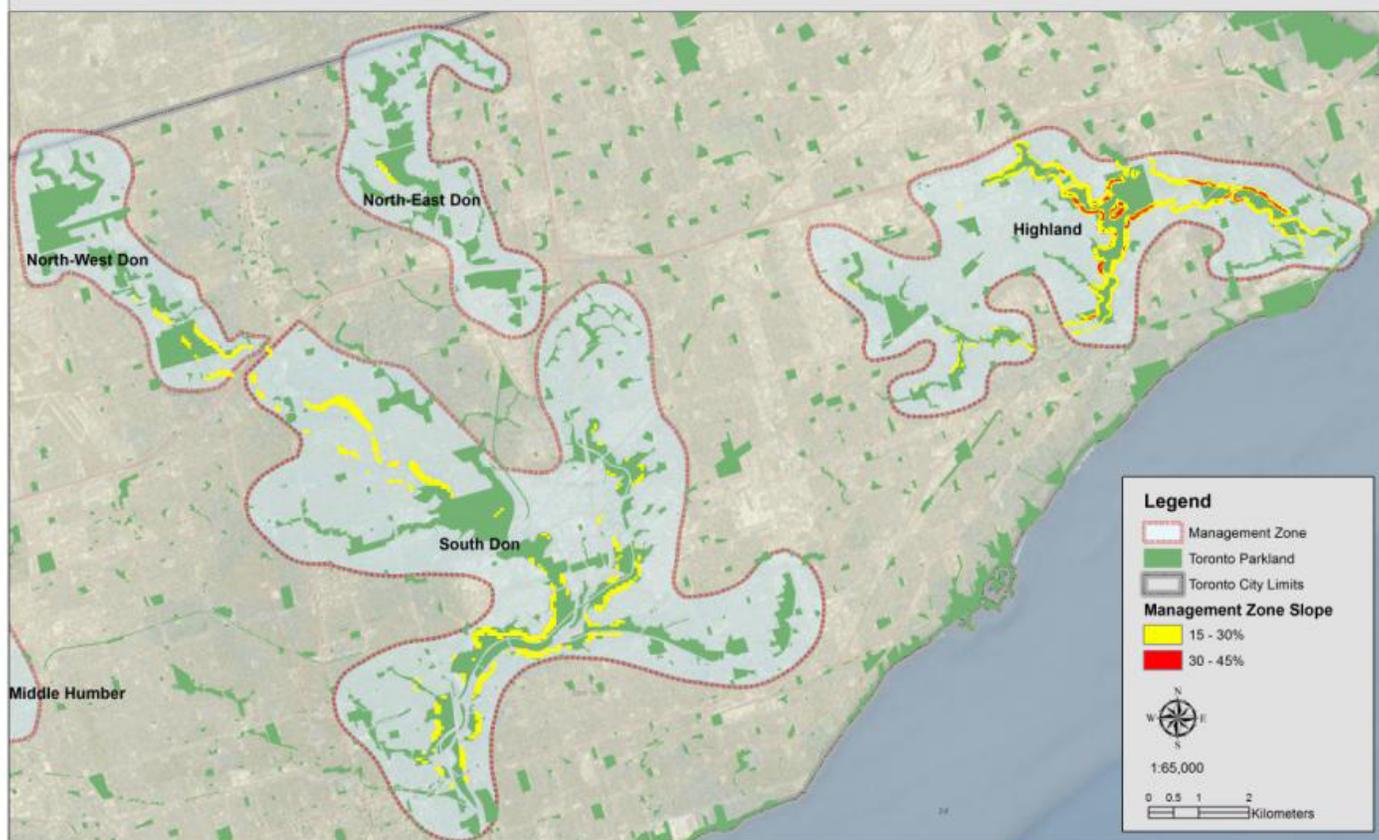


Figure 7: Slope Analysis Map - showing areas of significant slope for Highland and the Don Watersheds

## 7.5 COMMUNITY ENGAGEMENT KEY FINDINGS

### WATERSHED SOUNDING BOARD



Humber Watershed WSB Workshop  
(Photo Credit: City of Toronto)

Four Watershed Sounding Boards (WSBs) were established to gather knowledge of existing and potential trail opportunities and constraints from local community stakeholders. They included members of the public who were active/regular users of the Toronto trail system who were interested in volunteering their time to share information regarding local issues, challenges and opportunities for trail management. The WSBs allowed the Trail Management team to have focused discussions with a small group of stakeholders, facilitating a better understanding of watershed focused user perspectives. Participants included members of local watershed councils, school boards, homeowners associations, creek project teams, conservation authorities, local government, community associations, recreational groups and not for profit organizations. A full list of represented organizations can be found at the front of this document.

Each WSB session asked participants to share their experiences in the following:

- Biggest issue/challenge that the study must address;
- Biggest opportunity for change, and
- Opportunity for Stakeholder Participation.



(Photo Credit: City of Toronto)

The table below summarizes the overarching challenges and opportunities for change that were identified. Appendix J includes a complete table of the feedback received.

<i>Biggest Issue or Challenge that the study must address?</i>	<i>Biggest opportunity for change?</i>
<b>ECOLOGICAL ISSUES</b>	
<ul style="list-style-type: none"> <li>▪ Ensure that environmentally sensitive areas are marked and appropriately protected;</li> <li>▪ Lack of Invasive Species Management, and</li> <li>▪ Trail management to address garbage on trails, dumping and degradation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Coordinate to remove or connect dead end trails that run through environmentally sensitive areas;</li> <li>▪ Provide additional interpretive information, and</li> <li>▪ Replant around trails, education. Find a balance between protection and recreation.</li> </ul>
<b>DESIGN AND MAINTENANCE STANDARDS</b>	
<ul style="list-style-type: none"> <li>▪ Lack of trail standards.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Establish sustainable trail design standards: Improve existing trails, plan and restrict the number of trails, repair eroded areas, improve infrastructure.</li> </ul>
<b>SIGNAGE</b>	
<ul style="list-style-type: none"> <li>▪ Lack of, or poor, signage;</li> <li>▪ Signage should identify skill level of trail, and</li> <li>▪ Wayfinding signage required to find injured trail users etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Integrate consistent signage, and</li> <li>▪ Divide and mark trails by skill level.</li> </ul>
<b>ACCESS/CONNECTIVITY</b>	
<ul style="list-style-type: none"> <li>▪ Lack of connectivity on many trails, and</li> <li>▪ Formalize connections where there are redundant informal trails.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improve connectivity through the creation of loop trails and improved connections to surrounding streets.</li> </ul>
<b>DOGS</b>	
<ul style="list-style-type: none"> <li>▪ Dogs are off leash in leashed areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Consider the creation of more dog-off leash areas away from trails.</li> </ul>
<b>PARTNERSHIPS/ STEWARDSHIP PROGRAMS</b>	
<ul style="list-style-type: none"> <li>▪ Overall system is lacking adequate garbage and invasive species management and general stewardship volunteer programs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Involve public, community groups, students and walking groups. Host clean up/stewardship events and volunteer work days;</li> <li>▪ Build partnerships with people who manage property on the City's behalf;</li> <li>▪ Lead informative walks, and</li> <li>▪ Promote trails and trail education through partnering agency websites and local storefronts.</li> </ul>

## CONSULTANT ANALYSIS MAPS (LIVE WEB MAPPING SESSIONS)

Three “Live Web Mapping Sessions” were conducted over the course of the project to gather local knowledge and trail development potential from the City of Toronto Staff, project team consultants and resident experts. These sessions were hosted using interactive mapping software to allow all participants to join from their personal computer and annotate the maps live in a group teleconference setting. The first session was facilitated with a “blank slate” approach (with just existing parks, trails/bikeways and ESA areas shown) where participants could start to identify draft boundaries for Management Zones, Priority Management Areas and Areas of Interest. Team participants evaluated/identified manageable geographic units that considered user experience, sensitive environmental areas and context to surrounding natural areas and trails/bikeway connections. These characteristics were important to consider at this early stage before more detailed trail supply and demographic data had been compiled. Ultimately the findings from the Live Web Mapping Sessions formed the initial plans backbone that the WSB, public open house feedback and environmental analysis built upon to create the final draft Management Zones, Priority Management Areas and Areas of Interest.

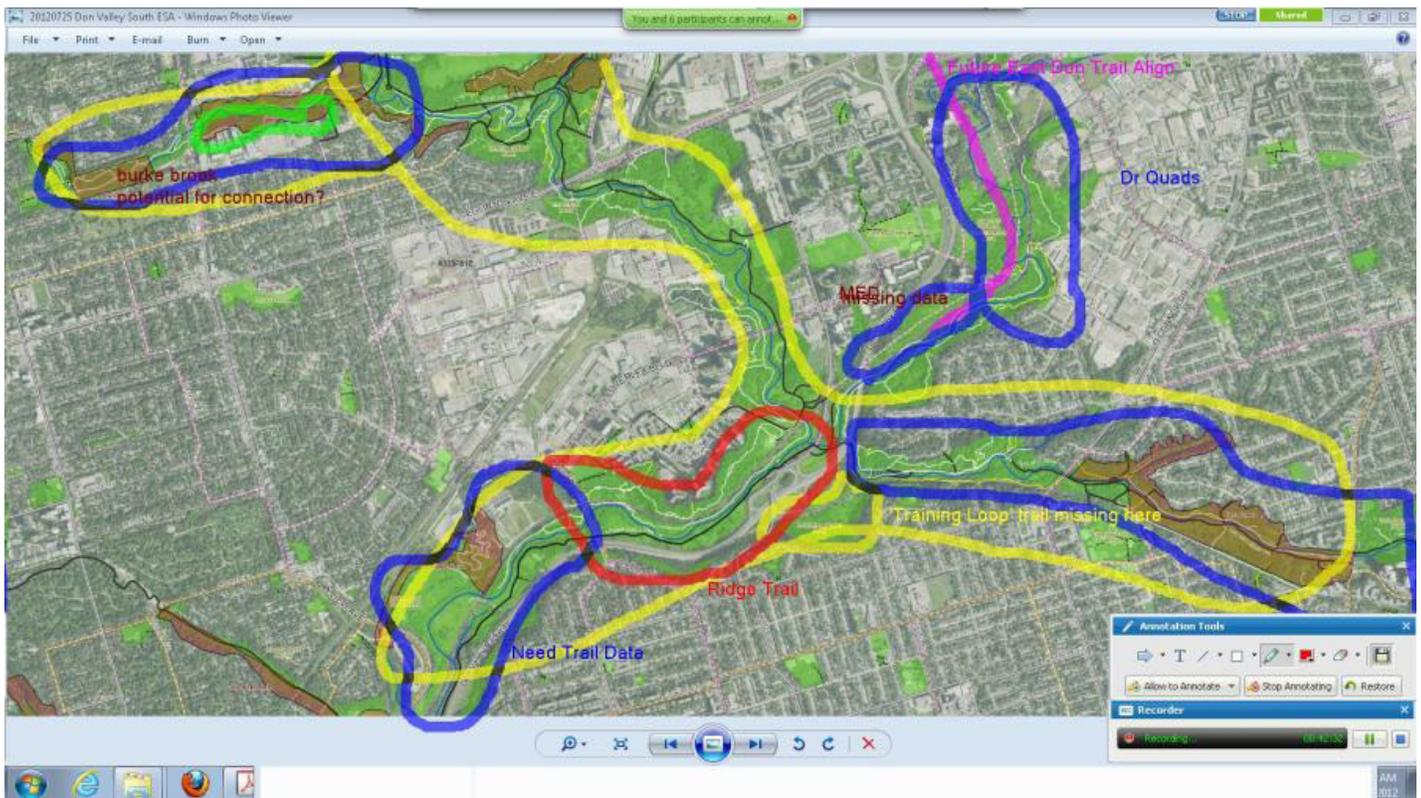


Figure 8: “Live Mapping Session” Screen Shot

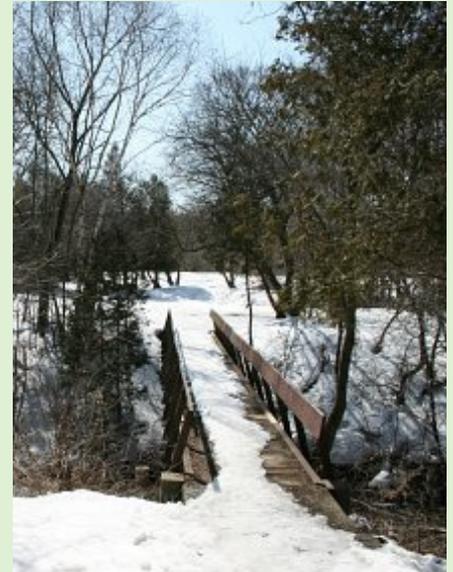
## MORNINGSIDE PARK

A community's natural trail system, if a community is fortunate enough to have one, is as unique from one to another as the lines on the palm of a hand. Natural trails in an urban setting are often the only remainders of a naturalized parks history. Scarborough's Morningside Park is a good example of this in its quantity of natural trails with their origins as roads or pathways to places of industry, residence, and recreation.

Morningside Park includes a sizeable portion of the Highland Creek, an inner-City watershed and a special part of Toronto's unique ravine system, containing several recognized environmentally significant areas. The natural trails on the west side of the Highland Creek in the park can trace their origins from as early as the 19th century when a road leading into the valley was built to access a working mill-house on the creek and farm on surrounding land. In 1936 the Toronto District of the Boy Scouts of Canada purchased a 100 acre parcel of land to become known as Camp of the Crooked Creek. The camp developed to include sites for tents, campfires, cabins, a chapel, orchard, swimming pond, parking lot, and service road leading into the valley. In 1968 when the camp closed and the land was incorporated with other parcels of land to become the present 416.7 acre Morningside Park, much of the cleared areas returned to a more natural state with trees, bushes and plants filling in the once open areas, reclaiming this space to allow it to again become forest.

The natural trails in this area reveal different things throughout the changing of seasons, and have something for everybody. People that visit enjoy the trails for walking their dog, taking a jog or a hike on the easy or challenging portions, or to be in a quiet place to enjoy nature and the abundant wildlife found within this urban oasis, a quick cure for nature deficit disorder and good for one's spirit.

*Contributed by Brian MacFarlane - Highland Creek Watershed WSB Member*



*(Photo Credit: Hans Boldt & Sylvana Grisonich-Boldt / Boldts.net)*



*(Photo Credit: Hans Boldt & Sylvana Grisonich-Boldt / Boldts.net)*

*"Toronto has the foundation for an excellent trail system but more investment is needed. Trail maps are very poor. Trail information is sparse at best. Most Toronto residents don't even know about the trail system. Advertise, promote and keep upgrading. An under utilized gem."*

-survey respondent

*"They are wonderful. It keeps me active, healthy and sane!"*

- survey respondent

*"Keep the trails alive! As I'm doing this survey I just saw 3 deers run by through the tall grass. The don valley is a home to animals and an amazing recreation spot for torontonians alike."*

- survey respondent

*"As a cyclist, I love the Don Valley with my whole heart. It provides such an amazing trail system, so close to an urban center. Trails should be kept fun and challenging, if only to keep speeds down to prevent accidents. I worry about unsustainable and eroding trails; we need to build more, but carefully and responsibly."*

- survey respondent

## COMMUNITY FEEDBACK

Public engagement was a key aspect of the development of this Strategy. Engagement opportunities included:

- Online surveys;
- Trailhead surveys;
- Open House events, and
- Email feedback.

### Surveys

Surveys were completed on-line, as well as in person at a selection of trailheads. Questions included trail users' activities and motivations for trail use, patterns of use, opinion of trail conditions, priorities for improvement, and extent of conflicts with other trail users. Questions were framed as multiple choice questions, with the option of additional write-in responses.

A copy of the survey questionnaire can be found in Appendix K.

### Methodology

The survey was conducted online as well as in-person at 20 trailhead locations. Advertisement of the online survey took place via the NETP e-mail lists as well as approximately 30 signs posted on trails across the City.

The online survey was hosted by the City of Toronto for 4 months, during which over 1000 surveys were completed. The benefit of the online survey was the ease with which NETP staff were able to connect with the community for feedback. It was time efficient for staff to promote the survey through existing e-mail lists as well as through signage along the trails. It should be noted however that online surveys of this type are not statistically valid they are voluntary and it is difficult to determine if individuals are completing the survey multiple times, skewing the results. It may also be limiting to those who do not have easy access to the internet.

A trailhead survey was undertaken on site by City of Toronto staff on 22 occasions over a period of six months, across three seasons. Four trailhead locations were identified in each of Humber, Highland and Etobicoke/Mimico, while eight were identified as survey locations in the Don Watershed. A Staff member was at each site for 2-3 hours, on two occasions each. 282 trailhead surveys were completed.

## SHARING FEEDBACK WITH OTHER PLANNING INITIATIVES, DEPARTMENTS AND RELEVANT PROJECTS

NETP staff also worked closely with and participated in other relevant community engagement projects such as the Parks Plan, Recreation Service Plan, TRCA Highland Creek Greening Strategy and Bikeway Network projects to ensure feedback from all relevant exercises were incorporated into NETS and vice versa. The sharing of information and cross promotion of projects was key to successfully identifying issues and engaging trail users.



(Photo Credit: City of Toronto)



(Photo Credit: City of Toronto)



(Photo Credit: City of Toronto)

Toronto Natural Environment Trail Strategy - Trailhead Survey Locations Map

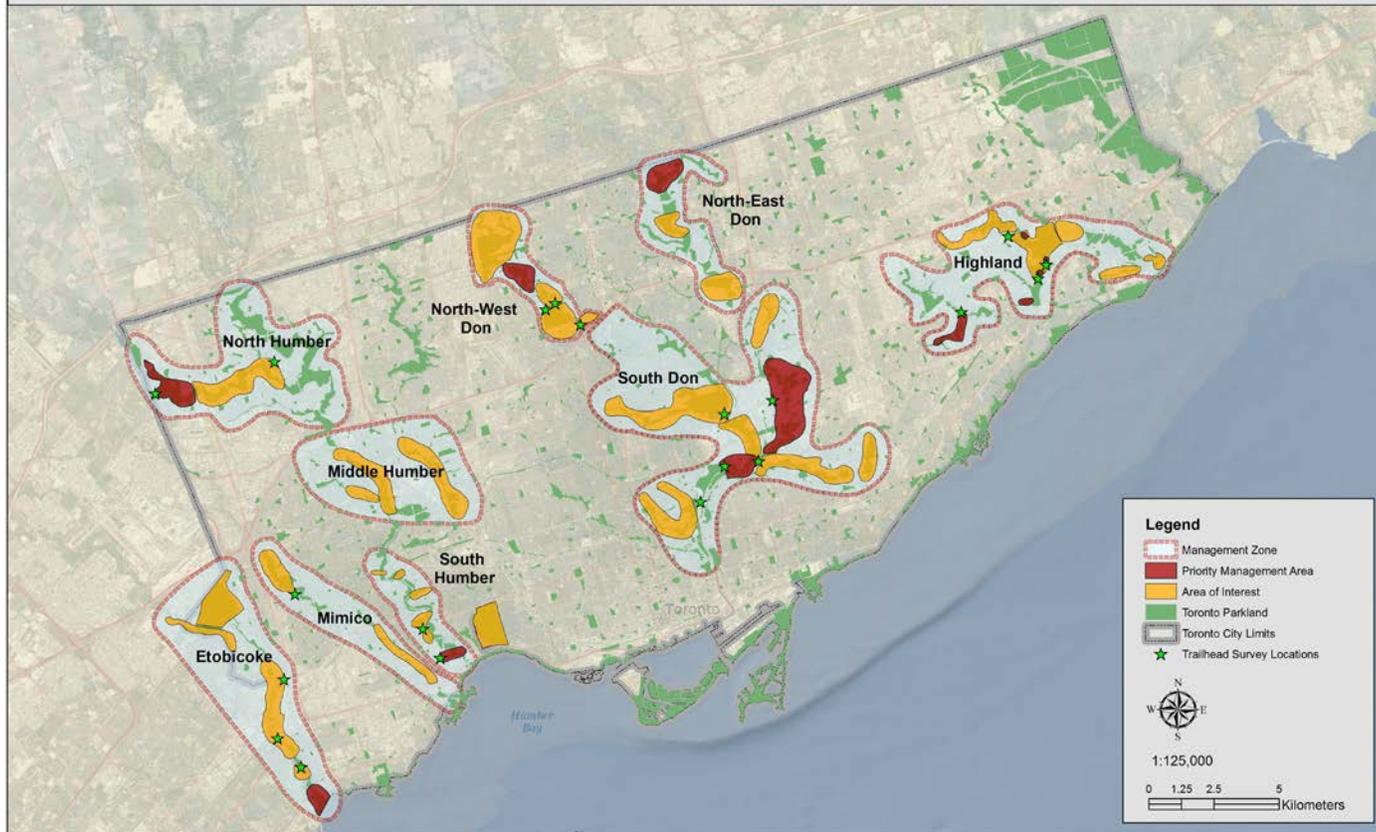


Figure : Trailhead Survey Locations Map

The survey locations were selected based on informal trail mapping. In many cases staff did not have a good sense of the site prior to selecting the survey location. The trailhead survey yielded a much lower number of responses than the online survey and it took a significant amount of staff resources to undertake. The timing of the surveys by staff during work hours did not coincide with times when the highest volume of users were anticipated (i.e. early morning, early evening and weekends). Each trailhead survey collected an average of five surveys in a 2-3 hours period.

It would be unreasonable to expect this type of City-wide trailhead survey to be statistically defensible. There are too many variables between the different sites to gain a general impression of trail use across the City. Two surveys per site is too few to fully understand the nature of a specific site, nor an accurate cross section of time of day (early morning, day time, evening), day of week, or season (no surveys were taken in winter). However, trailhead surveys were useful in better understanding the types of users on particular trails. It also gave an indication as to who may complete the survey as well as how many people chose to decline. It gave a better sense of whether people were using the trails alone, in groups, with a dog or multiple dogs.

## SURVEY METHODOLOGY LESSONS LEARNED

A Natural Environment Trails Survey was developed and conducted from May to October 2012. The purpose of this survey was to better understand who was using the trails, how many people were using them and why they were using them.

### a. “Give Us the Dirt!” Signs

Signs stating “Give us the dirt! If you use these trails... we want to hear from you!” with email, website and a QR code directing people to the website were posted across the City. These signs were located at all trailhead survey locations as well as a few other areas with a high concentration of trails. Signs were also posted along paved trails at the entrance to the natural environment trail system. As such, both paved and NET users would see and respond to the sign.

The current wording “Give us the dirt!” is catchy but may be misinterpreted or misunderstood by individuals with English as a second language. Many trail users may be aware of the illicit activities that happen in these areas and may be reluctant to share their experiences without better understanding our intentions.

#### Recommendations

In the future, it may be useful to place signs further along the natural environment trail to ensure that those responding to the signs have the experience of being on a natural environment trail.

Wording on the sign should include some indication as to the purpose of gathering feedback. For example, “Help us improve these forest trails,” would help to indicate that we are seeking input on how to protect a resource they are using.

### b. Online Survey

#### Recommendation

Including an online survey in the future to target active user groups. Understand that this technology may skew the types of people who choose to respond.

Online surveys may make reaching out to non-English speakers more feasible if the purpose is to target specific language communities. The survey could be advertised through social service networks and ethnic media.

### c. Trailhead Survey

It was difficult for staff to schedule 3 hours of time, plus travel time, to be in the field to conduct the trailhead surveys.

The goal of trying to calibrate trail counters based on trailhead survey data was not possible, as there were looped trails or multiple access points to the trail counter location. The time of the surveys was sometimes approximate and at busy trailheads it was sometimes difficult to keep track of how many individuals went by.

#### Recommendations:

Spend 1-2 hours visiting an area in order to better understand how the trail system is used, before choosing survey locations.

Use trail counters to collect quantitative data such as when and how often the site is used.

Use trailhead surveys to collect surveys at times when the most activity is anticipated (i.e. evenings and weekends). It may be useful to set up an information booth to provide people with trail information as well as asking them to complete the survey. Feedback and comments can be noted for future reference. Maps of the area should be available to help encourage conversation and to record individual comments of a spatial nature.

## SURVEY METHODOLOGY LESSONS LEARNED (CONTINUED)

### 2) TARGETING OUR AUDIENCE - NATURAL ENVIRONMENT TRAILS VS. PAVED TRAILS

It is currently difficult to have a conversation with members of the public about the City's natural environment trail system without also getting feedback about the paved trail system, because these trails are informal and the public generally associates the City with paved trails. Much of the feedback received through the surveys and emails likely reflected people's experiences on paved and natural environment trails. During in-person trailhead surveys, both paved trail users and natural environment trail users were surveyed because of the survey location along a paved trail.

Some comments such as plowing snow in winter and clearing sand off of trails for inline skating were clearly related to the use of the paved trails system. It should also be noted that many comments and conversations with people on the trail noted that cyclists ride too fast on the paved trails. While this might also be true of the natural environment trails it was clear that most of the specific examples that people gave referred to specific sections of paved trails, such as downhill areas and blind corners.

#### Recommendations:

Include survey questions for paved trail users to better understand why they choose to use paved trails vs. natural environment trails, as well as any concerns they may have regarding the paved trail system. These questions will allow them to share their concerns while differentiating their experiences on paved vs. natural environment trails. It may also provide useful information with respect to how to promote the use of the NET system to paved trail users.

### 3) HOW DID YOU FIND OUT ABOUT THESE TRAILS?

During the trailhead survey it was clear in conversation that many people paused at question F: "How did you find out about these trails?" Many of them did not hear about the trails, they often found them through exploration of their own neighbourhoods. Some of them checked "word of mouth" as being the closest answer, while 45% of respondents chose "other" noting that they became aware of these trails by "exploration", "live in the area" or "found them". In conversation, it became clear that the sense of adventure and exploration was one of the reasons why many people would visit these trails.

This insight has implications for trail design, wayfinding and promotion of the trail system through onsite signage.

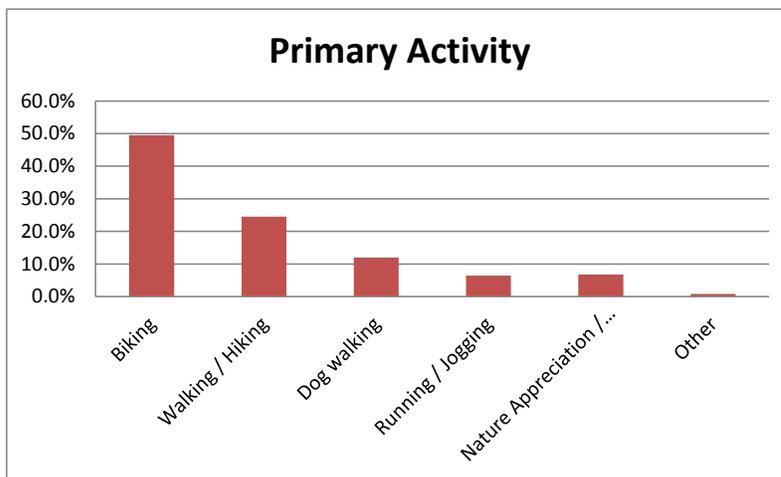
#### Recommendation:

Include "exploration" as a multiple choice answer for this question in future surveys.

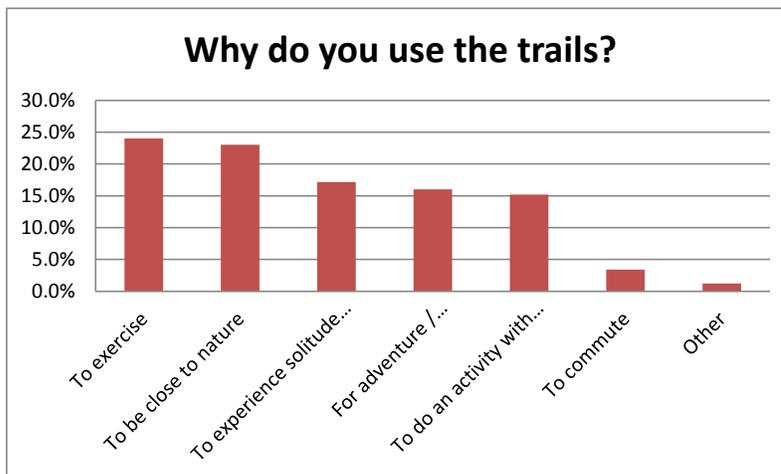
### Survey Results Summary

The following summarizes key findings of the survey results.

- Seventy-percent of respondents were male and between the ages of 25 and 54.
- 50% of survey respondents identified biking as their primary activity on the natural environment trails; 25% walking/hiking and 12% dog walking. Running/jogging and nature appreciation each garnered between 6 and 7%.



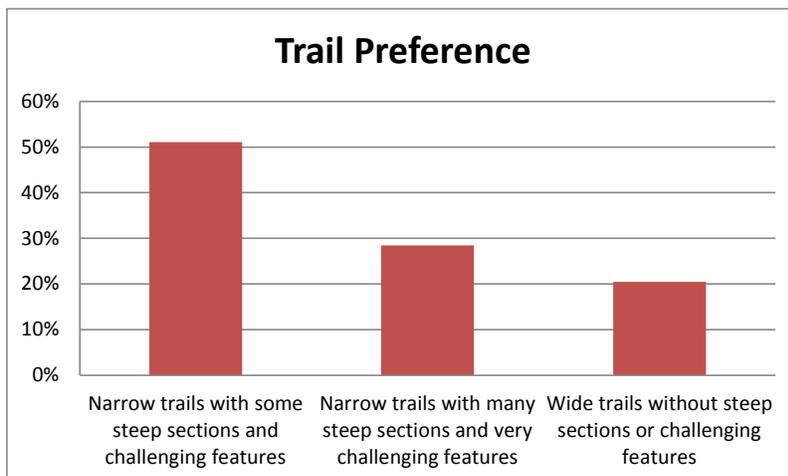
- 24% of respondents use the trails to exercise; 23% to be close to nature and between 15-17% to experience solitude/relax, for adventure/challenge, or to do an activity with friends/family. Only 3% report using the trails to commute.



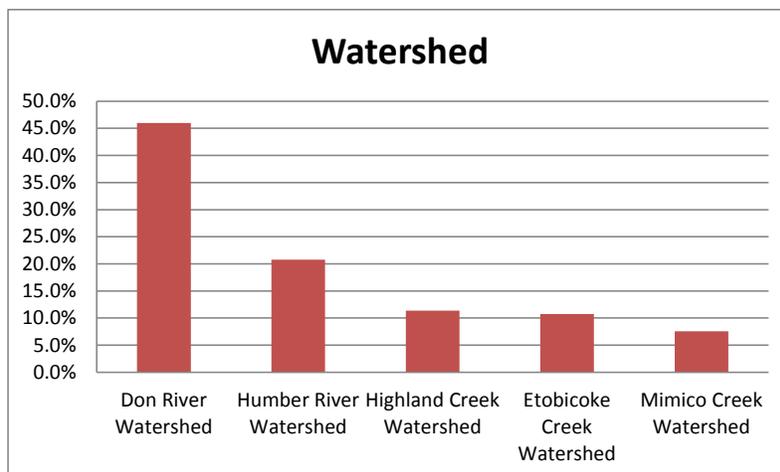
A greater diversity was found in trailhead survey responses where all responses earned between 9 and 34%.

On-site respondents had a greater preference for wide trails without steep sections or challenging features at 32%, compared to just 18.5% online.

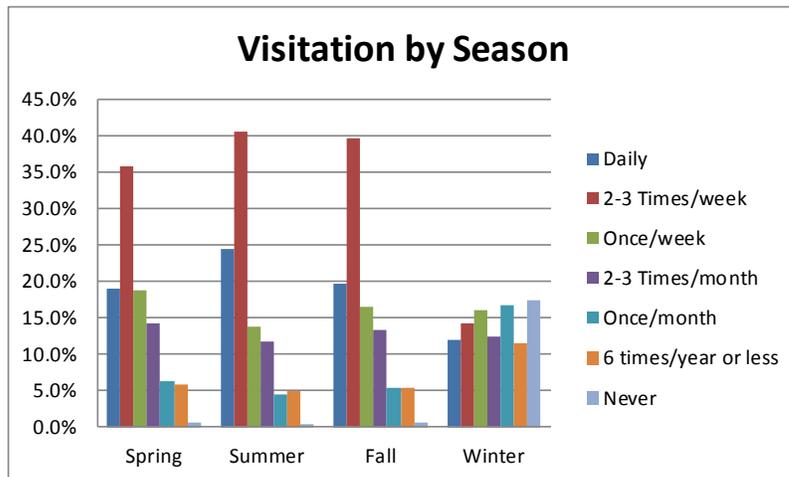
- 50% of respondents prefer narrow trails with some steep sections and challenging features; 28% prefer narrow trails with many steep sections and very challenging features and 20% prefer wide trails without steep sections or challenging features:



- 46% of respondents have used trails in the Don Watershed; 21% Humber River Watershed; 11% for both Highland and Etobicoke and 8% for Mimico.

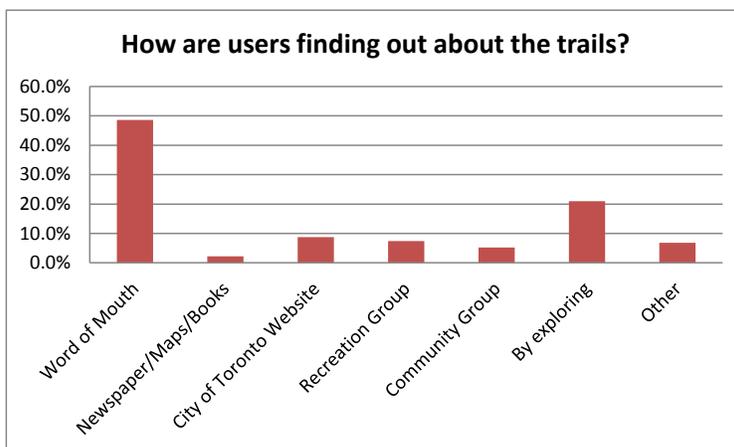


- Survey respondents were asked how often they visit the trails in each season. Respondents visit the trails most frequently in the summer and fall. Generally, respondents completing the trailhead survey visit more frequently than those responding online:

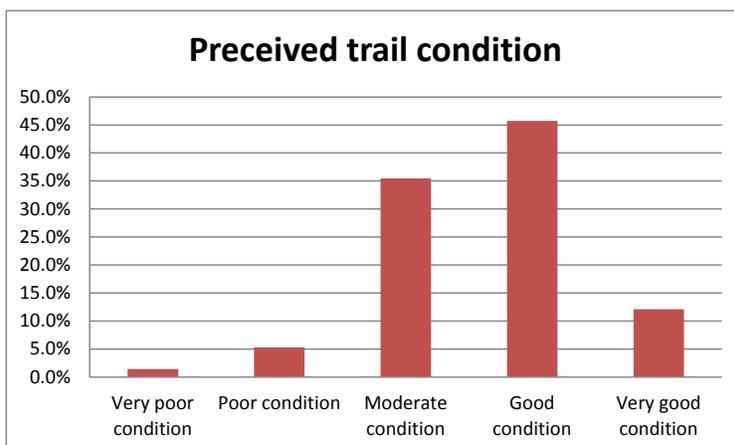


- In the spring, 37% of respondents visit the trails 2-3 times a week, 19% visit daily, and another 19% visit once a week;
  - In the summer and fall, approximately 40% of respondents visit the trails 2-3 times a week and 20-25% visit daily;
  - Of those surveyed at the trailhead - 45% visit daily in both seasons, 35% visit 2-3 times a week in the summer, and 44% visit 2-3 times a week in the fall, and
  - Participation rates drop in the winter – with only 12% visiting daily, and 14% visiting 2-3 times a week. Again, those responding to the trailhead survey report higher daily visitation rates (29%) than those completing the survey online (9%).
- The majority of respondents (46%) report spending 1-2 hours per visit; 29% report spending 30 minutes to 1 hour, and 24% spend more than 2 hours per visit.

- The majority of respondents (49%) found out about the trails by word of mouth; while 21% of respondents describe discovering the trails by exploration/wandering/by accident in write-in answers. 9% found out from the City of Toronto Website, and 12% found out from either a recreation group or community group.



- 43% arrive at the trailhead by bike, 28% by car and 25% by walking. Only 3% arrive by public transit – none of those surveyed at the trailhead arrived by transit.
- It takes 48% of respondents 10-30 minutes to reach the trailhead, 39% less than 10 minutes, and 11% between 30 and 60 minutes.
- 61% of those surveyed on-site at the trailhead live 10 minutes or less from the trailhead.
- 46% rate the trails as being in good condition; 36% as moderate; 12% as very good condition. Only 7% rate it as either poor or very poor.
- The majority of respondents have either observed erosion or garbage (22% and 20%). 9-11% reported either no signs/broken signs, vandalism, poor and uneven surfaces and weedy vegetation.



- The highest priorities for change are: new trails; improved trail linkages, repaired erosion/rerouted trails and trailhead maps and trail intersection signage. A small number of write-in answers included cleaning up garbage, and leaving the trails as they are.
- Respondents were asked about their rate of conflict with other users:
  - *The majority of users report rarely having any conflicts with other users;*
  - 43% reported rarely or sometimes having conflicts with dog walkers, and 10% reported frequent conflicts;
  - 40% reported rarely or sometimes having conflicts with bikers. 10% report frequent conflicts;
  - 34% reported rarely or sometimes having conflicts with runners/joggers. 5% report frequent conflicts;
  - 31% reported rarely or sometimes having conflicts with walkers/hikers. 6% report frequent conflicts, and
  - 22% reported rarely or sometimes having conflicts with bird/nature watchers.
- The majority of online survey respondents live near the Don Watershed.

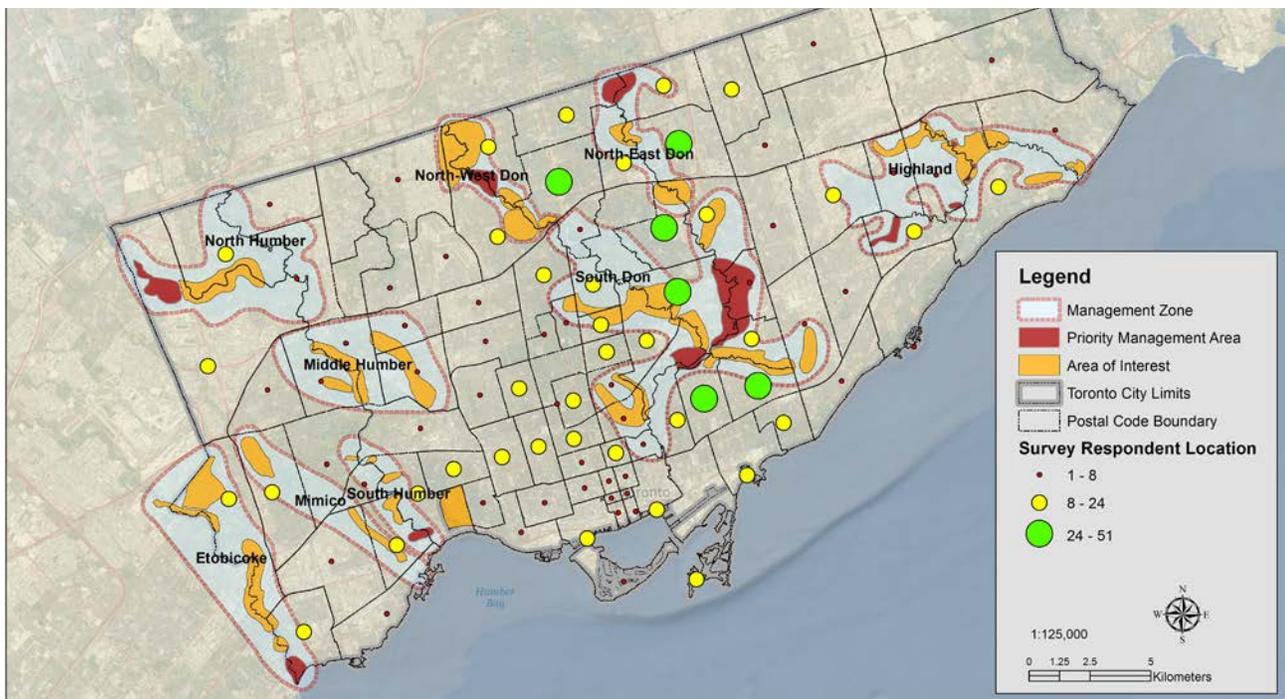


Figure 10: Online Survey Respondent Location by Postal Code.

- Half of all respondents included written feedback. These comments are included throughout the report. Most common feedback topics include:
  - Positive feedback on the trail system – including access to nature in the City;
  - Desire to keep the trails natural – not paved, overly manicured or overly managed;
  - The importance of environmental protection;
  - Trails to support a range of user type and level of difficulty/skill level;
  - Requests for an on-line map of the trail system, and information on trail working groups/volunteer opportunities;
  - Post information on trail closures – prior to and during construction;
  - Removal of invasive species;
  - Excellent mountain biking facilities/opportunities – current users wish to retain existing character and urge the City to work with local mountain bike associations, and
  - A small number of comments regarding shared use trails re: mountain biking and dog walking trail etiquette.

Survey information was further analyzed to determine response rates by gender, age group, user group and watershed.

- Survey results filtered by gender found that:
  - While other activities saw equitable participation, *only 12% of respondents identified as cyclists are female*;
  - *Female respondents are less likely to visit for adventure/challenge (34% vs. 62%) and more likely to visit the trails to be close to nature (85% vs. 74%);*
  - *More female respondents prefer wide trails without steep sections or challenging features (30% vs. 16%), and less likely to prefer narrow trails with many steep sections and very challenging features (10% vs. 35%), and*
- More male respondents report traveling upward of 2 hours to reach the trails (27% vs. 15%). More female respondents report travelling 30 minutes to an hour to reach the trails (40% vs. 24%).

- Survey results filtering by age groups showed that:
  - *Biking was identified as the primary activity by all age groups under 54. Those over 55 are predominantly walkers/hikers;*
  - *Most age groups prefer narrow trails with some steep sections and challenging features. Only those under 18 prefer narrow trails with many steep sections and very challenging terrain. No age groups report a preference for wide trails without steep sections or challenging features;*
  - *Respondents between 18 and 44 are more likely to spend longest on the trails each visit;*
  - *Respondents over 65 are more likely to visit the trails daily in the winter and spring than other user groups;*
  - *More respondents over age 45 report traveling less than 10 minutes to reach the trailhead. Over half of the respondents in older user groups live within 10 minutes of a trailhead;*
  - *Older respondents were more likely to report having had a conflict with bikers, and*
  - *Most age groups identified adding new trails, improving trail linkages and repairing erosion problems or rerouting trails as the top priorities for improvements. Adding new trails are of top priority for users under 44; while those 45 and older would like to see repairs done to eroded trails/rerouted trails.*
  
- Survey results filtering by user group showed that:
  - *Dog walkers, walkers/hikers and nature appreciators use the trails primarily to be close to nature; runners/joggers and bikers use the trails primarily for exercise;*
  - *Bikers are the most likely to use the trails for adventure/challenge and the most likely to prefer narrow trails with many steep sections/challenging features. The majority report traveling 10-30 minutes to reach the trailhead – whereas the majority in other user groups travel less than 10 minutes;*
  - *Over 60% of dog walker respondents visit the trails daily, year round. Walkers/hikers and nature appreciators were the next most likely to visit the trails daily;*
  - *Walkers/hikers were the most likely to rate the trail condition as being in very good condition; and bird watchers were the most likely to report trails being in very poor or poor condition;*
  - *Most user groups identified the same top three priorities for trail improvements: Improve trail linkages, repair erosion problems/reroute trails and add new trails. Runners/joggers and walkers/hikers prioritize improving trail linkages; dog walkers and bird watchers/nature appreciators prioritize*

*repairing erosion problems; and only bikers place top priority on adding new trails, and*

- *The majority of all user groups report never having conflicts with other users.*
- *Dog walkers and bikers were consistently highest rated for sometimes or frequent involvement in trail conflicts by all user groups. The highest conflict rates were reported with bikers – with all other user groups reporting sometimes or frequently having conflicts between 30 and 39% of visits. 31% of bikers report having sometimes or frequently had conflicts with dog walkers. Overall feedback suggests that many of the conflicts recorded are on the paved multi-use trails, rather than on the natural environment trails.*
- No significant results were found by filtering responses by watershed.
- Other findings:
  - *More than two thirds of those who walk to reach the trails travel less than 10 minutes to reach the trailhead. Over half of those who bike, take public transit or drive to the trailhead do so in between 10 and 30 minutes. 7% of those who take public transit travel for over an hour to reach the trailhead – no more than 3% of other users travel for over an hour;*
  - *Trail users most frequently reporting very poor condition are those who visit the site daily in spring, summer and winter. Reports of all other levels of trail conditions are most consistent among those who visit 2-3 times a week, and*
  - *Dog walkers visit the trail the most consistently year round – between 52% and 60% visit the trail daily in each season. Runners/joggers are next most likely user group to visit the trails 2-3 times a week during the winter (20%).*

## Open House Events

In September 2012, two open house events were held; one focusing on the Don and Highland Watersheds, and the other on Humber, Etobicoke and Mimico. 68 participants attended – listening to a presentation, and sharing their thoughts through group mapping exercises and feedback forms. The results of the mapping exercises were included in further analysis and were used to inform the management zones as well as priority management areas and areas of interest.



Figure 11: Sample of open house group mapping activity.

Open house participants provided significant amounts of feedback, ranging from overarching opportunities to watershed specific opportunities as well as detailed feedback, which will be kept on file for future planning and design initiatives.

The following table includes opportunities presented in the feedback:

<b>ECOLOGICAL ISSUES</b>
<ul style="list-style-type: none"> <li>▪ Design for erosion control, and</li> <li>▪ Design with sensitive areas/habitat in mind.</li> </ul>
<b>DESIGN AND MAINTENANCE STANDARDS</b>
<ul style="list-style-type: none"> <li>▪ Keep trails looking natural;</li> <li>▪ Provide trails to suit a range of skill/experience levels - all trails do not need to be appropriate for all users;</li> <li>▪ Provide more garbage cans - litter is a problem, and</li> <li>▪ Balance security and safety with quite/remoteness.</li> </ul>
<b>SIGNAGE</b>
<ul style="list-style-type: none"> <li>▪ Signage inventory needed;</li> <li>▪ Signage to denote trail difficulty and to mark hazards/steep grades and for wayfinding on unclear routes, and</li> <li>▪ Consistency in signage is needed.</li> </ul>
<b>ACCESS/CONNECTIVITY</b>
<ul style="list-style-type: none"> <li>▪ Formalize and improve connectivity of existing trails;</li> <li>▪ Improve connectivity of wildlife corridors;</li> <li>▪ Create/improve links to subway stations;</li> <li>▪ Undertake mapping inventory;</li> <li>▪ Create “loop” trails within and between priority management zones;</li> <li>▪ Formalize and improve connectivity to adjacent communities (i.e. more safe/accessible access points to the trail system), and</li> <li>▪ Explore option of allowing trail access through public golf courses, if possible (Partnership exists with Golf Course in South Etobicoke re: fish barriers - could same thing occur with trails?).</li> </ul>
<b>PARTNERSHIPS/ STEWARDSHIP PROGRAMS</b>
<ul style="list-style-type: none"> <li>▪ Initiate an “adopt a trail” program for local groups, and</li> <li>▪ Ensure that relevant stakeholders are included: Toronto Ornithological Club, Lower Mimico Project Team, South Etobicoke project team (Mississauga/COT).</li> </ul>

Feedback forms were also circulated at the Open House Events. Key findings include:

- Key issues identified: maintenance of existing trails, connectivity, lack of signage, and ecological issues;
- The biggest opportunities for change are: improvements to eroded/muddy trails and protection of sensitive habitat areas;
- The majority of respondents are interested in volunteering to assist with the trails;
- The majority of respondents reach the trailheads by bike or car.;
- Additional comments included reference to garbage, and a desire to have some natural areas retained for quiet experiences, and
- See Appendix L for other community Engagement outreach meetings, tours and presentations.

#### Email Feedback

Informational signs stating “Give us the dirt! If you use these trails... we want to hear from you!”, with email, website and QR code directing people to the website. The signs informed users of the trail strategy and requested feedback. These were posted at the trailhead survey locations as well as areas with high concentrations of trails.

Over 70 trail users provided comments via email. Feedback included information regarding how the trails are used, issues experienced on the trails (disrepair, litter, conflicts), and recommendations for new connections that would improve the system.

The following table includes a summary of recommendations and challenges.

ECOLOGICAL ISSUES
<ul style="list-style-type: none"> <li>▪ Garbage was cited as a critical concern – feedback ranged from reports of dumping, inadequate number, placement of garbage and recycling bins and recommendations on litter enforcement. It was recommended that the City’s 311 service be provided with a map of the trail system in order to allow more efficient reporting of issues, and</li> <li>▪ Erosion was reported in several instances as well as impacts incurred during storm events.</li> </ul>
DESIGN AND MAINTENANCE STANDARDS
<ul style="list-style-type: none"> <li>▪ Trails are generally reported as well maintained. However, there were a number of emails regarding specific structures requiring maintenance/replacement (many of which were associated with recent storms);</li> <li>▪ Trails are difficult to traverse after storm events and in winter. Safety was cited as a concern, and</li> <li>▪ The visual quality of deer fencing around conservation areas was called to attention.</li> </ul>

<b>SIGNAGE</b>
<ul style="list-style-type: none"> <li>▪ Recommendations were made for the installation of temporary signage to warn of upcoming trail closures, and to recommend alternative trailheads/points of access;</li> <li>▪ Existing information signage is appreciated. The inclusion of trail system maps at major intersections would assist with wayfinding, and</li> <li>▪ Users also requested dog on-leash signage and informational signage on disposal of dog waste, and “share the trail” signage detailing cycling and pedestrian etiquette.</li> </ul>
<b>ACCESS/CONNECTIVITY</b>
<ul style="list-style-type: none"> <li>▪ A number of specific connections were requested. This information will be reviewed during future, more detailed, planning phases of the natural trails;</li> <li>▪ The completion of trail “loops” at both the watershed and City wide scale were recommended;</li> <li>▪ Year round access to the trails was requested. However, there were also concerns raised regarding the trails during icy conditions. (these comments may have been in relation to multi-use paved trails), and</li> <li>▪ Trails, especially those accessibly by TTC, could be highlighted to the public at large.</li> </ul>
<b>DOGS</b>
<ul style="list-style-type: none"> <li>▪ On-leash regulations are not always adhered to. This causes concern regarding trail user perceived safety, concerns regarding bird/wildlife population in the ravines, as well as making bird and wildlife observation more challenging, and</li> <li>▪ Dog owners were reported as either not picking up after their dogs, or of picking up after their dogs but not properly disposing of the bags.</li> </ul>
<b>PARTNERSHIPS/ STEWARDSHIP PROGRAMS</b>
<ul style="list-style-type: none"> <li>▪ The feedback included offers to volunteer within the trail system, updates on existing, complimentary projects occurring in the watersheds, organized through other local organizations, and</li> <li>▪ A request was made to seek feedback from within the “nature study community”, such as the Toronto Ornithological Club and Toronto Entomologists Association.</li> </ul>
<b>PROGRAMMING and CONFLICTS</b>
<ul style="list-style-type: none"> <li>▪ Although many users commented that most cyclists obey the trail regulations and respect other trail users, concern was raised over cyclist etiquette including: speeding, not dismounting on bridges, not providing warning when approaching pedestrians, and the building of unsanctioned bmx/mountain biking features, and</li> <li>▪ Concern was raised by one respondent regarding lack of access for inline skaters (presumably in relation to multi-use paved trails).</li> </ul>

## 7.6 TRAIL SUPPLY & DEMAND

### TRAIL SUPPLY

The City of Toronto has compiled an inventory of approximately 227 km (out of an estimated total of 300km) of trails within five watersheds of the project study area. From 2008 to 2010 the Natural Environment and Community Programs conducted on-the-ground search of the areas of interest using GPS data collectors to accurately map the trails, conduct a general evaluation of trail conditions, and locate and photograph hundreds of hazards and socially built structures and trail features. The table and maps below describe the extent of the data collected and where gaps in the data exist. The completion of the GPS inventory is required in order to provide a complete picture of trail supply for future master planning and management initiatives.

Watershed	Informal Trail – Degraded Condition (km)	Informal Trail – Good Condition (km)	Areas/trails that need mapping or existing mapped data is missing
<b>Highland</b>	3.3 km	13.0 km	<ul style="list-style-type: none"> <li>▪ Trails in West side of Morningside park including the old ‘Camp of the Crooked Creek’;</li> <li>▪ Trails along ‘Markham Branch’;</li> <li>▪ Trails around University of Toronto campus;</li> <li>▪ Beechgrove Ravine, and</li> <li>▪ Lower Highland Creek.</li> </ul>
<b>Don Valley</b>	19.3 km	89.7 km	<ul style="list-style-type: none"> <li>▪ Missing existing trail data for newly built trail in the East Don known as ‘Motown’ or ‘Hustle and Flow’;</li> <li>▪ “Training Loop” missing existing trail data in Coxwell Ravine Park;</li> <li>▪ Missing existing trail data in northern portion of E.T. Seton Park;</li> <li>▪ Trails in Stuart Greenbelt/Gwendolyn Park neighbourhood;</li> <li>▪ Sunnybrook Park trail ‘Foreplay’, and</li> <li>▪ Vale of Avoca old Parks trails.</li> </ul>
<b>Humber</b>	23.7km	48.6km	<ul style="list-style-type: none"> <li>▪ 8-10km of unmapped trails in Black Creek.</li> </ul>
<b>Etobicoke/ Mimico</b>	8.6 km	20.6km	<ul style="list-style-type: none"> <li>▪ Reported sections of trails along ‘mid Mimico Creek’.</li> </ul>
<b>Total</b>	54.9 km	171.9 km	

## TRAIL DEMAND

Without undertaking an additional City-wide survey, limited information is known about the level of demand on the trails. The following section details what is known about the user base – from which activities are undertaken on the trails, to highest need populations, to preliminary trail counter data collected during the development of the NETS.

Spaces such as the trails are in high demand in urban settings. Freely available outdoor neighbourhood spaces, such as the natural trail system, are those most frequently used for physical activity. Despite the high percentage of land viewed as appropriate for organized team sports, the majority of residents prefer informal, unstructured activities such as walking and cycling (Moudon & Lee, 2004).

### User Groups

The NETS user surveys polled asked which primary, sanctioned, activity they undertake most on the trails. The following is a description of these user groups.

- **Walking/Hiking:** This group includes individuals interested in using the trails for exercise and exposure to the natural environment. This group typically travels shorter distances per outing than others such as trail runners or cyclists.
- **Trail Running:** Trail runners use trails for exercise on natural surface trails, rather than paved trails or streets. Use patterns and motivations are suspected to be similar to those of cross-country mountain bikers, i.e. endurance and technical challenges. There are numerous organized trail running groups and organizations in Toronto utilizing trails for recreational and competitive running. In the fall of 2012, the City of Toronto partnered with the non-profit group 'Preparing the Trail' for the first ever 'Bonsai The Don', a 4 hour trail running team relay featuring natural obstacles.
- **Nature Appreciation:** a popular and growing recreational pastime. The trail system provides an excellent opportunity for nature lovers to experience nature in the City and undertake activities such as bird watching, hiking and nature photography. Within any of the City's five watersheds, it is not uncommon to encounter various plant, animal and bird species including larger mammals such as deer, fox and coyote.
- **Dog Walking:** As is typically the case with most City of Toronto parks, dog walking is a popular pastime in natural areas and ravine lands.
- **Cycling** can include commuters, recreational cyclists traveling on the trails, or mountain bikers. According to an internal study of mountain biking and trails in 2008, the most popular destination for mountain biking is in the Crothers Woods area in the Lower Don Parklands due to its extensive network of formal trails with connections to informal trails throughout the East Don, West Don and Taylor Massey Creek

*"I often see a grouping of teens riding Canadian Tire (or similar) entry level bikes, in their regular civic clothing (ie., not fancy sports gear).... To see them pursuing a healthy activity in a group setting, building friendships and fitness is fantastic!"*

- survey respondent

ravine corridors. Additional significant concentrations of trails used by mountain bikers are found in High Park, Rouge Park, and in many parks throughout the Humber and Etobicoke Creek corridors. Mountain Bike and BMX riding are diverse sports with highly specialized sub-categories. The different styles are differentiated by the terrain, types of equipment and technical skills that are required. Cross-country riding is the predominant type of off-road cycling but there is emerging popularity, especially among youth, in free-style types of biking such as dirt jumping, downhill and freeriding.

- Other trail activities observed and recorded include geocaching, children walking to school, orienteering, educational programming, cross country skiing and snowshoeing.

### High Need Populations

Ideally, all of Toronto's communities should be well served by trails within an easy walking or biking distance. Proximity and access of trails to those living in high density areas, those underserved by other outdoor recreation amenities and trails, and most of all, those living in Neighbourhood Investment Areas would likely see the highest and most valued increase in trail use. NIAs are areas of the City that have poor service coverage, higher need and have experienced more violence than average in the past. In 2005, the City of Toronto identified thirteen neighbourhood areas by combining social indicators with a measurement of access to services, to monitor the health and well-being of neighbourhoods and prioritize neighbourhoods for investment. A preliminary assessment and correlation of the Management Areas, Priority Investment Areas and density is shown on the following page.

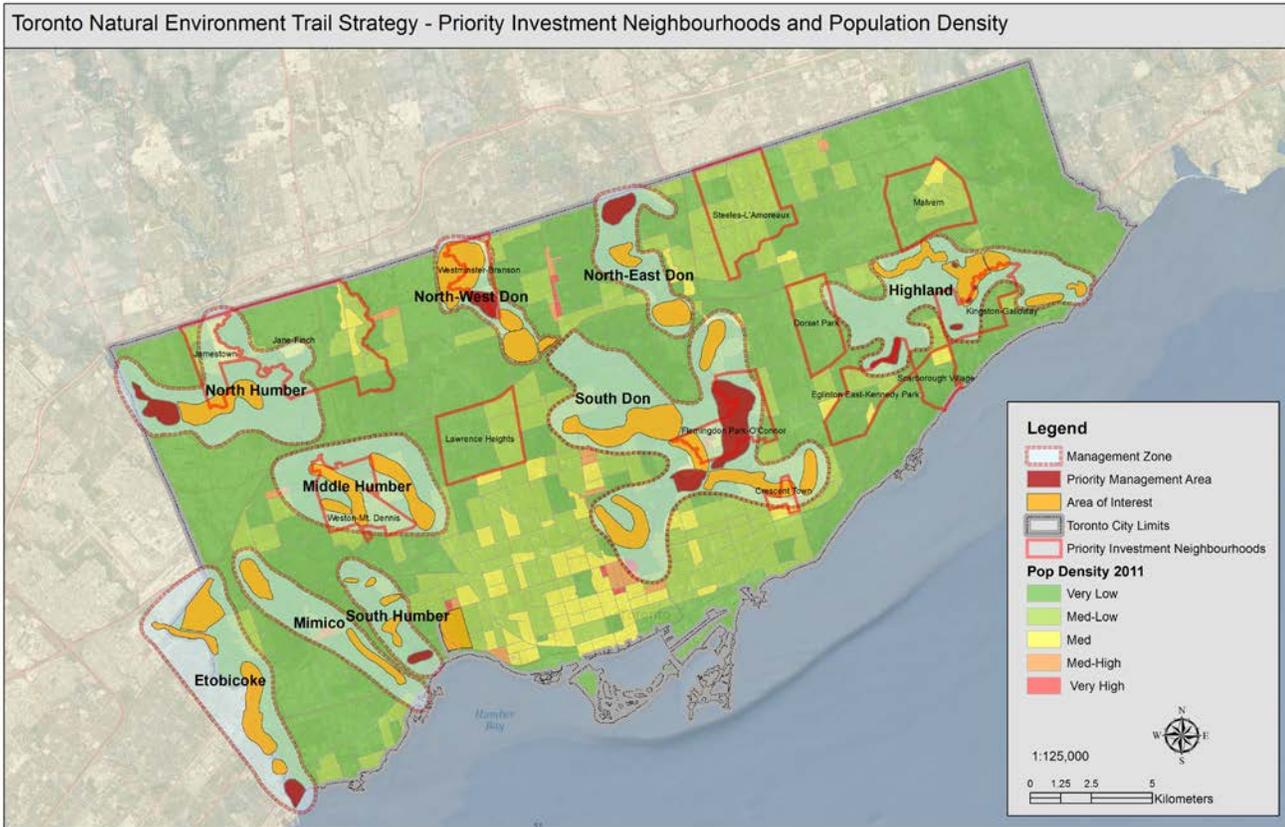


Figure 12: Priority Investment Neighbourhoods and Population Density

### Trail Counters

Infrared counters were installed at ten trail locations throughout the City of Toronto to obtain an initial estimate of the amount and type of pedestrian and bicycle use that occurs on the trails. One of the main objectives of the counters was to collect data to help document our trails as a valuable, and well used asset. Very little data like this had been collected outside of Crothers Woods in the past. This was the Department’s first use of this type of City-wide data gathering and the learning experience proved to be just as valuable as the data collected.

A representative sample of 10 trails (based on geographic location, type of use and perceived amount of use) were selected from among the 150 recognized trails comprising the NETS.

The trail counters were used to provide a general volume of use and patterns of times and dates of use. These numbers, combined with other data collected throughout the project from WSBs, public meetings, surveys, site visits and general observations, would help inform the priority management area decision making process.

Trails were monitored for a 209 day period in March through October, 2012. See Appendix M for Trail Counter Methodology.

### *Trail Counter Placement*

With only 10 counters, placement was selected by NETP staff to include trails in each watershed, and to include what was assumed to be a variety of user types.

<b>Counter Location</b>	<b>Description</b>
<b>Don River - Crothers Woods</b>	Staff believed the Pottery Road trailhead to be one of the busiest starting points for trail users in the Don trail system, probably the busiest trail system in the City. The counter placed here was expected to show a very high volume of users. This information would help to inform the rationale behind past capital improvements in the Crothers Wood's project, as well as help secure future resources for operating costs.
<b>Don River - Taylor Creek</b>	Staff knew very little about this trail other than it had been built illegally approximately five years ago as an alternative route into the Don system. The placement of this counter was an exercise in identifying use on one of the 'hidden gems' in the Don, and to see just how well 'hidden' it was.
<b>Don River - Earl Bales Park</b>	With a well established official granular trail on the ridge in Earl Bales that did not provide a 'loop' system, staff wanted to measure the volume of people willing to scramble up or down a steep slope to have that 'loop' experience. High numbers would help justify capital improvements to formalize this connection.
<b>Don River - Gwendowyn Park</b>	Staff knew this to be a well used 'neighbourhood' trail and a bit of a hidden gem. Staff had attended several tours of this trail system with a local WSB member who has shown a lot of support for NETP and the NETS. High volume of use could potentially raise the priority status of this area for management.
<b>Mimico Creek - West Deane Park</b>	This trail was the only area in Mimico where the City had mapped informal trails to date. The area was known for a significant volume of cycling activity (local informal bike jumps) and dog walking. Unfortunately, an ideal monitoring location could not be found on the primary trail, so the counter was placed on a 'secondary' trail next to the creek.

<b>Etobicoke Creek - West Mall and Etobicoke Creek - Sherway Drive Park</b>	Considered by some mountain bikers to be the 'next Don' in terms of a mountain biking destination, this 4km long hidden gem had been identified by the City two years ago when a local bike shop owner/WSB member approached NETP staff on ways in which a partnership could form to manage this trail. These two counters, would provide some insight on volume of use and prioritization of this management area.
<b>Highland Creek - Hague Park</b>	The trails at Hague Park were first identified as a hidden gem in Highland Creek by staff at the TRCA. City staff know it as a well used trail by local hikers and some cyclists. Counts would help to prioritize its importance for management, as well as support discussions with Toronto Water, who are currently in the area building access roads to sewer assets.
<b>Highland Creek - Morningside Park</b>	This official main dirt trail entrance into Morningside Park has been identified as somewhat hazardous. Higher counts will help in the prioritization of this trail as well as informing the current master planning exercise for Morningside Park.
<b>Humber River - South Humber Park</b>	An area of frequent illegal jump building and off-road cycling, this area has been on the City's radar as a potential 'mini Crothers' where a web network of trails could be managed such that all interested stakeholders could come together to build a sustainable trail network. Although the counter was placed on a secondary trail, the data will help inform future management priorities.

Toronto Natural Environment Trail Strategy - Trail Counter Locations

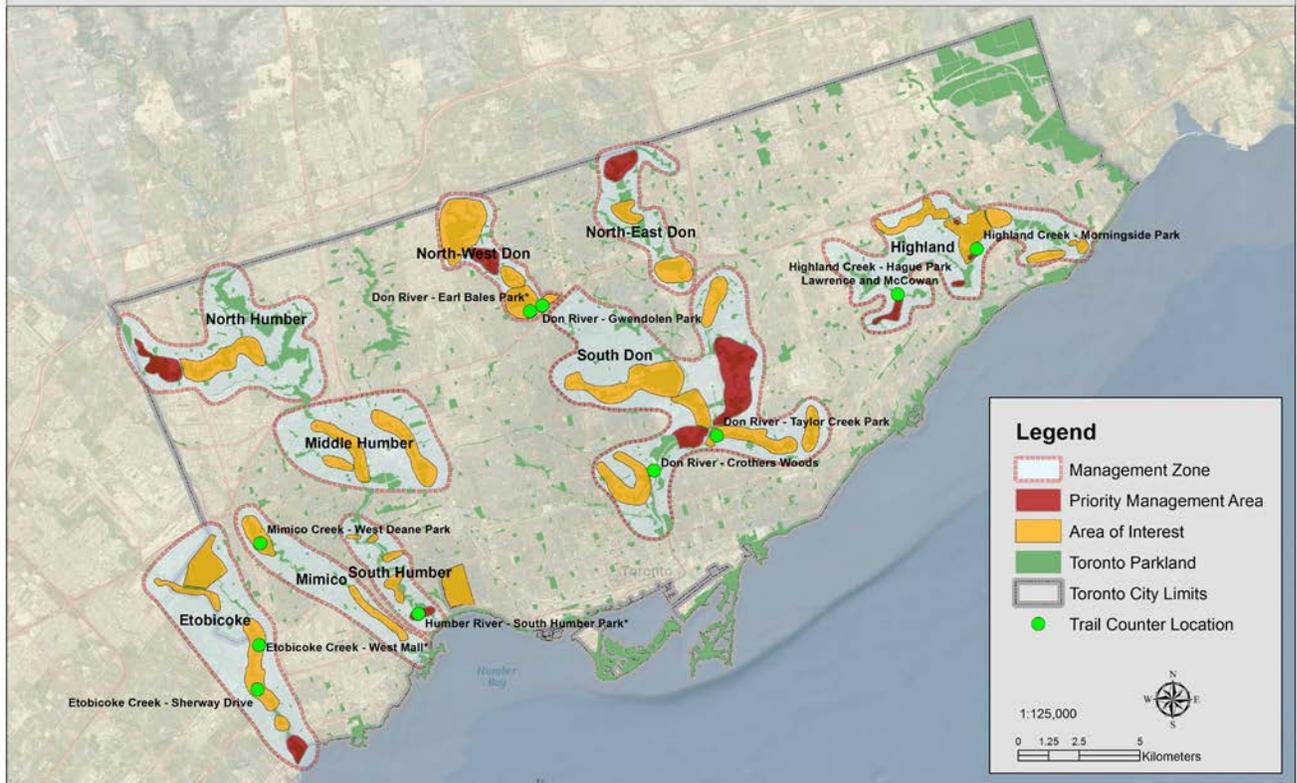


Figure 13: Trail Counter Locations

### Counter Placement

Counter placement was selected to provide as much natural camouflage as possible to reduce tampering and theft. The counters and infrared scope were attached to trees within 5m of the trail and were covered with bark similar to that of the tree that it was attached to, to make them as inconspicuous as possible. This ‘out of sight, out of mind’ approach was used rather than placing the counters in metal lock boxes that tend to invite investigation and tampering.

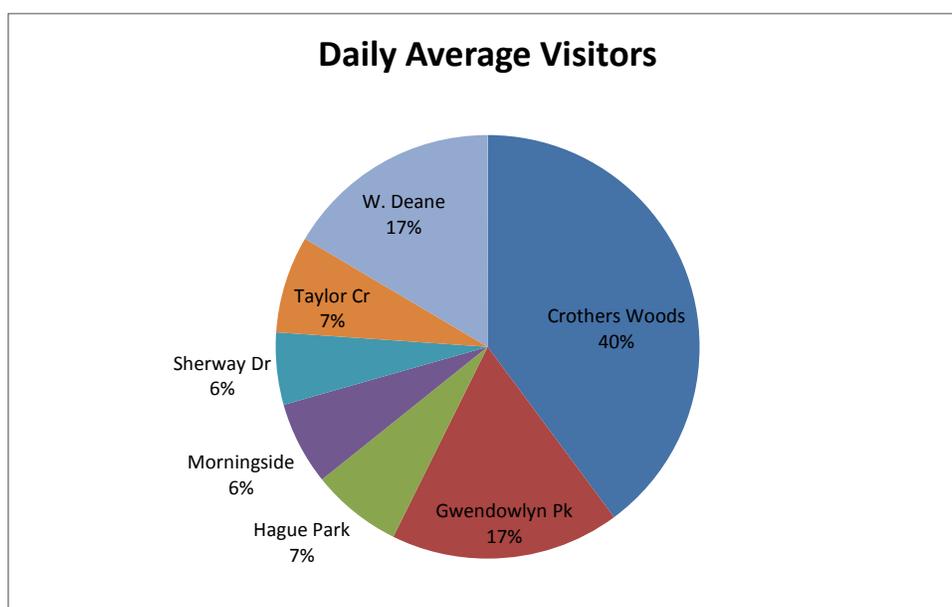
Despite making use of this approach, two of the ten counters were subject to theft. An additional counter failed to make accurate readings. The final results are, therefore, a summary of 7 counters.

### Summary of Results

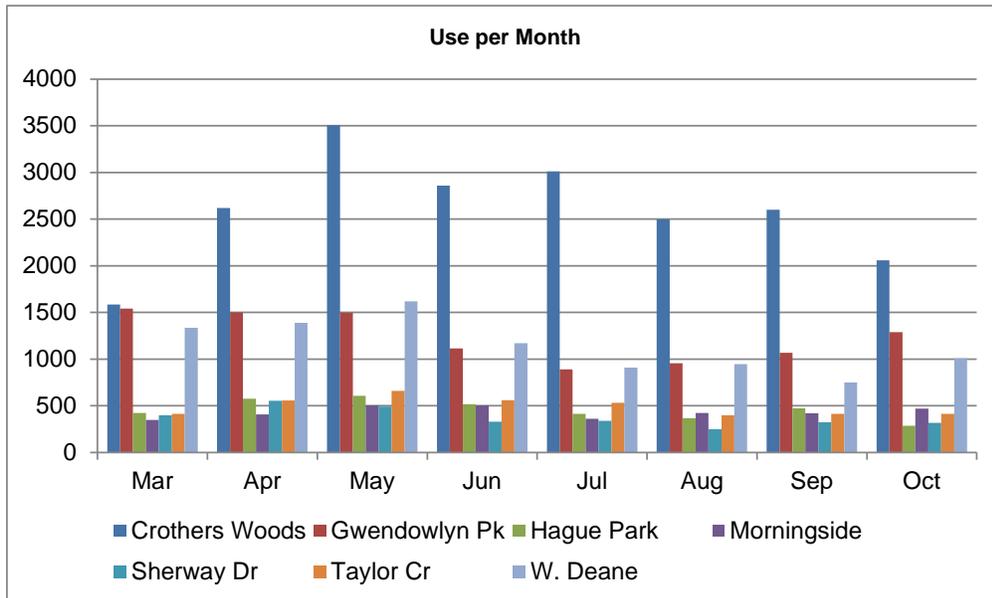
The highest volume of users was overwhelmingly found at Crothers Woods at a count of 20,740 visitors. Gwendowlyn Park and West Deane Park were second and third, each with between 9,000 and 10,000 visitors recorded.

Month	Crothers Woods	Gwendowlyn Park	Hague Park	Morning-side	Sherway Dr	Taylor Cr	W. Deane	Total
Mar	1584	1541	422	347	400	413	1336	6043
Apr	2619	1502	575	407	553	558	1388	7602
May	3506	1497	607	504	492	660	1618	8884
Jun	2858	1115	515	504	330	560	1172	7054
Jul	3013	889	415	361	340	533	909	6460
Aug	2499	956	368	423	250	399	945	5840
Sep	2601	1068	473	419	323	414	750	6048
Oct	2060	1288	287	469	316	413	1009	5842
Total	20740	9856	3661	3434	3003	3950	9128	53772

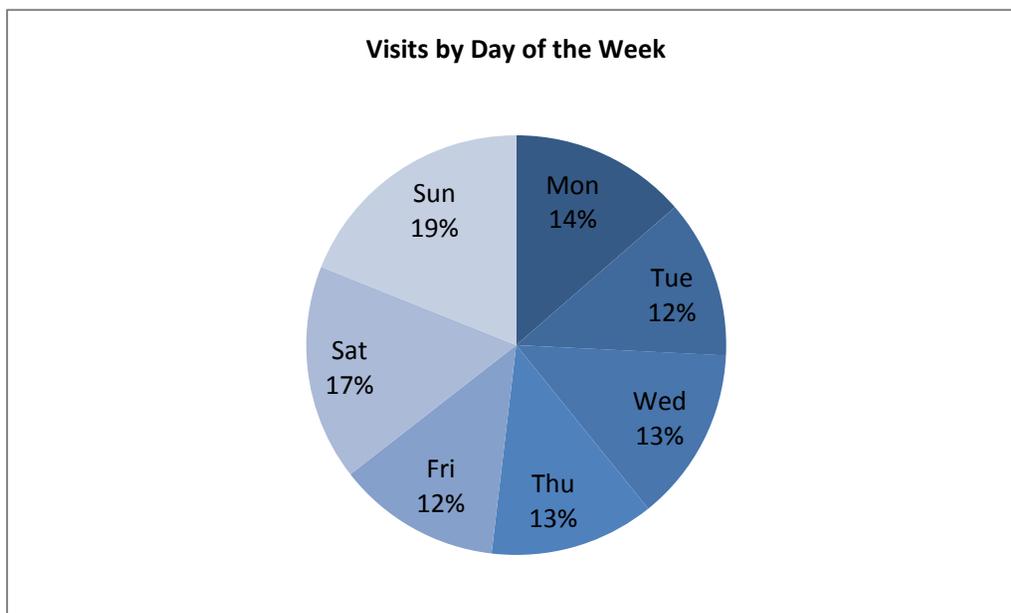
The daily average rate of visitors supports the overall popularity of Crothers Woods, West Deane Park and Gwendowlyn Park.



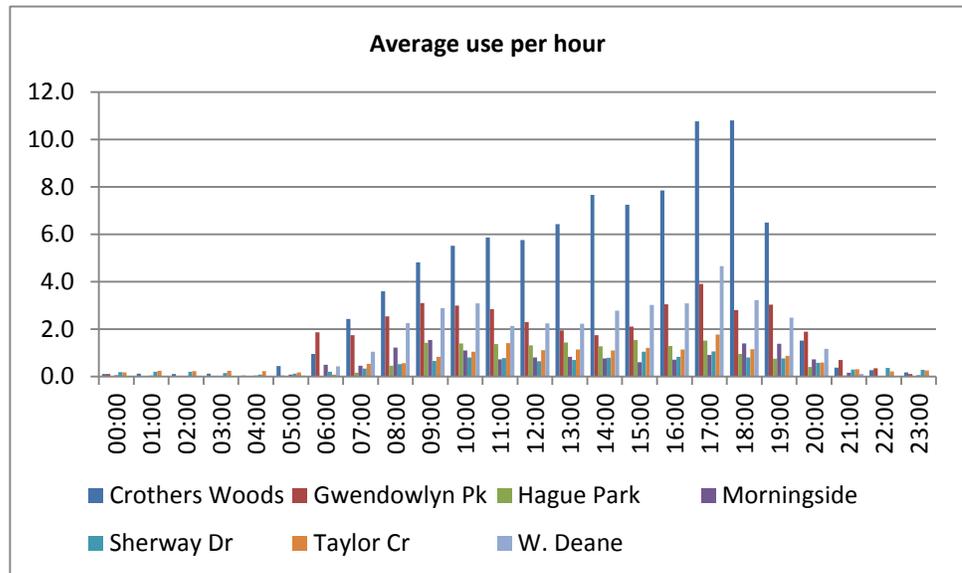
The month of May showed the highest volume of users at the 7 counter sites. All sites were well used across all 8 months recorded.



Although weekend volumes are slightly higher at 17% and 19%, weekdays are not far behind at 12-14% a day. There may be many users who use the trails on a daily basis.



The trails showed users at all hours of the day. Significant use was consistently recorded between 6am and 8pm, with peaks between 8 and 10am, dropping down at lunch, and ramping up in the afternoon. Highest peaks on most trails were recorded between 5 and 6pm.



# GLOSSARY

- **The Accessibility for Ontarians with Disabilities Act, (AODA):** The purpose of the Act is to develop, implement and enforce mandatory accessibility standards in key areas of life. The purpose of this regulation is to accommodate individuals with disabilities as defined in the AODA.
- **Area of Natural and Scientific Interest (ANSI):** Criteria used for evaluating significance of ANSIs are similar to those used to delineate ESAs. In some respects: size, condition, ecological functions, special features and diversity are taken into account. However, ANSI is more importantly based on its representation of unique landform/vegetation associations within a particular geographic ecosystem or eco-district.
- **Areas of Interest:** Longer term priorities to which some may become Priority Management Areas in the medium to long term. In the mean time, City Staff should continue to manage these areas with the over arching recommendations in the NETS. They include areas with significant infrastructure work planned by others, as well as a small number of large parks, where Staff should seek involvement as a stakeholder in broader park management planning processes, but should not initiate a specifically trails focused management plan.
- **Best Management Practices (BMP):** A method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark.
- **Boardwalk:** A fixed planked structure, usually built on pilings in areas of wet soil or water to provide dry crossings.
- **Bridge:** A structure, including supports, erected over a depression (stream, river, chasm, or road) and having a deck for carrying trail traffic.
- **City of Toronto - Environmentally Significant Areas (ESAs):** These areas were identified based off consideration of sensitive habitat size, diversity, ecological functions and special features. Minimizing the amount of trail and trail impact in these areas is recommended. Identifying “positive control points” (i.e. wetland wildlife viewing areas, beach areas on river’s edge, etc) in future planning and design initiatives will also be important in order to provide lowest impact access.
- **City of Toronto Natural Environment Trails Working Group and Advisory Team:** Established in 2009 by the Forestry division with interdepartmental representation to identify planning, policy and management strategies required to address natural environment protection and sustainable natural environment trail opportunities.
- **Don Valley Watershed:** Extends over 36,000 hectares and contains 1.2 million residents. It includes the Don River which stretches almost 38 km in length. Of all the Toronto watersheds users in this watershed are the most actively involved with trail planning and stewardship initiatives.

- **Etobicoke and Mimico Creek Watersheds:** 28,860 hectares and population of over 400,000 people. They are two of the most developed and degraded watersheds in Toronto.
- **Environmentally Sensitive Areas (ESAs):** An area which contains a natural feature, such as the habitat of a rare species, and which is protected by government regulations. In this report (ESAs) can also refer to Environmentally Significant Areas as identified in the 2012 study completed by North-South Environmental Inc., Dougan & Associates, Beacon Environmental for the City of Toronto.
- **Field Fit:** To adjust and adapt management plans and site design to meet the specific unique nature of each trail system and trail experiences.
- **Highland Creek Watershed:** Highly urbanized, 85km of creek remains and includes some of the largest contiguous areas of remnant forests, wetlands and meadows, providing habitat for a deer, fox, monarch butterflies, and numerous bird and fish species. Highland Creek watershed is home to 360,000 residents.
- **High Efficiency Trail Assessment Process (HETAP):** An inventory process that provides objective information about trail conditions (e.g. grade, cross slope, width). The information obtained through an assessment can be used by land managers to enhance the safety and enjoyment for trail users (by providing accurate, objective information about trail conditions). The information obtained can also be used in monitoring environmental impacts on the trail, preparing budgets, developing maintenance and construction plans, and identifying potential access barriers.
- **Humber River Watershed:** The largest in the Toronto area. Originating on the Niagara Escarpment and the Oak Ridges Moraine, water flows down the Humber River to Lake Ontario. The watershed includes 1800 kilometers of waterways and 600 bodies of water. 732,000 residents live in the watershed.
- **International Mountain Bicycling Association (IMBA):** Mountain biking advocacy group who work with all stakeholders to create, enhance, and preserve great trail experiences for mountain bikers.
- **Live Web Mapping Sessions:** Conducted over the course of the project to gather local knowledge and trail development potential from the City of Toronto Staff, project team consultants and resident experts. These sessions were hosted using interactive mapping software to allow all participants to join from their personal computer and annotate the maps live in a group teleconference setting.
- **Management Zones:** These zones were used throughout the analysis, development and consultation processes of the NET Strategy. Each management zone includes a range of trail difficulty, variety of trail experiences and length of trails. Management zones or land units are of an appropriate scale and complexity for use by the NETP in future more detailed studies and the development of existing and new trails

and environmental rehabilitation efforts. Each includes a section of a watershed, consisting of a relatively large geographic area spanning numerous parks and natural areas within Toronto's Ravine system.

- **Natural Environment Trails Program (NETP):** An innovative, community-based program coordinated by Urban Forestry that works to improve the long-term sustainability of recreational nature trails in the City's ravines and parklands, while protecting the environment that surrounds them.
- **Natural Environment Trail Strategy (NETS):** A high level planning document that is intended to support future trail management initiatives. It is a product of extensive data collection, outlining the opportunities and constraints for recreational opportunities in natural areas and a significant amount of input from trail users, local residents and stakeholders.
- **Natural Environment Trails:** Refers to the extensive network of informal natural-surface (dirt) trails within natural area parkland and ravines in addition to the paved and granular multi-use trails that exist. These trails are heavily used by hikers, dog-walkers, school and day-camp groups, nature enthusiasts and mountain bikers, and are highly valued as an important part of Toronto's recreational trail system. These trails are the focus of this strategy. All references to trails in this report refer to Natural Environment Trails.
- **Natural Environment and Community Programs (NECP):** Unit of the Toronto Parks, Forestry and Recreation Department (PFR).
- **Priority Management Areas:** Distinguished as areas on which to focus the development of management plans in the short term.
- **Professional Trail Builders Association (PTBA):** North America's largest private sector group of trail specialists, professional trail contractors, designers, and consultants. All of PTBA's activities support quality trail design, construction, and maintenance for all types of trails in all types of locations <http://trailbuilders.org>.
- **Provincially Significant Wetlands (PSW):** A scoring system similar to the criteria of ESAs and ANSI. However the scoring criteria also includes many other attributes related to wetland function such as biological, social, hydrological, and special features.
- **Species at Risk (SAR):** Any naturally-occurring plant or animal in danger of extinction or of disappearing from the province of Ontario. The SAR designation used in this analysis includes: Special Concern, Threatened and Endangered.
- **Technical Trail Features (TTFs):** An obstacle on the trail requiring negotiation; the feature can be either built or natural, such as an elevated bridge or a rock face.

- **Toronto and Region Conservation Authority (TRCA):** The largest landowner (15,000 hectares) in the Greater Toronto Area (GTA), and it makes its lands available to the community for outdoor and conservation education, recreation and historic site purposes. Its area of jurisdiction is comprised of nine watersheds and includes the region's river valleys, Lake Ontario shoreline, headwater areas of the Oak Ridges Moraine, and the Niagara Escarpment, as the major resources to which its programs are applied. Since its formation in 1957, the Conservation Authority has developed and delivered programs to further the conservation, restoration, development and management of the natural resources within its watersheds.
- **TRCA and Toronto Erosion Control Hazards:** Areas identified to mitigate the risk to public safety and infrastructure due to erosion problems. Preventative measures were deemed insufficient and impractical to address the observed risk for these areas. Instead, remedial works will be required such as retaining walls, slope treatment, weir or revetment.
- **Watershed Sounding Boards (WSBs):** Established to gather knowledge of existing and potential trail opportunities and constraints from local community stakeholders. They included members of the public who were active/regular users of the Toronto trail system who were interested in volunteering their time to share information regarding local issues, challenges and opportunities for trail management. The WSBs allowed the Trail Management team to have focused discussions with a small group of stakeholders, facilitating a better understanding of watershed focused user perspectives. Participants included members of local watershed councils, school boards, homeowners associations, creek project teams, conservation authorities, local government, community associations, recreational groups and not for profit organizations.
- **Crothers Woods Trail Management Strategy (CWTMS):** In 2007, through extensive public input, stakeholder consultation and a valuable partnership established with the International Mountain Bicycling Association, the CWTMS created to guide extensive trail management and restoration activities. From 2008 to 2012, as part of the implementation of the strategy, eroded and unsustainable trails were closed, redesigned, repaired or rerouted resulting in 10km of multi-use natural and granular surface trails, five new trailheads with information kiosks and a safe, enjoyable, sustainable trail destination.

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*(Photo Credit: IMBA)*

# APPENDICIES



# APPENDIX A: TYPES OF TRAIL VOLUNTEERING

A number of natural environment trail volunteering opportunities are identified for adoption. All volunteer opportunities will require the appropriate staff levels to help co-ordinate, lead and advise on trail opportunities and activities. All work to be undertaken by volunteers will need to follow existing City of Toronto protocols and best management practices and compliment existing initiatives.

## Adopt-A-Trail

### Where will they work?

- Trails in relatively good condition without a significant amount of invasive species. Invasive species which do exist should be those that can be controlled without herbicide (i.e. garlic mustard, tall sweet white clover, burdock, thistle, etc);
- The adopted natural environment trail may be a designated linear section of trail or may be a connected trail system/loops within a designated park or section of a park, and
- All sites will be located on property managed by the City of Toronto.

### What will they do?

Volunteers will be under the guidance of group leaders who have received training on trail building/maintenance as well as first aid and CPR. They will:

- Undertake regular inspection and monitoring of the trail for:
  - Drainage issues (i.e. muddy areas, flooding);
  - Safety concerns (i.e. hazard trees, damaged trail or technical features);
  - Unauthorized uses (i.e. new trails or structures), and
  - Garbage issues (i.e. bush parties, dumping).
- Fix minor trail maintenance concerns with hand tools:
  - Drainage (i.e. improve out-slopes, de-berm, install grade reversals);
  - Signage (i.e. maintain sightlines, remove graffiti, install city approved signs), and
  - Closure or narrowing of trails using natural materials existing on site.
- Flag or propose closures of major trails, construction of new trails or structures, or major maintenance issues to NECP staff (to be address by City trail crews or a volunteer event led by trained trail staff);

- Clean up litter along trail;
- Act as trail ambassadors:
  - Educate users regarding trail code of conduct;
  - Assist users with minor bicycle maintenance issues, and
  - Assist users with directions/wayfinding.
- Provide inspection reports to City staff and inform staff of any maintenance activities before they take place.

#### **When will they work?**

- Trail inspections should take place on a monthly basis at minimum.
- More frequent monitoring is encouraged and ideally should take place at different times of day and different days of the week in order to be effective Ambassadors, also ensuring a recognized presence by all users.
- Participating Adopt-a-trail organizations should organize their work days to correct minor trail maintenance issues on an as needed basis. They should inform City staff of any maintenance before it takes place.

#### **Who are they?**

- Adopt-A-Trail agreements should be made with incorporated not-for-profit groups as defined by the City of Toronto's Permit Allocation Policy or unincorporated groups that can prove they have a similar mandate and structure as a not-for-profit. At minimum, groups must have:
  - A mandate to provide services, program and opportunities for residents which support the principle of bringing benefit to the broader community;
  - Volunteer trustees, steering committee or a board of directors that governs the organization, and no personal financial gain for members, trustees or directors. Any excess of revenues over expenditures are turned back into the organization and funds can only be used for promoting its organizational purpose, and
  - All groups must have proof of:
    - A volunteer executive elected at an Annual General Meeting
    - A constitution, by-laws and/or letters patent
- Group leaders (volunteer or non-profit staff) must undergo City-led training on how to manage and maintain natural environment trails;

- Group leaders (volunteer or non-profit staff) must have appropriate first aid and CPR certification (provided by the City);
- Adopt-a-trail agreements should be made with organizations that are already using the trail on a regular basis, and
- Adopt-a-trail groups will be required to sign a Memorandum of Understanding before undertaking any activities.

### **How will each party benefit from this arrangement?**

The City will benefit by:

- Having an active local presence on the trails to provide information of ongoing or emerging trail use issues;
- Having an active volunteer base to assist with trail monitoring and maintenance, as well as education around trail code of conduct, and
- Partnering with a well structured organization for a defined period of time will assist staff in managing issues associated with extreme personalities and volunteer burnout.

The trail group will benefit by:

- Having direct contact with City staff to address major trail issues on a trail which they use regularly;
- Having authority to fix minor issues along the trail and be provided with appropriate tools and safety equipment to undertake this work;
- New skills for group leadership and members through City-led sustainable trail building workshops;
- Promotion and encouragement of new membership for their group through City signage recognizing their volunteer efforts, and
- City provided resources or access to training opportunities for first aid, CPR, trail building/maintenance, customer service/ambassador training, non-profit governance training, etc.

## Trail Stewardship Teams

### Where will they work?

- Sites where there is a need to control a significant amount of invasive species that can be controlled without herbicide (i.e. garlic mustard, tall sweet white clover, burdock, thistle, etc), trail closures requiring ongoing monitoring and maintenance, and other ongoing site work appropriate for volunteers to undertake with minimal staff support;
- Sites with environmental significance should be prioritized;
- Sites may be a linear section of a natural environment trail or may be a connected trail system/loops within a park or section of a park;
- All sites will be located on property managed by the City of Toronto, and
- Stewardship teams may operate at the same site an ongoing basis or may be dissolved at the end of a season if active weekly/bi-weekly stewardship is no longer required or may be dissolved if a higher priority site is flagged for a new stewardship team to form.

### What will they do?

- Stewardship teams will undertake activities based on a work plan provided by City staff;
- Volunteers will weed invasive non-native plant species, plant and maintain native vegetation, mulch, build habitat brush bundles, and monitor specific site conditions;
- Undertake regular inspection and monitoring of the trail for:
  - Drainage issues (i.e. muddy areas, flooding);
  - Safety concerns (i.e. hazard trees, damaged trail or technical features);
  - Unauthorized uses (i.e. new trails or structures), and
  - Garbage issues (i.e. bush parties, dumping).
- Fix minor trail maintenance concerns with hand tools:
  - Drainage (i.e. improve outslopes, de-berm, install grade reversals);
  - Signage (i.e. maintain sightlines, remove graffiti, install city approved signs), and
  - Closure or narrowing of trails using natural materials existing on site
- Flag or propose closures of major trails, construction of new trails or structures, or major maintenance issues to staff (to be address by City trail crews or a volunteer event led by trained trail staff);

- Clean up litter along trail, and
- Act as trail ambassadors (i.e. educate users about trail code of conduct, assist users with minor bicycle maintenance issues, give people directions, etc.).

### **When will they work?**

- Stewardship teams will meet weekly or bi-weekly from May to September.
- Additional trail monitoring activities may be arranged on a monthly or as needed basis from October to April.

### **Who are they?**

- Individuals can sign up to be a volunteer steward at designated trail stewardship sites. No prior experience is required as training will be provided;
- Appropriate registration and waivers will be signed by all volunteers;
- Stewardship leaders will be trained on how to lead a volunteer team, manage and maintain natural environment trails, and control invasive species, and
- Stewardship leaders will hold appropriate first aid and CPR certification.

### **How will each party benefit from this arrangement?**

The City will benefit by:

- Having volunteer support to control invasive species and fix minor trail issues;
- Having a regular presence on site to promote trail code of conduct etc.;
- Improving public education about urban forest ecology and sustainable trails, and
- Managing individuals who may be undertaking unauthorized activities in natural environment areas (i.e. unauthorized trail building, unauthorized planting, etc.).

The stewardship volunteers will benefit by:

- Learning about invasive species control, urban forest ecology and sustainable trail building;
- Being active in helping to monitor and steward a local trail and park which they use;
- Meeting other people who are interested in natural environment trails and stewardship;
- Training opportunities for first aid, CPR, trail building/maintenance, customer service/ambassador training, etc, and
- Gaining required volunteer hours – an important opportunity for high school students and social assistance recipients etc.

### Corporate and Public Volunteer Events

#### Where will they work?

- Event sites will be chosen from a City developed prioritized list of locations, based on forest ecology and trail maintenance need, and
- All sites will be located on property managed by the City of Toronto.

#### What will they do?

- Volunteers will work under the instruction and supervision of City staff or contractors;
- Activities may include:
  - Planting, mulching, watering of trees, shrubs and other herbaceous plants for the purpose of ecological restoration;
  - Removal of invasive species (i.e. pulling garlic mustard);
  - Installation or removal of snowfencing (i.e. trail closures, protection of regeneration areas, etc.);
  - Fixing degraded trails (i.e. retread, rock armour);
  - Fixing drainage issues (i.e. improve outslopes, de-berm, install grade reversals);
  - Fixing or installing corrals and/or choke points;
  - Closing or narrowing trails;
  - Building or repairing technical trail features;
  - Building or repairing bridges for crossing wet or sensitive areas;

- Protecting tree roots (i.e. rock armouring);
- Trimming obstructing vegetation from trail sightlines or around signage;
- Removing unauthorized features, and
- Garbage clean up.

#### **When will they work?**

- Events may be organized by City Staff for the public to attend at a time that is deemed appropriate (i.e. weekend mornings), and
- Events may be organized by City Staff in partnership with a corporate or community group at a time that is mutually agreed upon.

#### **Who are they?**

- Public events will be posted on the City of Toronto website and at trailhead message boards. These events will be open to members of the public to attend. Individuals of all skill levels will be accommodated at events, and
- Corporate events will be arranged by request with the understanding that not all requests for events can be accommodated. Size of a group, timing of an event etc. will require approval by City staff based on the capacity to train and manage a volunteer group, safety concerns, availability of equipment, and amount of work required at a site. Corporations may be charged a fee to help cover the cost of the event.

#### **How will each party benefit from this arrangement?**

The City will benefit by:

- Having volunteer labour to assist with forest stewardship and trail building/maintenance, and
- Potential to receive funds from corporate partners.

The corporate group will benefit by:

- Having an opportunity to participate in a parks/trails improvement activity that will benefit the community and their reputation for corporate social responsibility;
- Having an opportunity to engage in a unique corporate team building exercise, and
- Learning about urban forest ecology and sustainable trail building.

Volunteers from the general public will benefit by:

- Learning about invasive species control, urban forest ecology and sustainable trail building;
- Being active in helping to steward a local trail and park which they use;
- Meeting other people who are interested in natural environment trails and stewardship, and
- Gaining required volunteer hours – an important opportunity for high school students and social assistance recipients etc.

# APPENDIX B: ENVIRONMENTAL PROTECTION PRINCIPLES

The following principles will guide the planning, construction and management of trails and in trail areas:

1. Avoid environmentally sensitive and/or significant areas where possible;
2. If avoidance of environmentally sensitive areas is not possible minimize disturbance and undertake mitigation measures to restore other areas to result in a no net loss of habitat;
3. Identify areas of invasive species during the planning process to adequately plan construction guidelines and plans for minimizing disturbance and movement of these species;
4. Close and restore informal trails where required;
5. Identify areas of high sensitivity to disturbance and plan trail routes accordingly;
6. Ensure trail type is consistent with trail use, thereby minimizing trail width requirements;
7. Avoid trail routing that encourages users to take shortcuts where an easier route or interesting feature is visible. If an interesting feature exists, locate the trail to provide the desired access to the trail user. Use landforms or vegetation to block potential shortcut route;
8. Avoid routing the trail too close to another trail section to prevent trail proliferation or shortcuts between trails;
9. Adequately plan and consult with appropriate stakeholders in the natural environment community including ecologists, biologists, ornithologists, hydrologists, geologists and natural environment enthusiasts;
10. Avoid routes that impact wildlife species;
11. Avoid critical habitat of rare or fragile plant species;
12. Avoid aligning a trail through wet areas such as ponds, marshes and seasonal drainages;
13. Avoid cutting down trees and unnecessary trampling of vegetation;
14. Use structures such as bridges to facilitate travel over wet areas, to avoid erosion and sedimentation;

15. Align trails to the uphill side of larger trees to minimize impacts to roots;
16. Route trail beds on bedrock or hard packed mineral soil surfaces. Avoid areas where deep organic soil layers exist;
17. Implement proper trail building standards and techniques;
18. Use the right equipment;
19. Provide adequate tree root protection;
20. Ensure minimal importation of materials;
21. Use 'clean' and 'local' sources for materials including rough cut timber, deadfalls;
22. Rescue and relocate plants during construction;
23. Avoid extremely steep areas. Greater displacement of soil is required when bench cutting trails on steeper slopes from the higher back slope required. Minimize soil disturbance as much as possible by avoiding extremely steep areas, and
24. Avoid flat areas. Flat areas can lead to poor water drainage, trail widening and erosion.

# APPENDIX C: BEST MANAGEMENT POLICIES FOR TRAILS IN ESAS, AS PER CITY OF LONDON STANDARDS

As per the City of London's Planning and Design Standards for Trails in Environmentally Significant Areas Document (2012, p.5)

[http://www.london.ca/Planning\\_and\\_Development/Land\\_Use\\_Planning/Parks\\_Planning/PDFs/MedwayPathway\\_Standards\\_version5.pdf](http://www.london.ca/Planning_and_Development/Land_Use_Planning/Parks_Planning/PDFs/MedwayPathway_Standards_version5.pdf):

1. The number and magnitude of trails within an ESA will be minimized. Areas that contain unique and rare examples of botanical, zoological or geological phenomena shall be avoided. Some existing trail routes may be permanently closed and rehabilitated following the public consultation and council approval of a Conservation Master Plan;
2. Tree cutting or vegetation clearing that would result in fragmentation of habitat, or loss of high value wildlife trees shall be avoided;
3. The size and number of necessary structures shall be minimized;
4. Access points will be limited and controlled to minimize disturbance;
5. Restoration and/or site design solutions shall rely on ecologically sensitive approaches to trail design to achieve maximum protection with a minimum of maintenance;
6. Adequate signage is required at all access points to identify the area as an ESA and to inform users of their responsibilities, code of conduct and of restrictions of use;
7. Off-trail use will be restricted through signage and barriers, augmented by education;
8. Users have a responsibility to follow codes of behaviour/use, trail code of conduct practices to minimize user conflicts, adherence to park and conservation by-laws and permitted activities (e.g. dogs on leash) as developed by the City of London and reinforced by educational signage.



# APPENDIX D: PARKS CANADA VISITOR ACTIVITY GUIDELINES FOR MOUNTAIN BIKING

Parks Canada

## Visitor Activity Guidelines

### Mountain Biking

Date of Approval:  
August 2010

#### Description of Activity

**Mountain Biking** (*le vélo de montagne*): is an activity which consists of riding bicycles off-road, often over rough terrain, using specially adapted bikes. Typically mountain bikers ride on dirt, gravel or natural surface trails. Trails may be multiple-use or specifically designed for mountain biking. Trail width is variable from wide gravel roads to narrow paths where riders must travel in single file.

#### National Direction

Parks Canada approves mountain biking at the national level in accordance with the following national guidelines.

While mountain biking is approved at the national level, the activity may not be approved at all Parks Canada locations. In places where this activity is approved, additional guidelines may be created in order to meet location-specific needs.

#### Activity Guidelines

##### General Conditions

- Cross country will be the principal form of mountain biking offered in national heritage places.
- Mountain biking will only be offered on trails that have been approved and identified by Parks Canada and will adhere to applicable zoning policies and regulations.
- Parks Canada will not offer downhill-specific trails for mountain biking due to visitor safety concerns and potential wildlife conflicts.
- Participants will use existing roads to access areas where mountain biking is offered.
- Resource inventories, assessments and monitoring will inform trail selection and

Parcs Canada

## Lignes directrices pour les activités aux visiteurs

### Vélo de montagne

Date d'approbation:  
Août 2010

#### Description de l'activité

**Vélo de montagne** (*mountain biking*): est une activité qui consiste à faire du vélo hors-route, souvent sur des terrains accidentés, en utilisant des vélos spécialement adaptés. Les adeptes roulent généralement sur des sentiers de terre battue ou de gravier, ou sur des surfaces naturelles. Ces sentiers peuvent être à usages multiples ou aménagés spécialement pour cette activité. La largeur des sentiers varie; les cyclistes circulent tant sur des chemins de gravier qu'à travers d'étroits sentiers où les cyclistes doivent rouler un derrière l'autre.

#### Direction nationale

A l'échelle nationale, Parcs Canada approuve la pratique du vélo de montagne en fonction des lignes directrices nationales suivantes.

Bien que le vélo de montagne ait été approuvé au niveau national, il se peut que cette activité ne soit pas autorisée dans tous les emplacements de Parcs Canada. Dans les emplacements où l'activité est autorisée, d'autres lignes directrices peuvent s'ajouter afin de répondre à des besoins particuliers sur le lieu même.

#### Lignes directrices de l'activité

##### Conditions générales

- Le vélo de montagne de type cross-country sera la discipline principale offerte dans les endroits du patrimoine national.
- Le vélo de montagne sera uniquement offert sur les sentiers approuvés et identifiés par Parcs Canada. Les politiques et règlements concernant le système de zonage devront être respectés lors de l'identification des sentiers.
- En raison des préoccupations liées à la sécurité et au risque de conflits potentiels avec la faune, Parcs Canada n'offrira pas de sentiers pour le vélo de montagne de type descente.
- Les participants se serviront des sentiers et chemins existants pour accéder aux endroits où le vélo de montagne est offert.
- Lors de la sélection du sentier et de la gestion continue du vélo de montagne, on tiendra

ongoing management of mountain biking as necessary.

- Safety, risk and liability will be considered during local assessment processes and throughout the ongoing management of mountain biking.
  - Educational messaging related to the national heritage place and activity-specific etiquette and safety information will be incorporated into the mountain biking offer.
  - National trail guidance (guidelines, standards etc.) is available for enabling the design, construction and management of trails that support mountain biking.
  - Technical trail features<sup>1</sup> (TTFs) will be designed in a way that respect the heritage area's character of place and will appeal to different skill levels.
  - TTFs can be created using existing natural features, enhanced natural features or engineered / human-made structures:
    - a. The use of existing natural features<sup>2</sup> can occur in zones 2, 3, 4, and 5 in national parks.
    - b. The use of enhanced of natural features<sup>3</sup> can only occur in zones 3, 4, and 5 in national parks.
    - c. The use of engineered or human-made structures<sup>4</sup> can only occur in bike parks and in zones 3, 4 and 5 in national parks. Higher maintenance, cost and liability must be taken into account when considering their addition to a trail or bike park.
    - d. TTFs will be considered in other national protected heritage areas on a case by case basis.
  - The design, construction, operation and maintenance of TTFs must adhere to applicable industry standards and codes as necessary.
  - Bike parks<sup>5</sup> can only occur in zones 4 and 5 in national parks and can be considered on a case-by-case basis in other heritage areas.
- compte, au besoin, des inventaires de ressources, des évaluations et des programmes de surveillance.
- La sécurité, les risques et la responsabilité civile seront considérés lors de l'évaluation locale, de même que lors de la gestion continue du vélo de montagne.
  - Des messages éducatifs seront intégrés à l'activité du vélo de montagne (code de conduite des participants, mesures de sécurité et messages spécifiques à l'endroit patrimonial où se déroule l'activité).
  - Des documents de références nationales sur la gestion des sentiers (lignes directrices, normes, etc.) sont disponibles pour aider à la conception du design, à la construction et à l'entretien des sentiers pour le vélo de montagne.
  - Les éléments techniques des sentiers<sup>2</sup> doivent être conçus de façon à respecter l'identité particulière du lieu et à intéresser les participants de différents niveaux d'habileté.
  - Les éléments techniques peuvent être créés à l'aide d'éléments naturels existants, d'éléments naturels améliorés, ou de structures construites ou aménagées :
    - a. L'utilisation d'éléments naturels<sup>2</sup> existants peut avoir lieu dans les zones 2, 3, 4 et 5 dans les parcs nationaux.
    - b. L'utilisation d'éléments naturels améliorés<sup>3</sup> peut avoir lieu que dans les zones 3, 4 et 5 dans les parcs nationaux.
    - c. L'utilisation des structures construites ou aménagées<sup>4</sup> peut avoir lieu que dans les parcs de vélo ainsi que dans les zones 3, 4 et 5 dans les parcs nationaux. Le fait que ces structures entraînent plus d'entretien, de coûts et de responsabilités doit être pris en considération lorsqu'on envisage de les ajouter à un sentier ou à un parc de vélo.
    - d. Dans les autres endroits du patrimoine national, les éléments techniques des sentiers seront évalués individuellement.
  - Le design, la construction, les opérations et l'entretien des éléments techniques devront se conformer aux normes de l'industrie et aux codes existants.
  - Dans les parcs nationaux, les parcs de vélo<sup>5</sup> seront seulement autorisés dans les zones 4 et 5. Dans les lieux historiques nationaux, chaque situation sera évaluée individuellement.

- When choosing a location for a bike park, priority will be given to locations with existing supporting infrastructure and to disturbed sites.
- Management of bike parks will preferably be assumed by a third party, who must obtain appropriate permits, licenses and adequate liability insurance.
- Commercial operators offering mountain biking opportunities must be well versed in Parks Canada's mandate and will work with Parks Canada to provide necessary information and messaging to participants.
- Parks Canada Ski Area Management Guidelines and ski area specific site guidelines will govern decisions related to mountain biking at ski areas.
- Lors du choix de l'emplacement d'un parc de vélo, la priorité sera accordée aux endroits où les infrastructures nécessaires sont déjà en place ainsi qu'aux aires perturbées.
- La gestion des parcs de vélo sera préférablement assumée par un tiers, qui devra obtenir les permis nécessaires ainsi qu'une assurance de responsabilité civile suffisante.
- Les exploitants commerciaux offrant le vélo de montagne connaîtront bien le mandat de Parcs Canada et collaboreront avec Parcs Canada afin de fournir des messages d'interprétation aux participants.
- Les Lignes directrices pour la gestion des stations de ski et les lignes directrices spécifiques aux stations de ski orienteront les décisions sur la pratique du vélo de montagne dans les centres de ski.

## Definitions

1. **Technical Trail Features:** are obstacles or design elements on a mountain biking trail that improve trail flow or add difficulty in order to challenge the skill of trail users. TTFs are an important part of mountain biking trails and are meant to enhance the mountain biking experience. Typically, a mountain biker has the option to ride or bypass a TTF. Works constructed solely for the purpose of enhancing trail safety or access (e.g. a bridge crossing a stream) or to ensure ecological or commemorative integrity are not considered TTFs.
2. **Natural Feature:** Incorporated natural features that are already in existence in the location. Makes use of rock slabs, boulders, rock gardens, and fallen trees as control points in the layout of the trail.
3. **Enhanced Natural Feature:** Manipulated natural materials: moving rocks, logs to create drop-offs, rock gardens, boulder rides, log pyramids and log rides.
4. **Engineered or Human-Made:** Constructed structures: includes ladder bridges, wooden ramps, teeter-totters, etc. These structures often require artificial materials such as processed lumber and fasteners.
5. **Bike Parks:** are generally a variety of natural obstacles such as rocks and logs, constructed features such as ladder bridges, pumptracks and mounds of dirt for jumping over, all arranged in a controlled and defined area. Bike parks are designed to offer unique features that build skill and confidence and cater to a variety of styles and levels of ability of mountain biking.

## Définitions

1. Les **éléments techniques des sentiers** (éléments techniques) désignent les obstacles ou les éléments d'un sentier qui améliorent le rythme ou qui augmentent le degré de difficulté du sentier afin de mettre à l'épreuve les cyclistes qui le parcourent. Les éléments techniques constituent un aspect important des sentiers de vélo de montagne, et ils visent à enrichir l'expérience des cyclistes. Généralement, ceux-ci ont le choix de s'y mesurer ou de les contourner. Les infrastructures qui servent uniquement à améliorer la sécurité des visiteurs, à faciliter l'accès au sentier (p. ex., un pont qui enjambe un ruisseau) ou à préserver l'intégrité commémorative ou écologique ne sont pas des éléments techniques.
2. **Élément naturel existant** : élément naturel déjà sur place tel que des roches en forme de dalle, des rochers, des rocailles et des arbres renversés. Ces éléments peuvent être utilisés comme points de contrôle dans le tracé d'un sentier.
3. **Élément naturel amélioré** : élément naturel aménagé. Des roches ou des rondins peuvent être déplacés pour créer des ruptures de pente, des rocailles, des passages sur des roches ou sur des rondins et des pyramides de rondins.
4. **Structure construite ou aménagée** : notamment des trottoirs et des rampes en bois, des balançoires à bascule, etc. La construction de ces structures nécessite souvent l'emploi de matériaux artificiels tels que du bois traité et des pièces de fixation.
5. **Les parcs de vélo** comportent généralement divers obstacles naturels, comme des roches et des rondins, ainsi que des structures aménagées, comme des trottoirs en bois, des tracés avec bosses, des pistes ondulées (« pumptracks ») et des monticules de terre servant de tremplin, le tout aménagé dans une aire restreinte et contrôlée. Ces parcs sont conçus de façon à présenter des caractéristiques uniques qui permettent aux amateurs de la discipline de se perfectionner et d'accroître leur confiance en eux. Ils répondent aux divers besoins des amateurs de vélo de montagne, peu importe leur niveau d'habiletés et la discipline qu'ils préfèrent.

**Special Thanks**

*Parks Canada wishes to thank everyone who participated in the consultation to develop these guidelines.*

*These guidelines are subject to change in response to future market trends and to the evolution of technical elements related to the activities.*

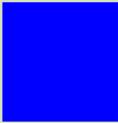
**Remerciement spécial**

*Parcs Canada tient à remercier toutes les personnes qui ont participé aux consultations préparatoires à l'élaboration de ces lignes directrices.*

*Ces lignes directrices évolueront avec les années en fonction des tendances du marché et du développement au niveau technique.*

# APPENDIX E: PARKS CANADA TRAIL RATING CLASSIFICATION SYSTEM

## Trail Rating Classification (for the Visitor)

Element / Rating	EASY	MODERATE	DIFFICULT	UNRATED	
Trail Rating Definitions	<b>Definition</b>	<ul style="list-style-type: none"> <li>Suitable for all visitors including those with no trail experience. Visitor may be prepared for trail or may not be prepared (<i>proper equipment and water</i>).</li> <li>Hard packed surface with no obstacles and minimal stairs.</li> <li>Estimated time to complete the trail is no longer than two hours.</li> <li>Little or no elevation gain or loss.</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for most visitors who have some basic trail experience and are generally prepared (<i>proper equipment and water</i>).</li> <li>Mostly stable surface with infrequent obstacles, stairs may be present.</li> <li>Estimated time to complete the trail is no longer than five hours.</li> <li>May experience moderate elevation gain with some short steep sections.</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for visitors who have trail experience and are prepared (<i>proper equipment and water</i>).</li> <li>Variety of surface types including non-established surface.</li> <li>Estimated time to complete the trail may exceed five hours.</li> <li>May experience major elevation gain with long steep sections.</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for visitors who have exceptional trail and navigation experience and are well prepared (<i>proper equipment and water</i>).</li> <li>Non-established tread only a suggested trail route, not maintained.</li> <li>Estimated time to complete ranges from 1 day to 10 days or longer.</li> <li>May experience a variety of terrain including wet areas, loose rocks, exposure, and thick forest.</li> </ul>
	<b>Trail Type</b>	Can be 1 or 2	Can be 1, 2 or 3	Can be 2, 3 or 4	Can be 3 or 4
	<b>Symbol</b>				
Rating Details	<b>Distance (return)</b>	0 – 5 km	0 – 15 km	0 – 15+ km	N/A
	<b>Trail Profile</b>	Flat to gently rolling	Gently rolling with short steep sections	Rolling with many steep sections that may continue for long periods	N/A
	<b>Typical Elevation Gain</b>	0 – 100 metres	100 – 500 metres	500+ metres	N/A
	<b>Trail Surface (material type and average width)</b>	Paved or surfaced •Hard packed	Surfaced or natural surface •Firm and stable	Natural surface •May be loose or may not exist	N/A
	<b>Typical Average Width</b>	1.0 – 3.0 metres	0.5 – 1.5 metre	0 – 1.0 metre	N/A
	<b>Quality of Marking (general signage and information provide)</b>	Trailhead information, interpretive panels, route markers, trail orientation maps • Maximum information provided	Basis trail head information, route markers, and trail orientation maps • Moderate information provided	Basic trail head information and minimal route markers, or no signage provided • Minimal or no information provided	N/A
	<b>Obstacles or Stairs</b>	Few or no obstacles, minimal use of stairs	Infrequent obstacles, stairs may be present	Obstacles common, steps common	N/A
	<b>Visitor Facilities</b>	Parking lot, washroom, bridges, benches • <i>Maximum visitor facilities</i>	Parking lot, outhouse/pit toilet, bridges • Moderate visitor facilities	Bridges or other water crossing including fording • <i>Minimal visitor facilities</i>	N/A • <i>No visitor facilities</i>
	<b>Recommended Experience Level or Service</b>	Little or no experience required High	Some experience recommended Moderate	Experience recommended Low	N/A



# APPENDIX F: PRIORITY MANAGEMENT AREA PLANNING PROCESSES: PLANNING THROUGH CONSTRUCTION PROTOCOL

As described in the Strategy *Action Plan*, Priority Management Areas will need to be taken from planning through construction, to ongoing management. The following outlines the initial processes required to do so.

## ▪ Data Collection and Analysis

- 1-2 year process;
- Should be undertaken in-house and in partnership with TRCA;
- Trail counters should be installed as required throughout the trail system identified for management. Data should be collected and calibrated over a full season of use;
- Topographical, hydrological, geotechnical data layers should be collected;
- Flora, fauna, ecological land classification data should be collected;
- Gap analysis of data undertaken and additional data should be collected as required;
- Land ownership, easement and management agreements should be identified, and
- Trails should be mapped and assessed using HETAP system.

## ▪ Planning and Community Engagement

- 1-2 year process;
- RFQs should be issued to procure the services of a landscape architect and/or highly qualified sustainable trail building experts with community engagement experience to conduct community consultation and stakeholder sessions to identify trail user requirements and expectations of the trail system;
- Trail user surveys to be implemented as required, and
- Data and community engagement information will be accumulated and analyzed to provide a concept plan for trail system including preferred routes, trail types, access points, built features and TTF's, signage requirements and text.

## ▪ Detailed Design and Construction

- 2-4 year process;
- Request for Proposals (RFPs) should be issued for design-build of approved concept plan that will attract a strong team of relevant planners, landscape architects, arborists, engineers, ecologists and highly qualified sustainable trail building experts.

More 'complex' Management Zones such as South Don and North West Don may also require a detailed 'recreational requirements' assessment. This should include a broad scan of all existing recreational trails, users, surrounding neighbourhoods and possibly other recreational assets to provide more detail on the appropriate amount of trail experiences, features and types for each zone. It is estimated that these would be one year exercises, undertaken through an RFQ process.

Trail planning for City Wide or Destination Parks should be undertaken in the context of a Parks Master Plan, ideally during a Parks Master Planning process. Because there are many competing uses in these type of parks a Master Plan will help to provide context for the trails and provide a balanced approach between different user groups and natural environment protection.

Sustainable trail building requires specialized and highly qualified trail builders. The highest standard for trail building has been set by the Professional Trailbuilders Association (PTBA), North America's largest private sector group of trail specialists, professional trail contractors, designers, and consultants. All of PTBA's activities support quality trail design, construction, and maintenance for all types of trails in all types of locations.

<http://trailbuilders.org/>



# APPENDIX G: STAFFING DETAILS

In order to plan, manage, augment and maintain a city-wide trail system, the following staffing requirements will need to be met:

## ▪ **Natural Environment Specialists**

*2 positions*

- Coordinates master plans, public consultation, detailed design, construction and maintenance of trail management zones;
- Coordinates all trail mapping and data collection;
- Liaises with other departments and agencies regarding trail planning and other trail related initiatives;
- Represents the City of Toronto at other regional and municipal stakeholder planning process regarding outdoor recreation and trail strategies and;
- Develops and maintains partnerships including corporate sponsorships.
- Coordinates Parks Program Officers

## ▪ **Parks Program Officers**

*2 positions*

- Coordinates all stewardship, public outreach, and trails events, build days, races, hikes and tours;
- Coordinates communications and outreach – signage, pamphlets, flyers, trail notices, emails, website, social media and newsletters;
- Design and coordinate interpretive programs for nature appreciation, and
- Design and coordinate educational and interpretive programs to enhance skills.

## ▪ **Natural Resource Supervisor**

*1 position*

- Coordinates and supervises Natural Resource Specialist, Trail Ambassador and Natural Resource Worker crews
- Coordinates maintenance work programs

Key Qualifications for NETP staff:

- Have experience managing all aspects of a sustainable trails program, involving a variety of partners and stakeholders;
- Have a good knowledge of trail sustainability and a clear understanding of user groups;
- Have a good knowledge of native plant species and their habitat requirements;
- Have experience recruiting, training and supervising staff;
- Have experience coordinating volunteer-based community events;
- Have experience raising funds from a variety of sources for project implementation;
- Be familiar with the Toronto Parks system;
- Have familiarity with safety concerns relevant to outdoor recreation, and a basic knowledge of risk assessment and liability issues;
- Be familiar with community watershed groups and recreation clubs with interests in Toronto's ravine systems;
- Work well with a variety of people of all ages;
- Have excellent writing and communication skills, and
- Be able to work outside in all weather conditions.

- **Natural Resource Specialist**

- 1 position*

- Directs Natural Environment Trails Program Crews,
    - Coordinates maintenance work programs
    - Reviews or implements trail, restoration and invasive species management in natural areas

- **Natural Environment Trails Program Crew**

- 3 Crews consisting of 3 staff each*

- Trail construction, monitoring, assessment and ongoing maintenance;
    - Data collection for trail management purposes including trail counter installation, maintenance and data analysis and on the ground surveys;
    - Sign installation, monitoring and maintenance;
    - Hazard tree assessment and removal;
    - Public outreach and communications, and
    - Ecological restoration, invasive species management, trail closure restoration and planting.

**Trail Ambassadors**

- 2 positions*

- Provide information to trail users such as trail code of conduct, safety, conditions, upcoming events, new projects and stewardship opportunities
    - Offer safety and/or mechanical assistance to all trail users
    - Explain and provide information on park policies and management plans
    - Report on trail conditions, hazards and maintenance needs
    - Observe visitor and trail use trends
    - Participate in ongoing program evaluation, including administrative tasks, data collection and survey work
    - Liaise with Natural Environment staff for latest plans, policies and programs

# APPENDIX H: TRAIL MAINTENANCE - ASSESSMENT & MONITORING REPORT TEMPLATE

Trail maintenance may include the following:

- Fix degraded trail:
  - Retread, and
  - Rock armour particularly bad sections.
- Fix drainage issues:
  - Improve drainage outslopes;
  - Deberm (if material has collected at edge of trail);
  - Install grade reversals, knicks or rolling grade dips, and
  - Raise trail tread (rock armour).
- Maintain/install corrals and/or choke points;
- Repair official features (i.e., log-overs, etc.);
- Protect tree roots;
- Remove fallen or dangerous trees;
- Trim obstructing vegetation;
- Close new, unauthorized trail:
  - Break up existing tread;
  - Drag deadfall from adjacent areas to place on top of the trail closure area;
  - Install of fencing or other natural barriers;
  - Post signage, and
  - Plan for planting closed area.
- Remove new, unauthorized features and;
- Replanting and ecological restoration enhancements.

<b>Assessment Details</b>	Priority # (on a scale of 1-5, 1 being highest priority)
Crew Leader	Date
Site Number	Location
Problem	Sketch existing trail
Repair	Sketch repair.

**Maintenance Details:**

Crew	Date of repair
No. People	No. Hours
Tools	Materials
Notes of Repair Details	

**Check List of Key Maintenance Tasks**

Litter removal		Clear debris from drainage areas	
Clear debris off trail		Smooth ruts, re-compact trail	
Clear trail corridor - sightlines, clearance zone		Widen trail to proper width	
Note invasive species along trail		Plantings/seeding along trail	
		Trail closure plantings	
Deberm down slope edge of trail		Trail closure fencing	
Create knick		Sign repair/vandalism clean up/installation	
Create grade reversal / rolling grade dips		Fence repair	

# APPENDIX I: INSPECTION PROTOCOL

## Inspection Schedule

- The full trail network should be inspected at least once per year;
- In addition, in the early spring when trail use will begin to increase, a sweep of the trail network should be undertaken to identify maintenance needs. Winter storms may have blown trees down and snow melt can help flag areas with drainage issues, and
- Additional sweeps should be completed throughout the year as frequently as resources will allow. Heavily used trails may require more frequent assessments compared to more remote or less heavily used trails.

## Prioritization

- Both trail assessments and trail maintenance should reflect priority management areas within the trail network. For example, easily accessible, heavily used trails may require more frequent assessments compared to more remote or less heavily used trails.

## Inspection Logistics

- A trail assessment and repair sheet should be used to document maintenance issues;
- Inspections should be performed monthly from March to November, and
- A pedometer should be used on a bicycle or with a handheld GPS unit to determine the distance from trailhead to maintenance issue in order to accurately document maintenance issue locations.

## Inspected Features should include:

- New, unauthorized trails and features;
- Wet spots / drainage issues;
- Generally degraded trail conditions (ruts, slope slump, etc.);
- Exposed tree roots;
- Fallen trees or other vegetation obstructing the trail;
- Potentially hazardous trees;
- Degraded or damaged official trail features;
- Sign and kiosk graffiti and other damage, and
- Ecological health problem areas (i.e. invasive species).

Inspections should also include:

- Identifying illegal dumping, garbage hotspots or by-law infractions, and
- Inspecting public complaint issues (areas that are too fast, poor sightlines, etc.).

Inspection Crews

- Ideally, professionally trained staff with a wide variety of experience and expertise in trail design, construction, monitoring and maintenance is required for a successful trail system, and
- These staff would have the following qualifications:
  - Training and experience in ecological restoration, tree root protection, ecological identification skills;
  - Recreation planning experience;
  - Training through sustainable trail building and management courses;
  - Chainsaw training;
  - Public relations, and
  - Pesticide application.

Documentation

- All assessment sheets, maintenance reports, correspondence with trail users, and other records of maintenance needs and efforts should be kept on file. These documents can be used at a later date to demonstrate resources required for the maintenance program, volunteer efforts, due diligence, and timely responses to maintenance needs. Follow-up actions to identified maintenance needs should be clearly reported.

# APPENDIX J: WATERSHED SOUNDING BOARD FEEDBACK

## City of Toronto NETS Watershed Sounding Board - Summary by Watershed

Watershed	Biggest Issue or Challenge that the study must address?	Biggest opportunity for change?	Opportunity for Stakeholder Participation?
Don River Watershed	<ul style="list-style-type: none"> <li>1. Trail Signage that also identifies skill level</li> <li>2. No trail standards</li> <li>3. Establish access and trail loops for the various user groups</li> <li>4. Ensure environmentally sensitive areas are marked and appropriately protected</li> <li>5. Invasive Species Management</li> <li>6. Dogs off leash</li> </ul>	<ul style="list-style-type: none"> <li>1. Divide and mark the trails by skill level</li> <li>2. Establish trail design standards - Improve and add additional trails</li> <li>3. Improve access to trails from from high priority neighbourhoods and schools</li> <li>4. Coordinate so dead end trails that run through environmentally sensitive areas are connected or Provide additional interpretive information</li> <li>Create looped trails in Sunnybrook</li> <li>Crothers Woods flats needs a new loop on the opposite side of the river</li> <li>Enhancement of trails in Traylor Creek</li> </ul>	<ul style="list-style-type: none"> <li>1. Break it down into distinct management zones</li> <li>2. Public stewardship activities (i.e. tree planting, garbage clean up, invasive species control)</li> <li>3. work with schools, contact parks people,</li> <li>4. TORBA is willing to participate in events</li> <li>5. work towards a model with less involvement by the city and IMBA</li> <li>6. Friends of the Arb. Group has been started with high school students</li> <li>7. Could expand to local community and Humber college community</li> </ul>
Humber River Watershed	<ul style="list-style-type: none"> <li>1. Poor Signage and lack of signage</li> <li>2. No trail standards</li> <li>3. Personal Security due to Access</li> <li>4. Trail Management to address Garbage on Trails and Invasive</li> <li>5. Lack of Parking</li> </ul>	<ul style="list-style-type: none"> <li>1. mark trails with signage</li> <li>2. Establish trail design standards - Plan trails and restrict the number of trails</li> <li>3. Improve linkages to street</li> <li>4. Replant around trails</li> <li>Add interpretive spaces/ Central Nodes for Group use (BBQ/Fire Pits)</li> <li>Additional infrastructure - Build bridges where needed</li> <li>Address environmental concerns in West Humber</li> <li>Add public use</li> <li>More public art</li> <li>Develop nodes (focus areas) where a variety of activities can take place (i.e. Lambton House)</li> </ul>	<ul style="list-style-type: none"> <li>1. Create a Collaborative Group and give them formal recognition. Example: TRCA governance council</li> <li>2. Mountain bikers have lots of knowledge they want to share. Find ways to reach out to other groups so</li> <li>3. Start with small spaces and local remediation plans</li> <li>4. Develop activities designed to encourage public participation</li> <li>Examples: Stewardship activities, urban farming</li> </ul>
Highland Creek Watershed	<ul style="list-style-type: none"> <li>1. Safety - due to Erosion and unsafe bridge construction by</li> <li>2. Trail Management to address Garbage on Trails and Invasive</li> <li>3. Connectivity</li> <li>4. Signage</li> </ul>	<ul style="list-style-type: none"> <li>1. Establish trail design standards - Repair eroded areas/Improve trails and infra.</li> <li>2. Education/</li> <li>3. Add connections</li> <li>4. Install wayfinding signage</li> <li>Involve Students</li> <li>Where areas are mowed, plant and naturalize, create a dem, of stream nat.</li> <li>Tap into walking groups for info. and assistance</li> </ul>	<ul style="list-style-type: none"> <li>1. Help with small projects that the TRCA does</li> <li>2. Lead informative walks</li> <li>3. Promote the trails by talking about how special they are</li> <li>4. Community groups could promote by organizing events and activities</li> <li>5. Storefront would distribute flyers from their location and post information</li> </ul>
Etobicoke/Mimico Watershed	<ul style="list-style-type: none"> <li>1. No trail standards and not safe due to inconsistent uses/ lack of maintenance</li> <li>2. Environmental Degradation and Garbage dumping</li> <li>3. Connectivity - Too many informal trail connections</li> <li>4. Need Signage/ Wayfinding (for finding injured trail users)</li> <li>6. Dogs off leash</li> </ul>	<ul style="list-style-type: none"> <li>Education and clarification of the rules of trail use sustainable trail design to improve existing as opposed to add new trails</li> <li>Find balance between protection for erosion and recreation/ Dirt Biking destroying trails</li> <li>Connection at Sherway and S. Mimico on the East side of the creek</li> <li>Consistent signage required</li> <li>Dog off leash area away from trails and bike trails</li> <li>Industrial areas as a focus for change</li> <li>Enhancements to W. Dean Park</li> </ul>	<ul style="list-style-type: none"> <li>1. Identify four management zones</li> <li>2. Master list of tasks for park staff and volunteers to complete. Clean up days and etc</li> <li>3. Promote trails with flyers and etc</li> <li>4. Have events (clean up, tree planting, etc)</li> <li>5. Build partnerships where people manage property on City's behalf</li> <li>6. Removal of invasive species</li> <li>7. Capitalize on TRCA website to connect with the City's natural trail system</li> <li>8. BMX for the PanAM games at Centennial Park will need to build partnerships, especially to maintain the</li> <li>9. Should we focus on the trails at the north end to connect with the BMX track at Centennial?</li> </ul>

Key Issues:
ECOLOGICAL ISSUES
DESIGN AND MAINTENANCE STANDARDS
SIGNAGE
ACCESS/CONNECTIVITY
DOGS
PARTNERSHIPS/ STEWARDSHIP
PROGRAMS

APPENDIX J: WATERSHED SOUNDING BOARD FEEDBACK



# APPENDIX K: ONLINE AND TRAILHEAD USER SURVEY QUESTIONNAIRE

City of Toronto Natural Environment Trails



## VISITOR SURVEY

OFFICE USE ONLY Trail Code: \_\_\_ - \_\_\_ - \_\_\_ Sequence Code: \_\_\_ - \_\_\_ - \_\_\_ Date: \_\_\_\_\_

### Natural Environment Trails are natural surface (dirt) trails usually found in forest and ravine settings.

The purpose of this survey is to obtain information on use and management of the Natural Environment Trails in the City of Toronto. Participation in this study is completely voluntary, and you may refuse to participate at any time. You may skip any question if you do not feel comfortable answering it, though we encourage you to complete all questions if possible. The survey will take about 5 to 10 minutes to complete. All information resulting from this study will be kept strictly confidential. Please do not write your name anywhere on this questionnaire. Individual responses will not be made available to anyone outside the Natural Environment Trails research team.

If you have any questions about this research, or would like further information, please do not hesitate to call **311** or email [trails@toronto.ca](mailto:trails@toronto.ca).

### Q1. The questions below ask about your natural environment trail preferences

#### A. From the list below, indicate the *primary* activity that you do on natural environment trails.

- Dog walking
- Running / Jogging
- Walking / Hiking
- Nature Appreciation / Bird Watching
- Biking

Other:

#### B. From the list below, indicate why you use natural environment trails. Check all that apply:

- To be close to nature
- To exercise
- For adventure / challenge
- To commute (for example: to work, school, or run errands)
- To do an activity with friends / family
- To experience solitude / relax

Other:

#### C. From the list below, please select the type of trail you like best.

Select one:

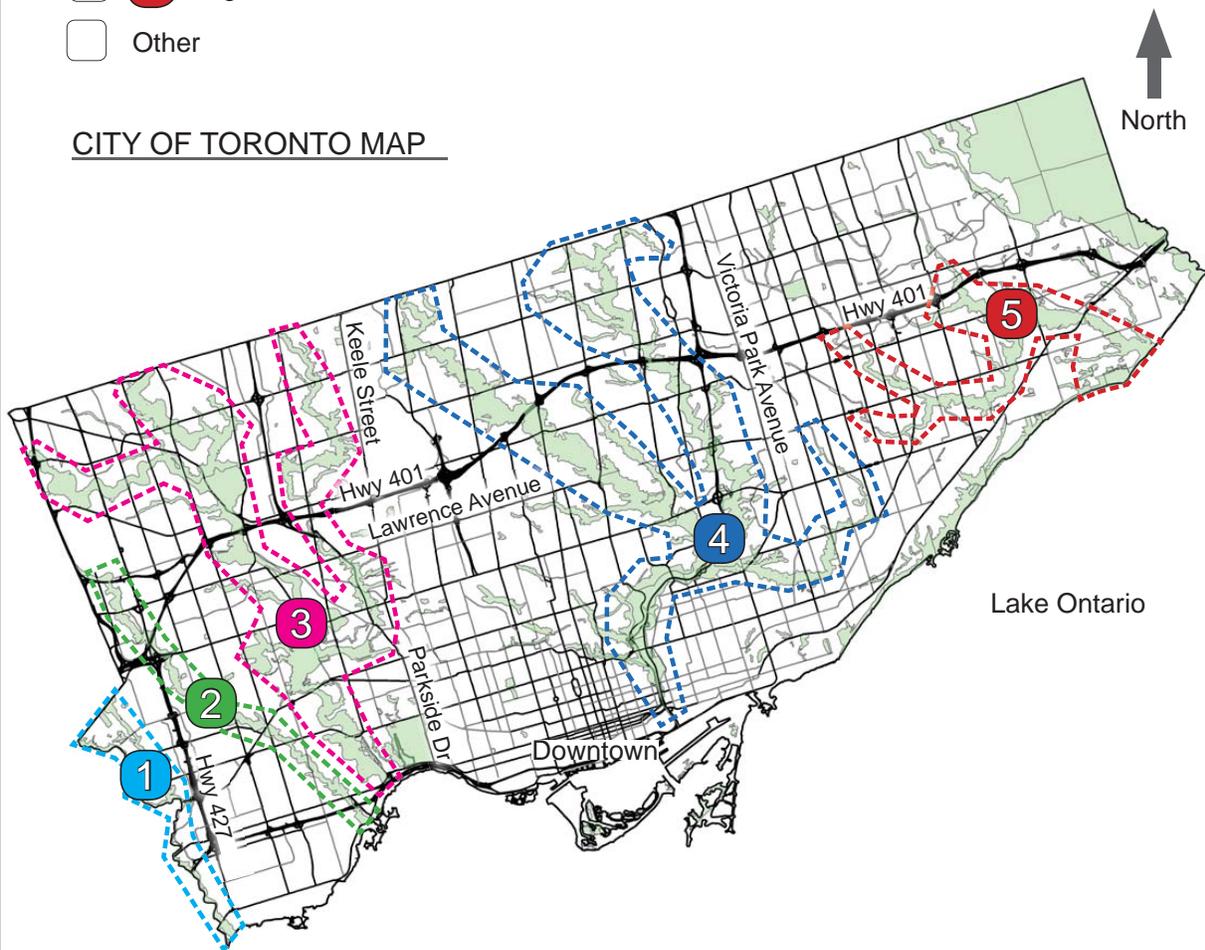
- Wide trails without steep sections or challenging features
- Narrow trails with some steep sections and challenging features
- Narrow trails with many steep sections and very challenging features

**Q2. On the list below, please indicate the areas where you have used natural environment trails.**

Select all that apply:

- 1** Etobicoke Creek Watershed
- 2** Mimico Creek Watershed
- 3** Humber River Watershed
- 4** Don River Watershed
- 5** Highland Creek Watershed
- Other

CITY OF TORONTO MAP



**Q3. The questions below ask about how often and when you use the natural environment trails.**

**D. On average, how often do you use natural environment trails in each season?**

		Daily	2 or 3 times per week	Once per week	2 or 3 times per month	Once per month	6 times per year or less	First time
Spring	<input type="checkbox"/>							
Summer	<input type="checkbox"/>							
Winter	<input type="checkbox"/>							
Fall	<input type="checkbox"/>							

**E. How much time do you generally spend on the trails each visit?**

- Less than 30 minutes
- 30 minutes to 1 hour
- 1-2 hours
- More than 2 hours

**F. How did you find out about these trails?**

- Word of mouth
- Newspaper/Media
- City of Toronto website
- Recreation group \_\_\_\_\_
- Community group \_\_\_\_\_

**Other:**

**Q4. The questions below ask about your experience accessing the trail system.**

**G. How did you get to the trailhead today?**

- Bike
- Public Transit
- Walk
- Car

**Other:**

**H. How long does it usually take you to get to the trailhead?**

- Less than 10 minutes
- 10 - 30 minutes
- 30 - 60 minutes
- Over 1 hour

**Q5. The questions below ask about how you feel about the condition of the natural environment trails.**

**I. Thinking about the trails you use most often, how would you rate their general condition?**

- Please circle one:**
- |                         |                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 |
| very poor condition     | poor condition          | moderate condition      | good condition          | very good condition     |

**J. From the list below, indicate what type of trail issues you have observed. Check all that apply.**

- Erosion
- Garbage
- Poor, uneven surfaces
- Damaged / trampled vegetation
- Weedy vegetation
- No signs or broken signs
- Poor access to certain trails or areas
- Physical barriers
- Vandalism
- Other:

**K. Please select your TOP 3 PRIORITIES for improvement of the natural environment trails.**

- \_\_\_ Repair erosion problems or reroute trails
- \_\_\_ Repair muddy trail or reroute trails
- \_\_\_ Remove rocks and roots from trails
- \_\_\_ Plant vegetation along trails
- \_\_\_ Control weeds next to the trails
- \_\_\_ Install trailhead maps and trail intersection signs
- \_\_\_ Add new trails
- \_\_\_ Improve trail linkages / link trails together
- \_\_\_ Close damaged trails for restoration and reroute trails
- \_\_\_ Improve trail etiquette
- \_\_\_ Other:

**Q6. The question below asks about your interactions with other trail users.**

**L. From the list below, indicate the frequency of CONFLICTS that you have had with EACH of the following activities:**

I have had CONFLICTS with:	never	rarely	sometimes	frequently	always
Dog walking	(1)	(2)	(3)	(4)	(5)
Running / Jogging	(1)	(2)	(3)	(4)	(5)
Walking / Hiking	(1)	(2)	(3)	(4)	(5)
Nature Appreciation	(1)	(2)	(3)	(4)	(5)
Biking	(1)	(2)	(3)	(4)	(5)
Other _____	(1)	(2)	(3)	(4)	(5)

**Q7. The questions below ask about you. We use this information only to assist us in compiling the survey results. Your answers to these questions will not identify you in any way. Remember, your answers will be kept confidential.**

**M. How old are you?**

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| <input type="checkbox"/> Under 18 yrs | <input type="checkbox"/> 45-54       |
| <input type="checkbox"/> 18-24        | <input type="checkbox"/> 55-64       |
| <input type="checkbox"/> 25-34        | <input type="checkbox"/> 65 or older |
| <input type="checkbox"/> 35-44        |                                      |

**N. What gender are you?**

- Male  
 Female

**O. What is your postal code?**

\_\_\_\_\_

**Q8. Do you have any additional comments about the natural environment trails?**



**Thank you for taking the time to complete this survey!**  
 If you have any questions about this research, or would like further information, please do not hesitate to call **311** or email [trails@toronto.ca](mailto:trails@toronto.ca).

# APPENDIX L: MEETINGS, TOURS AND PRESENTATIONS

## COMMUNITY ENGAGEMENT OUTREACH

Community engagement and outreach included a number of hiking tours and activities in specific geographic areas, or with specific clubs/groups:

- February 13th, 2012 Presentation and briefing note to TRCA and City of Toronto Directors and Managers on the NETS;
- Meeting with staff from the Forest Valley Outdoor Education Centre to discuss the strategy, our trails program and how they can participate June 22, 2012;
- Meeting with CoT PFR Ravines and Watercourses staff Dennis Kovacs and Rocco Leoncini June 26, 2012;
- Tour of Crothers Woods with 15 WSB members. July 17, 2012;
- Toronto Bruce Trail club tour of Crothers Woods. July 19, 2012. 12 participants;
- Crothers Woods hike and working session with PFR Planning Design and Development staff. July 20, 2012;
- Bestview Nature Trails hiking tour. August 16th, 2012;
- Morningside Park/Camp of the Crooked Creek hiking tour with Highland WSB member Brian MacFarlane and 6 others from the neighbourhood and local associations. August 22, 2012;
- Humber Arboretum hiking tour, possible project partnership opportunities tour with staff and Humber WSB members. August 23, 2012;
- Cedar Ridge hike of unmapped 1.2km trail in Highland Creek watershed identified by WSB members as possible management area. August 29, 2012;
- Birkdale Ravine hiking tour with Carol Baker, Highland Creek WSB member. August 29, 2012;
- Forest Valley Outdoor Education Centre hiking tour of Crothers Woods and FVOEC discussing trail management techniques and potential partnerships. 12 staff. September 11, 2012;
- Hiking tour of Etobicoke Creek Trails as identified by WSB members. September 20, 2012;
- Community trail maintenance in Crothers Woods. October 13, 2012, and
- Community trail cleanup in Etobicoke Creek. October 14, 2012.

Presentations – 20 minute powerpoint presentations followed up with a Q & A session regarding the Natural Environment Trails Program and the NETS to the following groups:

- **Don Watershed Council** April 12th 25 people
- **Etobicoke/Mimico Coalition** May 24th 25 people
- **Toronto Bruce Trail Club** June 12th 15 people

# APPENDIX M: DETAILED TRAILHEAD COUNTER METHODOLOGY & RESULTS

The following details the methodology followed in the trailhead counters.

## **How were traffic counters used in this study?**

Traffic counters were configured and installed 10 monitoring sites. The TRAFx G3 Infrared trail counter was selected for this project for its functionality, accuracy, reliability and durability. They are the preferred and recommended traffic counter of Canadian and USA National and Provincial/State Parks Services.

## **How does the traffic counter work?**

The TRAFx Infrared Trail Counter is designed to count general traffic on trails and paths — hikers, joggers, horseback riders, snowmobiles, cyclists, etc. Unlike most infrared trail counters, it does not require a receiving unit or reflector to operate. This results in a very compact, easy-to-hide design that reduces risk of vandalism. Using a small, high-quality infrared scope mounted on a tree and pointed towards the trail, the TRAFx Infrared Trail Counter detects and counts the infrared signature associated with warm, moving objects.

## **Should the infrared trail counter be placed in a locking box?**

To lock or not to lock...that is the question indeed! In wilderness settings, a locking box simply attracts unwanted attention and invites possible vandalism. A much better and successful strategy for wilderness settings is to camouflage and hide the counter well, so that people do not notice it. The TRAFx Infrared Trail Counter is very easy to camouflage and hide because it is small; the field box can be easily hidden at the base of a tree and the infrared scope, which is approximately the size of a thick pen, can be mounted to the side of the tree. In short, in areas where people do not expect to see a locking box, hiding the counter is the best approach. In more open areas (e.g., urban city parks), however, use of a sturdy lockable box is recommended due to obvious vandalism concerns.

## **How accurate is the infrared trail counter?**

All infrared trail counters under count when people travel side by side, or in tight groups. Therefore, it can be said that trail counters yield estimates rather than absolutes. It is difficult to provide a single number regarding accuracy because it is dependent upon various factors: how people typically use the trail (single file or side by side), how far apart people are spaced, how busy the trail is, trail width, how a counter is set up, etc. If the trail is narrow and people travel single file and spaced apart, you can expect high accuracy (95 to 100%); if the trail is wide and people typically travel side by side or tight groups, you can expect accuracy in the range of 75% to 90%.

An important question to ask is “what level of accuracy do I need to answer my management-related questions”? Generally, acceptable accuracy can be defined as the level sufficient to detect changes that are significant to management decisions (Hendee et al. 1990). In the real world of management decisions, often orders of magnitude only really matter (10 vs. 100 vs. 1000 vs. 10000).

### **How is the annual traffic count calculated?**

TRAFx DataNet traffic count estimates follow the most widely accepted vehicle traffic calculation methods used in North America. This system is used by the US Army Corps of Engineers, US Bureau of Land Management, US Fish and Wildlife, US Forest Service, US National Parks Service, Parks Canada, most Canadian provincial and territorial governments, and numerous countries in Europe and the South Pacific.

Annual Traffic Counts are collected and automatically compiled by the TRAFx DataNet system for each full calendar year. This is done to standardize the calculation and application of average daily use to missing data. The system then enables the selection of any time period across years for calculating and reporting daily, weekly and monthly counts, averages and comparisons.

In simple terms, the Annual Traffic Summary estimates total yearly counts by recording the total daily counts and calculating the average daily count for that month, then applying that average daily count to missing data periods (such as partial months due to mid-month start date or interruptions due to data downloads, dead batteries or missing data). Thus, if a given counter has at least one day of counts in a month but is also missing at least one day of counts that month, the TRAFx Datanet will apply the monthly average daily count to only those days where data has been interrupted or is missing. If the counter had been operating without interruption during a day or month and there was absolutely no traffic recorded, the TRAFx DataNet calculates a ‘0’ traffic count for that day or month. For years with complete months of missing data (not zero counts, but actually missing data) an annual average daily traffic count (AADT) is applied to all those days of complete months that are missing. The sum of recorded and calculated counts generate the total estimate for the year.



