

D R A F T  
T O R O N T O  
**RAVINE**  
S T R A T E G Y



# EXECUTIVE SUMMARY

Toronto's astounding network of ravines is among the largest in the world. It is the heart and soul of a remarkable natural environment system that spills out of the river valleys into the city's parks, neighbourhoods and urban landscape.

Ravines connect the Oak Ridges moraine north of Toronto to the shores of Lake Ontario, carrying water, wildlife and people through Ontario's most densely urbanized area. They also connect us with the city's rich history and Indigenous heritage. Once seen as the biggest challenge to Toronto's growth, these corridors of "disordered nature" are now treasured as one of its greatest assets.

Cutting across the whole city, Toronto's ravines intersect with a diverse array of cultures and communities. Rich in natural character and biodiversity, they provide many ecological benefits and are for many a cherished escape from the fast pace of urban life.

With population growth, new development and climate change putting increased pressures on our ravines, a strategy is critical to navigate the fine line between protection and use and identify and prioritize the actions and investments needed to ensure that everyone can enjoy these extraordinary places for decades to come.

At its essence, Toronto's first Ravine Strategy will help to support **a ravine system that is a natural, connected sanctuary essential for the health and well-being of the city, where use and enjoyment support protection, education and stewardship.**

Five guiding principles and twenty actions for Toronto's ravines were developed through extensive consultation with the public, interest groups, staff and key stakeholders. They represent the core set of ideas and values that will guide the City in future decisions for ravine management:



## PROTECT

Ravines are fundamentally natural spaces. Ecological function and resilience is the foundation for long-term sustainability of the ravines and watersheds. We are all guardians of these spaces and must treat them with care and respect. All actions related to ravines should be guided by the overarching goal of protecting these spaces by maintaining and improving their ecological health.

1. Develop and implement Management Plans to protect Environmentally Significant Areas (ESAs).
2. Ensure high quality planning, design, construction and maintenance in our ravines by continuing to develop and implement best practices for capital projects and on-going maintenance of infrastructure and natural ecosystems, including trail accessibility, dumping and litter, and invasive species management.
3. Develop tools, including staff training and a set of criteria, for staff to assess requests for appropriate activities, events and temporary installations to ensure protection of the natural value of our ravines.
4. In partnership with the Toronto and Region Conservation Authority (TRCA) and other key stakeholders, undertake an assessment of potential climate change impacts on the ravine system, including impacts on the natural systems and existing and proposed infrastructure.
5. Expand the network of partnerships with the TRCA and with academic and educational institutions to identify research needs, develop baseline inventories of ravine health, recreation use, and public engagement activities, and improve monitoring and reporting in Toronto.



## INVEST

Managing the multiple pressures on ravines – from population growth and increased recreational use to climate change, weather events and invasive species – requires consistent and significant ongoing investment. In addition to looking for efficiencies in the way we manage ravines and opportunities to expand the system, we must make ongoing investment in these spaces a priority.

6. Leverage planned investment in infrastructure to make improvements in ravines and coordinate these activities through annualized capital coordination.
7. Develop an ecosystem services analysis for greenspace in Toronto, including both the market and non-market value provided by green infrastructure and associated ecosystem services in the ravine system, such as flood protection, pollution removal, erosion control, recreation, and wildlife habitat.
8. Identify ten Priority Investment Areas based on the Ravine Strategy framework and undertake studies and develop plans, as needed, to implement improvements in these areas.
9. Develop key opportunities to develop ‘hubs’ within or ‘gateways’ or ‘portals’ into our ravine system based on planned investments and the Priority Investments Areas Study.
10. Work with the TRCA, as well as other agencies, municipalities and the Province, to develop a valley lands acquisition strategy that identifies opportunities to bring additional lands within the ravine system – including buffer areas adjacent to ravines – into public ownership with a focus on natural habitat and trail connections.



## CONNECT

Toronto's ravines provide great opportunities for people to connect with nature and the city's rich history. We must ensure that people understand and appreciate the value of our ravine system and have physical opportunities to connect with these spaces in a safe and sustainable manner.

11. Complete the Toronto Parks & Trails Wayfinding Strategy pilot in the Lower Don Valley and provide recommendations on how to implement wayfinding throughout Toronto's ravine system.
12. Review existing trails and access points and develop an implementation plan to address gaps in the system and connections to trails that run east-west and to trail systems in adjacent municipalities.
13. Develop opportunities to honour and share stories of special and historic spaces and ways of relating to the natural environment within our ravines in collaboration with Indigenous communities, City of Toronto Economic Development, Heritage Services and the City Manager's Office.



## PARTNER

**Many individuals and organizations are interested in becoming more involved in the care and enhancement of Toronto’s ravines. The City must work in partnership with the community, the TRCA, neighbouring municipalities, other levels of government, property owners, utility providers and other stakeholders to create more opportunities for individuals and organizations to contribute to these spaces in meaningful and sustainable ways.**

14. Build partnership opportunities and capacity to expand the Community Stewardship Program in order to include additional sites. Identify candidate sites.
15. Work with the TRCA, the Province and other municipalities to continue to ensure implementation of best practices for all urban river valleys that connect to Toronto’s ravine system. Work with the TRCA to establish forums for dialogue, bringing these parties together and reinforcing the importance of continuity of the ravine systems and comprehensive inter-municipal management.
16. Establish a framework to support further opportunities to engage volunteer groups, such as “Friends of” groups, in ravine stewardship. These opportunities should be in line with the on-going PFR Volunteer Strategy and guided by the assessment of demand and vulnerabilities in the Priority Investment Areas Study.
17. Identify opportunities to partner with and leverage private philanthropic support to invest in specific ravine enhancement projects, such as improved access, hubs, and gateways, and natural feature enhancements.



## CELEBRATE

No other city in the world has a ravine system like Toronto. Our ravines are a signature feature of Toronto and a vital city asset. They act as place-makers, distinguish neighbourhood boundaries and character and help to define Toronto's identity on the world stage. We must celebrate these spaces and encourage recognition of and respect for this magnificent system throughout Toronto and the rest of the world.

18. Develop a campaign and events to engage Torontonians, including children and diverse communities, to celebrate the ravines and foster understanding of and appreciation for the scope and value of Toronto's ravine system, such as a "Ravine Day".
19. Develop outreach plans to particular population groups including park users, property owners adjacent to ravines, pet owners and underserved communities. Communicate good stewardship practices for uses and activities in ravines to ensure that these do not adversely impact natural habitats and, where possible, restore and enhance natural areas
20. Develop a communications strategy to promote ravines as a natural asset and a key part of Toronto's identity in collaboration with Tourism Toronto and other key stakeholders.

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# PURPOSE

The purpose of a Ravine Strategy for the City of Toronto is to:

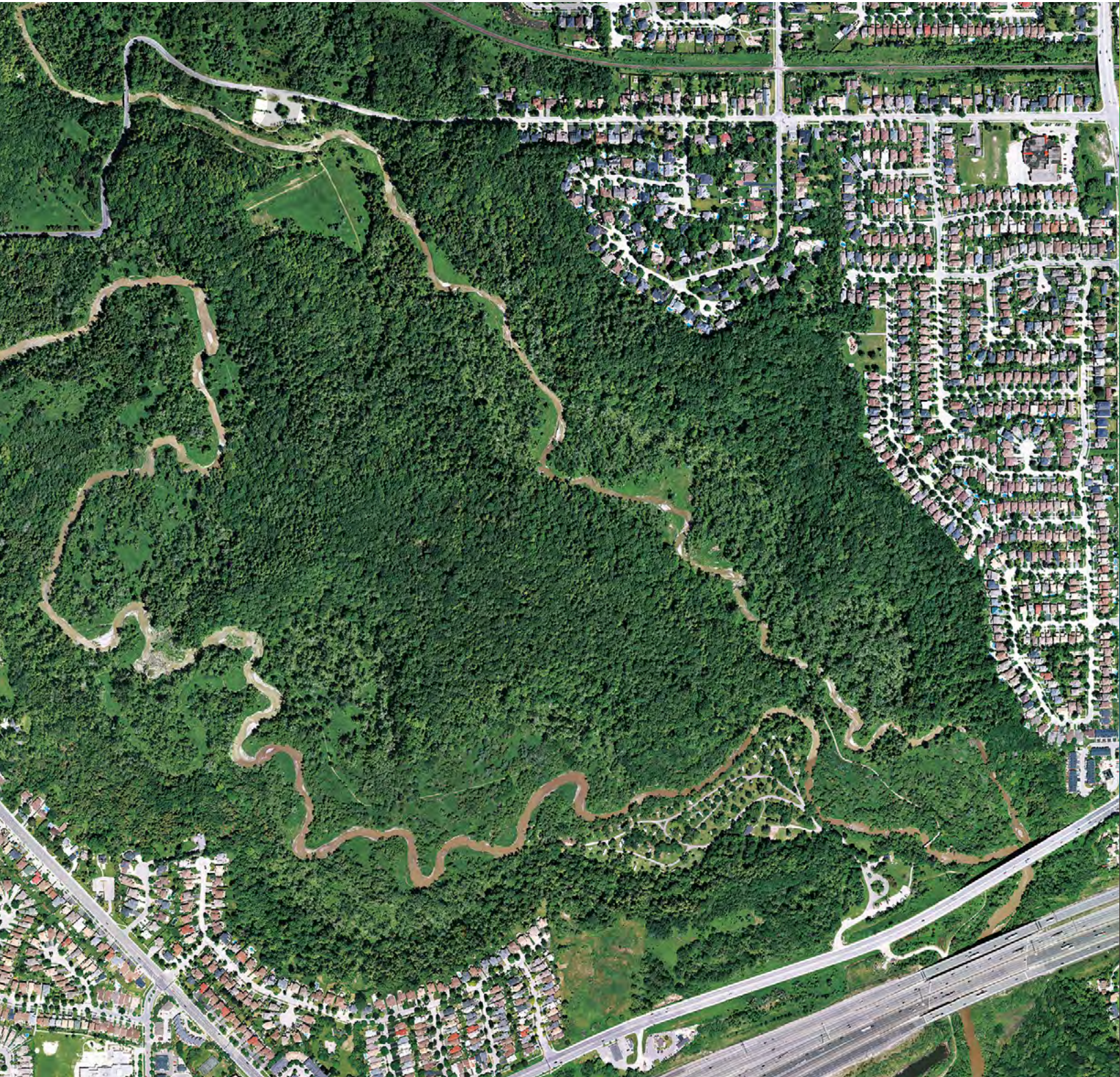
1. Establish the principles to guide decision-making in ravines;
2. Help prioritize future management efforts based on a set of consistent criteria;
3. Chart a course for future communications, engagement and balanced use with Torontonians in their ravine system;
4. Improve co-ordination between management agencies, including external stakeholder groups; and,
5. Ensure that all management decisions are made with a long-term view that transcends short-term interests.

The Strategy will provide a strong framework for future decision making in ravines. It will help to better manage the multiple pressures and interests in these landscapes while ensuring that the foundation for all decisions is maintenance of a healthy ravine system that connects people with nature in a positive and sustainable way. The Ravine Strategy will help to find the balance between activities that are good for people, but also good for ravines.

The Ravine Strategy represents the first phase in an ongoing management process. The Strategy sets the stage for future management decisions based on a set of key principles and priorities, including a common vision and set of principles to guide Toronto's policies, activities, investments and stewardship for ravines.

# VISION

A ravine system that is a natural, connected sanctuary essential for the health and well-being of the city, where use and enjoyment support protection, education and stewardship.



# Toronto Ravines: Intersection of Nature and City

The conceptual framework in the graphic below illustrates how we need to think about ravines. The framework builds from bottom up, with each layer being required before the next can be added.

- 5 INTERFACE** between the urban parts of our city and the ravines. Providing gateways, access and finding your way into and through the ravines.  
**Access | Way Finding | Integration Into City**
- 4 EXPERIENCE** our ravines and how these spaces are designed. The opportunities for stewardship and education and the interpretation of culture, heritage and nature.  
**Stewardship | Design Quality | Art | Beauty | Education | Interpretation | Culture**
- 3 PARKS AND OPEN SPACES** are necessary for human health. Ravine lands are primarily owned by Toronto and Region Conservation Authority (TRCA) and managed by the City of Toronto Parks, Forestry and Recreation Division.  
**Spaces + Facilities for Human Use and Enjoyment | Managed by PFR**
- 2 INFRASTRUCTURE** is important for city functioning – water and sewer pipes, trails, hydro and rail, bridges and roads make a high quality of life in the city possible.  
**Rail + Hydro | Trails | Bridges | Roads | Water, Sewer, Oil + Gas Pipelines**
- 1 FOUNDATION** is a healthy natural environment that is stable, resilient and ecologically diverse. Without this foundation, all other efforts would be compromised.  
**Natural Environment Terrestrial + Aquatic Habitat | Stable | Resilient  
Ecologically Diverse**

# GUIDING PRINCIPLES

The following principles have been developed to represent the core ideas and values that will guide the City in future directions and decisions for our ravines. Each align with actions designed to address the challenges and opportunities in the ravine strategy and act as catalysts to move the strategic vision forward.





**PROTECT** Ravines are fundamentally natural spaces. Ecological function and resilience is the foundation for long-term sustainability of our ravines and watersheds. We are all guardians of these spaces and must treat them with care and respect. All actions related to ravines should be guided by the overarching goal of protecting these spaces by maintaining and improving their ecological health.



**INVEST** Managing the multiple pressures on ravines – from population growth and increased recreational use to climate change, weather events and invasive species – requires consistent and significant ongoing investment. In addition to looking for efficiencies in the way we manage ravines and opportunities to expand the system, we must make ongoing investment in these spaces a priority.



**CONNECT** Toronto's ravines provide great opportunities for people to connect with nature and the city's rich history. We must ensure that people understand and appreciate the value of our ravine system and have physical opportunities to connect with these spaces in a safe and sustainable manner.



**PARTNER** Many individuals and organizations are interested in becoming more involved in the care and enhancement of Toronto's ravines. The City must work in partnership with the community, the TRCA, neighbouring municipalities, other levels of government, property owners, utility providers and other stakeholders to create more opportunities for individuals and organizations to contribute to these spaces in meaningful and sustainable ways.



**CELEBRATE** No other city in the world has a ravine system like Toronto. Our ravines are a signature feature of Toronto and a vital city asset. They act as place-makers, distinguish neighbourhood boundaries and character and help to define Toronto's identity on the world stage. We must celebrate these spaces and encourage recognition of, and respect for this magnificent system throughout Toronto and the rest of the world.

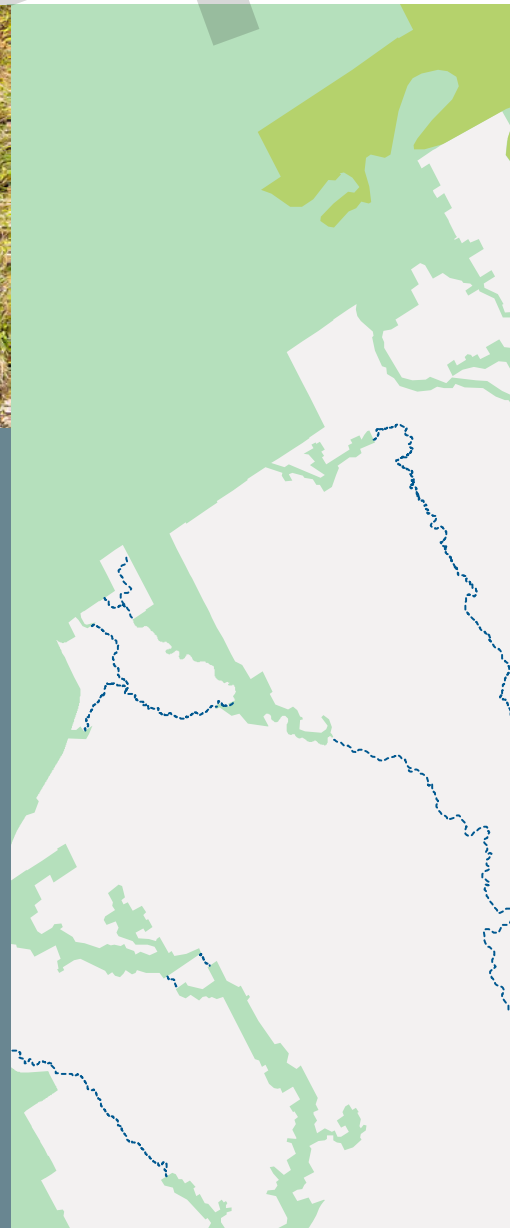
# RAVINES AS A VITAL CITY ASSET

## What are ravines?

Technically speaking, a ravine is a type of landform created over time by running water. They are larger than gullies and smaller than valleys. They may or may not contain streams.

The City defines ravines as areas protected under the *Ravine and Natural Feature Protection Bylaw*, as follows<sup>1</sup>:

- 1) A discernible land form with a minimum two-metre change in grade between the highest and lowest points of elevation that may have vegetation cover and that has or once had water flowing through, adjacent to, or standing on, for some period of the year;
- 2) buffer areas, areas of tree canopy and environmentally significant areas that contribute to the ecological function of a ravine.



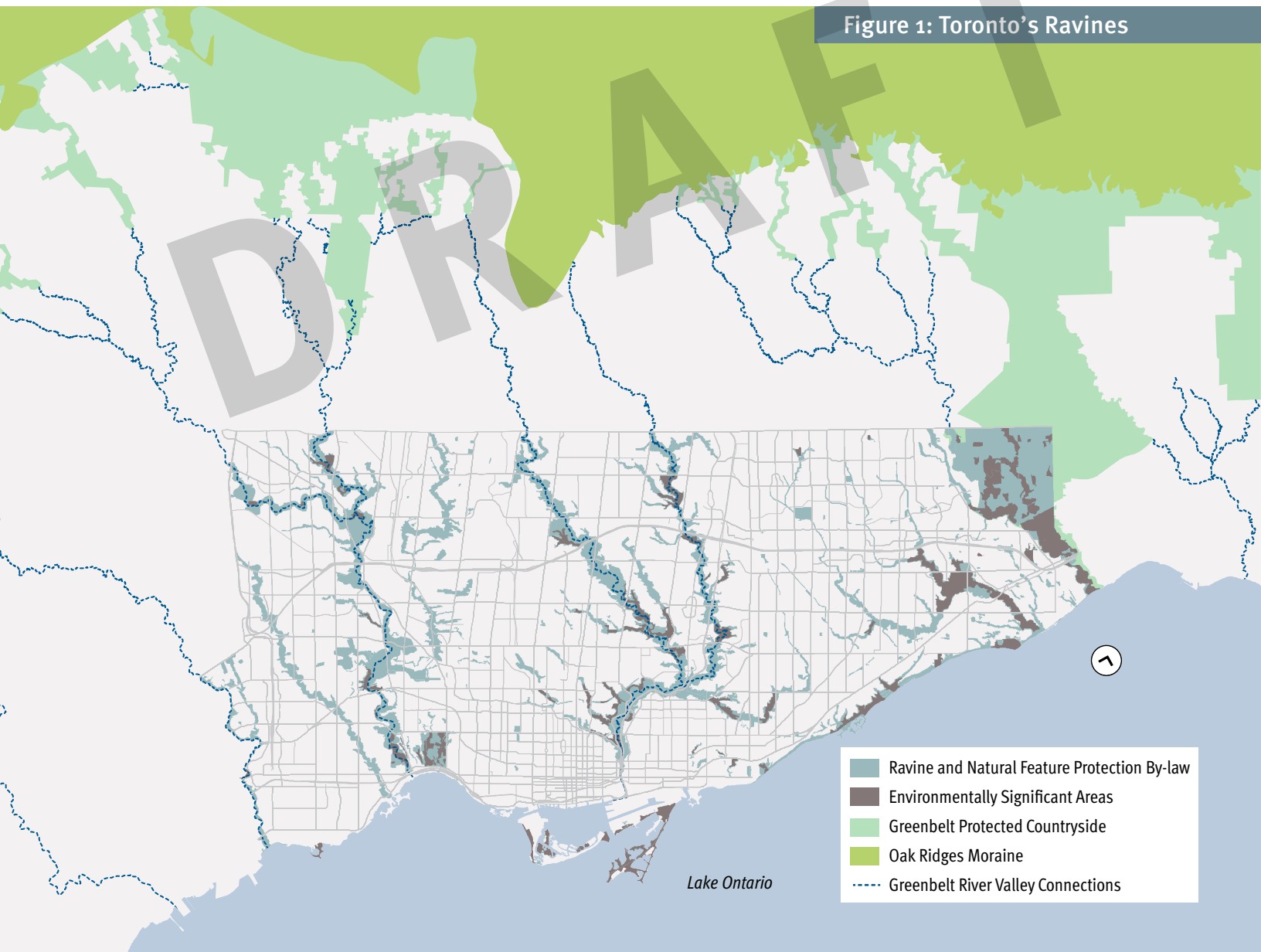
**17%** of Toronto's land area or about **11,000** ha is protected under the Ravine and Natural Feature Protection Bylaw (RNFP).

**60%** Of this area, approximately consists of publicly-owned lands and **40%** is private lands, including about **30,000** private addresses.

The ravine landscape in Toronto includes everything from large river valleys to networks of smaller creeks to other associated natural features, such as shorelines and remnant woodlots. The three main river valleys – the Rouge, Don and Humber – run south from the Oak Ridges Moraine to Lake Ontario. Smaller creeks and streams – Highland Creek, Mimico Creek, Taylor Creek, Mud Creek and others – run only within our city boundaries.

Many people are not aware of the impact of these ravines on the city. Bridges on our roads can erase one’s perception of these valleys, making the city feel “flat”. In reality, if you were to look at a cross section along any major road in Toronto, you could see the great impact of these sometimes hidden spaces on nearly every part of the city.

Figure 1: Toronto’s Ravines





## A brief history of Toronto's ravines

The ravines' geological history is all about water.<sup>2</sup> Toronto's landscape was shaped approximately 11,000 years ago when the last glaciers receded leaving rivers and valleys in their wake.

Trails along the Humber, Don and Rouge Rivers that connected Lake Ontario to Lake Simcoe were once known as the Toronto Carrying Place portage. These trails facilitated trade and movement for Indigenous people through Southern Ontario.<sup>3</sup>

In the 19th and 20th centuries clearing land, draining wetlands, and channelling rivers were considered improvements to “disorderly nature,” as many ravines became homes for mills, dumps, farms, golf courses, and manicured parks.<sup>4</sup> As recently as the 1930s, and after a particularly grisly crime, Toronto's ravines were also viewed as dangerous.<sup>5</sup> In some cases, natural valleys were filled and streams were altered or buried.<sup>6</sup>

In the latter half of the 19th century the City began building water filtration plants and a sewer system in the ravines – it made sense at the time to use these streams and creeks since they followed the natural topography of the landscape.<sup>7</sup>

In the early 1990s, recognizing how degraded some of Toronto's rivers had become, groups such as the Task Force to Bring Back the Don formed. The groups' environmental efforts sought to restore these spaces through projects like tree planting and wetland creation.



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Today, Toronto is known as one of the most multicultural cities in the world with over 140 languages and dialects spoken here. Half of Toronto's current population was born outside of Canada,<sup>8</sup> and this brings many cultural perspectives and approaches to experiencing nature in the city.

Environmental change is a fact of life for these areas. Large storms have, and will continue to cause flooding and erosion that move river banks and change meanders (see Figure 2 below), especially in narrow ravines where rivers were previously straightened and channelized. The devastating impact of Hurricane Hazel in 1954 led to the development of the Toronto and Region Conservation Authority (TRCA), under the powers of the *Conservation Authorities Act* and a regional approach to flood control and water management in Ontario. This prevented large-scale development of the river valleys. The relatively natural character of Toronto's ravines today is due in large part to these protections.

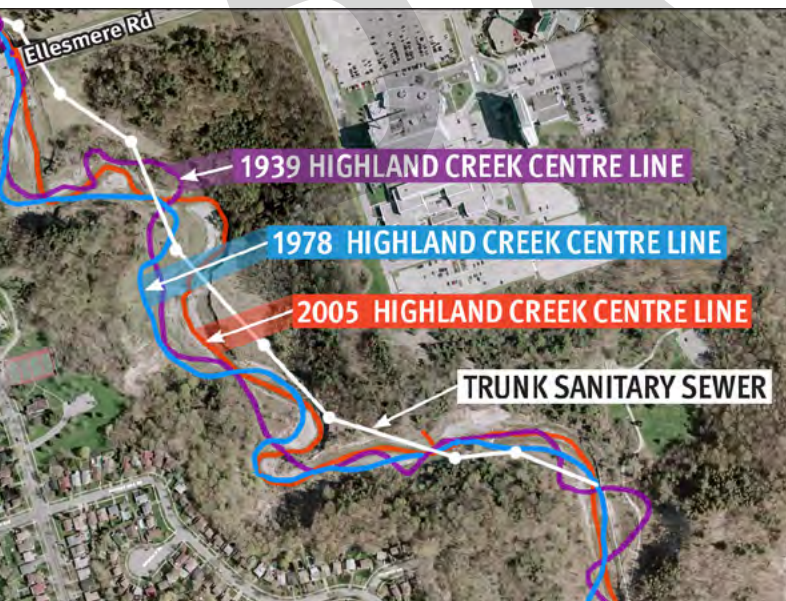


Figure 2: Change over time in the meander of Highland Creek. Note the Trunk Sanitary Sewer path

Toronto's ravines will continue to experience pressure from the growth of the city and surrounding municipalities, from more frequent and extreme storm events as a result of climate change, and required upgrades and maintenance to aging infrastructure.

## Hurricane Hazel in Numbers

30 million tonnes of water that fell during the storm

250 Hazel's maximum speed (km/hr)

81 Number of people in Ontario who lost their lives from flooding

1,868 Families left homeless in Toronto

32 Houses on Raymore Drive that were washed away by floods

4 Magnitude of Hazel at the maximum rating prior to landfall on the Saffir-Simpson Hurricane scale

(hurricanehazel.ca)

## Why Ravines are Important

There are many compelling reasons why we should care about our ravines.

Urban greenspace is absolutely essential to the health of residents and for building liveable cities. As noted in a 2015 study by Toronto Public Health,<sup>9</sup> greenspaces, like Toronto's ravines, improve the physical health, mental health and wellbeing of urban residents.

While ravines have seen a great deal of change in recent history, they have also served as repositories of the rich natural and cultural history of the area, beginning with the Indigenous Peoples that have lived here since the last ice age. Three distinct peoples (the Huron, the Haudenosaunee, and the Mississauga) and two different cultures (Iroquoian and Algonquian) called the Toronto area home, and today's city was the site of many historic trade gatherings and inter-tribal ceremonies.<sup>10</sup> Indigenous Peoples believe that they are caretakers of the land, interconnected with all of creation. Indeed, the health of natural spaces – the land, plants, wildlife and water – are integrally connected to personal health and the health of the greater community.

Ravines hold some of the best quality remaining natural spaces in the city, including forests, wetlands and savannahs, vital for biodiversity and ecological health. They provide critical habitat for wildlife, are globally important flyways for migrating birds, they filter and convey storm water, and connect into larger watershed systems.

Ravines are a major part of Toronto's green infrastructure of our city, and along with our tree canopy, gardens, and green roofs, provide environmental, health and recreational benefits. They also house "grey infrastructure," such as roads, utilities and sewer lines, which are critical to the function of the city.

Ravines are also laboratories for nature education, a quiet place to get away, a trail for off-road biking, a great fishing opportunity, and so much more.



### Toronto's ravines:

- Support health and well-being
- Help define Toronto's identity
- Give people a sense of place
- Support biodiversity
- Provide critical ecosystem services
- Offer a chance to learn about nature
- Mitigate climate change effects
- Have a rich cultural history, including aboriginal settlements
- Support the local economy through tourism
- Help cultivate future champions for nature conservation
- Contain important infrastructure

## How ravines are protected

Toronto's ravines are protected through land use policies, regulations and management plans that focus on protecting our ravine landform from degradation due to the removal of trees, changes in grade, or lack of management.<sup>12</sup> These policies and regulations apply to both publicly- and privately-owned properties that extend into ravines.

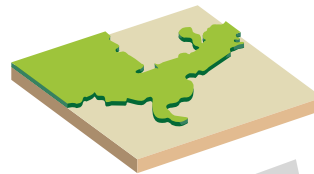
Virtually all ravines are part of the City's green space system and natural heritage system, and designated as parks and open space. Development is generally prohibited in valleys and ravines with exceptions for compatible recreational and cultural facilities and essential public works – provided that impacts are mitigated. Official plan policies also direct development away from natural features such as the top of bank of valleys, vvravines and bluffs. Per the zoning bylaw, land below top of bank may not be used to calculate permissible density. When development occurs on land adjacent to a ravine, impact studies and restoration plans are required to ensure the ravine is both protected and enhanced.

Ravines are also regulated under the City's Ravine and Natural Feature Protection bylaw which prohibits the injury or destruction of trees and filling or grading, or dumping within the regulated area without a permit. They are further protected by provincial legislation through the Toronto and Region Conservation Authority. Regulation 166/06 of the *Conservation Authorities Act* prohibits filling, changes to grade, alteration of a watercourse or wetland, or building anything within the protected area unless a permit has been

issued by TRCA. Other provincial and federal legislation may also come into play, including the Endangered Species Act, Fisheries Act, Navigation Protection Act, Migratory Bird Convention Act and Environmental Assessment Act.



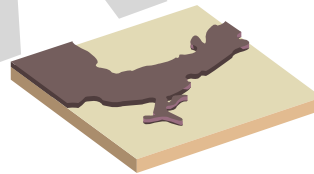
**Guidelines & Strategies** provide direction on how to protect the natural environment.



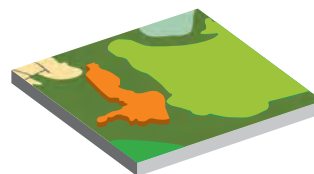
**Ravine and Natural Feature Protection By-Law** protects the forest and ravine by requiring a permit prior to destruction of trees.



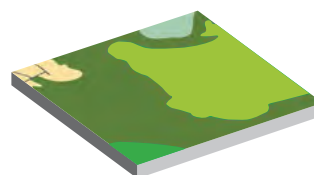
**TRCA Regulation 166/06** protects valley and stream corridors by prohibiting certain activities unless a permit has been issued by TRCA.



**Natural Heritage System** Development is generally not permitted, natural heritage impact study may be required.

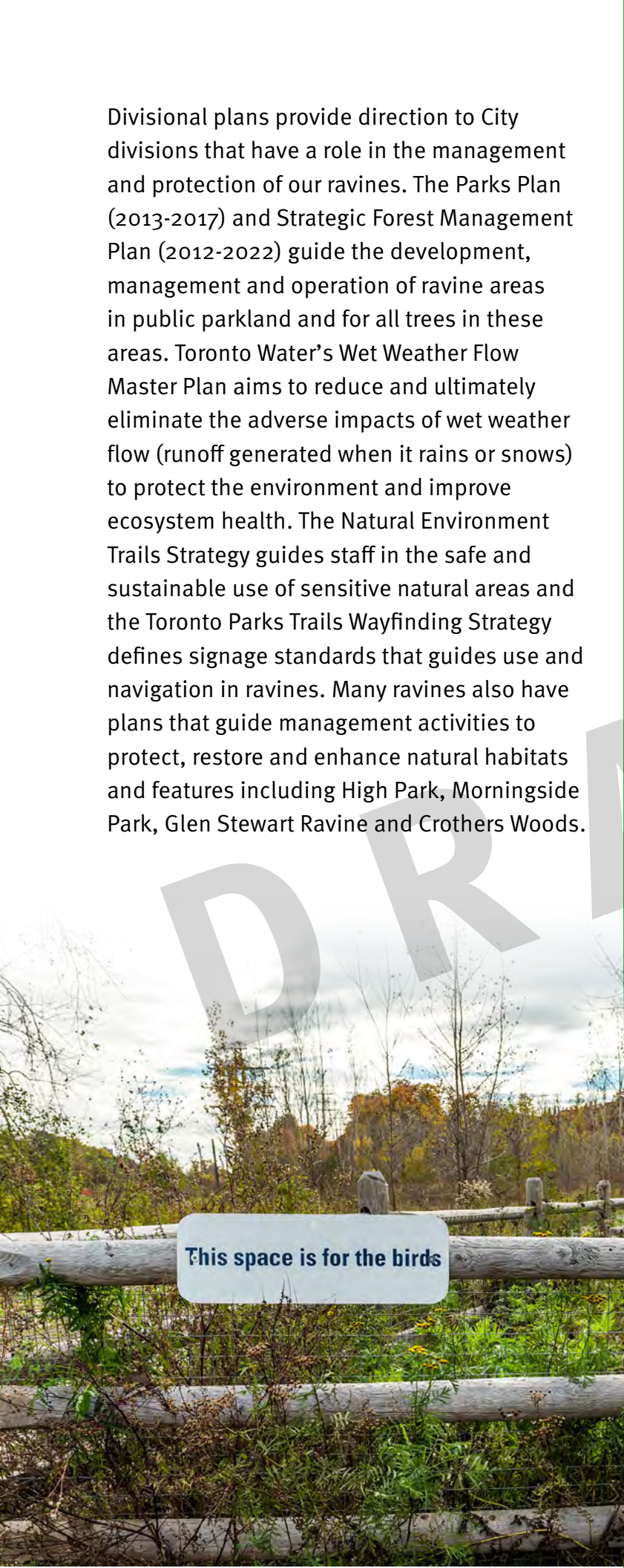


**Environmentally Significant Areas** contain habitats for rare species, unusual landforms, habitats of large size or unusually high diversity.



**Official Plan Land Use Policies and Designations** protect the ravines as part of the City's parks and open space system.

Divisional plans provide direction to City divisions that have a role in the management and protection of our ravines. The Parks Plan (2013-2017) and Strategic Forest Management Plan (2012-2022) guide the development, management and operation of ravine areas in public parkland and for all trees in these areas. Toronto Water's Wet Weather Flow Master Plan aims to reduce and ultimately eliminate the adverse impacts of wet weather flow (runoff generated when it rains or snows) to protect the environment and improve ecosystem health. The Natural Environment Trails Strategy guides staff in the safe and sustainable use of sensitive natural areas and the Toronto Parks Trails Wayfinding Strategy defines signage standards that guides use and navigation in ravines. Many ravines also have plans that guide management activities to protect, restore and enhance natural habitats and features including High Park, Morningside Park, Glen Stewart Ravine and Crothers Woods.



**This space is for the birds**

## Managing Wet Weather Flow

Wet weather flow (stormwater and snowmelt) degrades Toronto's natural environment because it pollutes rivers and the lake, causes flooding, and erodes streams and valleys. A Wet Weather Flow Management Master Plan with associated policies and guidelines was developed to prevent flooding, to improve the water quality of the lake and rivers, and to restore groundwater recharge and discharge, and aquatic habitats. This Master Plan provides a broad context from which to review all related municipal undertakings. Its key principles are:

- rainwater and snowmelt is a valuable resource
- wet weather flow should be managed on a watershed basis
- wet weather flow is most effectively managed where it falls, before it enters the sewers, watercourses or the lake

## What we heard:

*“The City needs to find a balance between making these spaces accessible to people to enjoy and protecting the habitats and waterways within the ravines. These are public spaces and part of our City – they are our collective asset to protect and to enjoy.”*



### What we heard about ravines

The five guiding principles – Protect, Invest, Connect, Partner and Celebrate – were developed from public, City staff and other stakeholders’ input, including newcomer, Indigenous and Métis communities. Stakeholder groups from seven sectors formed the Ravine Advisory Group to provide feedback on the Strategy’s development. Over 3,600 Torontonians contributed to the Strategy in an open house, workshop, online survey, and pop-up consultations across the city.<sup>13</sup> A Chief Planner Roundtable on ravines brought together industry professionals, community leaders and City staff to discuss the pressing issues on ravines in a public forum. All of the comments we received were considered in the development of the Strategy.

*“In a dense, busy city like Toronto, our ravines are an important way to connect to nature and in so doing, understand how to care for and conserve it.”*

*“We need to respect all groups that use the ravines. We all share and enjoy the ravines for different reasons. Let’s all try to understand each other.”*

## What you told us:

The feedback clearly indicated that the ravine system is very important to quality of life in the city and that the Strategy must balance its protection and use with the increasing pressure and various interests on the system. We must protect and enhance the ravines' natural features and functions while building connections between residents and the ravines.

Overall, the feedback confirmed appreciation of and enthusiasm for the ravine system. Ravines are primarily seen as areas for passive recreation like bird watching and photography. Activities related to art and culture, large group activities and organized sports were less important to respondents. Priorities for ravine management need to focus on protection of the natural environment and the provision of educational opportunities. We also heard that we need to celebrate and invest in the ravine system.

Challenges expressed through consultation included: lack of easy access, lack of awareness and sometimes even fear of the ravines, concern for ecosystem health, impacts from over-use, poor condition of trails, and the lack of a bold vision for the ravines.





## What Toronto is already doing in ravines

There are varied and numerous stakeholders with interest and responsibility in the ravines. These include many City divisions, external groups and organizations that work within or are involved in the enhancement, protection, and celebration of Toronto's ravines.

The City works with stakeholders and has accomplished a great deal of foundational work:

- Toronto City Council has approved the designation of 86 new Environmentally Significant Areas (ESAs) mostly within ravines and along the waterfront
- Every year the City plants more than 80,000 trees and shrubs, manages invasive species in 40 ravines, holds seven Community Stewardship Program sites, and engages thousands of volunteers
- Tens of thousands of students participate in formal outdoor education programs in Toronto's natural green spaces

- The City has a robust program of engaged volunteers, many of whom dedicate over 200 hours a year in stewardship activities in ravines
- The partnership between the City, the TRCA and Evergreen has transformed the Brick Works site and increased interest in the potential of the ravines

Through the implementation the Ravine Strategy, we have an opportunity to make these special places great, to unify unconnected decisions, to reflect a bold vision for the ravines, and to realize the important role ravines provide.

We are at a crossroads, and we must seize the opportunity to realize the ravines' true potential as resilient natural spaces, destinations for citizens to enjoy a range of activities, and a way for Toronto to distinguish itself on the world stage.



# GUIDING PRINCIPLES AND ACTIONS

The following principles have been developed to represent the core ideas and values that will guide the City in future decision-making related to ravines. Each align with actions designed to address the challenges and opportunities in the ravine system and act as catalysts to move the strategic vision forward.





## PROTECT

### THE CHALLENGE

Ravines are some of the last refuges for native plants and wildlife that once populated the city, and their relatively natural state is what makes them so important for biodiversity and other ecosystem functions. Trees and greenspaces also play an important role in mitigating impacts and risks from climate change. In Toronto, the ravines are some of our largest carbon sinks and help to moderate local temperatures.

Yet, ravines face increasing pressures from recreational use, encroachments from adjacent private property, illegal activities such as dumping of waste, and off-leash dog activity. In many areas, we are loving our ravines to death. With the city's population approaching 3,000,000 and an estimated 200,000 or more dogs in Toronto, management efforts need to reflect the growing demands on the system. Because enforcement of by-laws in ravines remains a challenge due to resources, educating and engaging Torontonians in ravine protection is crucial.

The potential impacts from climate change may compound the problem as increases in major storm events, extreme winter and summer temperatures, and droughts may drastically alter the vegetation and river systems in our ravines and impact the infrastructure they contain.

We need to understand and plan for these potential impacts. This direction is supported by the Official Plan, which states that city-building activities should be based on “sustaining, restoring and enhancing the health and integrity of the natural ecosystem ... paying particular attention to ... the potential impacts of a changing climate on biodiversity and ecosystem health” and “reducing risks to life, health, safety, property and ecosystem health that are associated with flooding, unstable slopes and erosions ... considering the potential impacts of climate change that may increase the risk associated with natural hazards.”

We must find the delicate balance between enjoying ravines and protecting them. Protection and sustainable use in future will depend on public support, including the public's role in stewardship and responsible use of ravines.

ACTIONS	
Manage Environmentally Significant Areas	Environmentally Significant Areas (ESAs) are the ecological jewels of our natural heritage system. They are home to an extraordinary variety of plants and animals, including rare and endangered species. ESAs are a priority for management and require special protection to preserve their environmentally significant qualities.
	<b>ACTION 1:</b> Develop and implement Management Plans to protect Environmentally Significant Areas (ESAs).
Elevate planning, design, construction and maintenance in our ravines	<p>As we seek to maintain or improve the ecological health of our ravines, while improving access in sustainable ways, we must acknowledge the additional costs and time required to maintain, repair and construct trails or restore natural areas in a way that preserves or improves ecological health.</p> <p>The best results in ravine management are achieved through careful planning, stakeholder engagement and a willingness to invest in good design and specialized materials and techniques. While this may increase initial timelines and costs, it can result in lower maintenance costs and allow for safe recreational uses that do not compromise the natural value of these areas.</p>
	<b>ACTION 2:</b> Ensure high quality planning, design, construction and maintenance in our ravines by continuing to develop and implement best practices for capital projects and on-going maintenance of infrastructure and natural ecosystems, including trail accessibility, dumping and litter, and invasive species management. The Capital and Planning Coordination Working Group for the Interdivisional Steering Committee will be a vehicle to accomplish this action.

<p>Ensure activities do not impact ravines</p>	<p>In Toronto there is increasing interest in drawing people into ravines for activities, such as nature camps, temporary art installations and large public events. While some areas within Toronto’s ravines can withstand the potential impacts of these uses and accommodate the demand, others are very sensitive to disturbance.</p> <p>As a result, it’s important that staff have the tools and training they need to determine what activities are appropriate for different parts of the ravine system. This can be facilitated by developing a set of criteria for staff to assess these types of requests and the creation of a “Natural Heritage School of Excellence” – a series of mandatory courses for PFR staff involved in ravines to educate them on environmentally sensitive areas, biodiversity, and forest management, modelled on the successful “Horticultural School of Excellence”. A code of conduct is also necessary to provide users with guidance into how to best protect the natural features and functions of ravines when engaged in these activities.</p>
	<p><b>ACTION 3:</b> Develop tools, including staff training and a set of criteria, for staff to assess requests for appropriate activities, events and temporary installations to ensure protection of the natural value of our ravines.</p>
<p>Understand vulnerability to climate change</p>	<p>An assessment is needed to understand the vulnerability of the features and functions of our ravine system and infrastructure within it to extreme weather events resulting from climate change. Taking a systems approach, the assessment would help identify the areas of extreme vulnerability and impacts from activities upstream (outside the city), as well as the strategies and investments required to mitigate these impacts. It would also allow a more coordinated approach to risk management in parks and natural areas.</p>
	<p><b>ACTION 4:</b> In partnership with the TRCA and other key stakeholders, undertake an assessment of potential climate change impacts on the ravine system, including impacts on the natural systems and existing and proposed infrastructure.</p>

<p>Research and inventory to improve information about the ravines</p>	<p>The City of Toronto has a strong history of successful partnerships with the TRCA and academic and educational institutions such as the Royal Ontario Museum (ROM), the Toronto Zoo and the Ontario Science Centre. The award-winning Biodiversity Booklet series of species found in Toronto is one example of this successful collaboration. Another is research studies undertaken by universities that provide insight into the ecological changes that our natural areas are experiencing. One that is particularly relevant to ravines is the preliminary re-survey of three plots originally surveyed for the 1977 <i>Rosedale Ravine Study</i>, by the University of Toronto Faculty of Forestry students in 2015. The Rosedale Ravine Study was one of the few historic baseline datasets of its age that provided information on the ecological state and integrity of Toronto’s ravines.</p>
	<p><b>ACTION 5:</b> Expand the network of partnerships with the TRCA and with academic and educational institutions to identify research needs, develop baseline inventories of ravine health, recreation use, and public engagement activities, and improve monitoring and reporting in Toronto. The Ecological Services Working Group for the Interdivisional Steering Committee will be a vehicle for this collaboration.</p>

DRAFT

## What we heard:

*“It is extremely important to protect the current ravine lands, preventing erosion, loss of habitat and further human encroachment. I would like to see greater acquisition of parklands to balance out the tremendous residential & commercial growth in Toronto.”*



## Crothers Woods

Crothers Woods is a 52-hectare woodland located in the Don River Valley. In 2002, the City began working with local trail users to address the environmental impacts of trails on the forest. In 2007, the award-winning Crothers Woods Trail Management Strategy was developed to guide trail management and restoration activities in the area. From 2008-2012, the City worked with a wide range of stakeholders including the Toronto and Region Conservation Authority (TRCA), contractors specialized in sustainable trail construction and community stewards to implement the strategy.

The planning, construction and restoration took time and utilized specialized techniques and equipment. The results are safe, well-built trails that have allowed both recreational activity and protection of the natural environment. An important learning was that negative impacts from recreational use in natural areas are often the result of poorly planned and built trails, rather than the use itself.







## INVEST

<b>THE CHALLENGE</b>	Ravines provide the green infrastructure and house much of the “grey infrastructure” for our growing city. With the population projected to grow to 3.4 million by 2041, the resultant increasing pressures on ravines have brought us to a tipping point in management for these assets. We need to match investment in a coordinated way so that ravines can continue to provide the ecological and recreation services the city depends on. Maintenance and improvements to our ravines and the physical infrastructure located within them – the water and sewer lines, trails, and the task of flood conveyance – is crucial. Ravines will require consistent and significant investments to be able to manage the multiple pressures from intensification, increased recreational use, climate change and weather events, invasive species, and others.
<b>ACTIONS</b>	
Leverage planned investments	A coordinated approach to management of our ravines and the infrastructure they contain will improve efficiency, reduce costs and potentially add value to the work, while reducing impacts on the environment.
	ACTION 6: Leverage planned investment in infrastructure to make improvements in ravines and coordinate these activities through annualized capital coordination. The Capital and Planning Coordination Working Group for the Interdivisional Steering Committee will be a vehicle for coordination.
Understand the value of ravines	While we recognize the irreplaceable value of the ravines to Toronto, there has been no analysis to-date of the system to understand the economic and health value of the services they provide such as water filtration, flood control, erosion control, climate stabilization, wildlife habitat, and recreation activities.

	<p>A 2010 study determined Toronto’s urban forest, a portion of which includes ravines, provides over \$28 million annually in ecological services.<sup>15</sup> Determining a similar value for the ravines will:</p> <ul style="list-style-type: none"> <li>• help to determine the incremental costs and benefits when making decisions on policy and investments to improve the ravines</li> <li>• incentivize investment in green infrastructure by communicating these monetary values</li> <li>• establish a baseline for evaluating the impacts of climate change and urbanization on the provision of ecosystem services</li> <li>• build the case for incorporating natural capital features into existing asset and financial management business processes</li> </ul>
	<p><b>ACTION 7:</b> Develop an ecosystem services analysis for greenspace in Toronto, including both the market and non-market value provided by green infrastructure and associated ecosystem services in the ravine system, such as flood protection, pollution removal, erosion control, recreation activities, and wildlife habitat.</p>
<p>Identify and implement improvements in Priority Investment Areas</p>	<p>With a ravine system of 11,000 hectares (composed of both public and private land), 86 Environmentally Significant Areas and over 1500 parks, we must understand the demands on, and vulnerabilities of these greenspaces to direct management efforts and determine priorities for protection, investment, connection, partnership and celebration.</p> <p>As part of the Ravine Strategy, the City has developed a framework to identify priority areas to guide future protection of these natural spaces, while offering safe and sustainable opportunities for people to connect with, contribute to and celebrate the ravines.</p>
	<p><b>ACTION 8:</b> Identify ten Priority Investment Areas based on the Ravine Strategy framework and undertake studies and develop plans, as needed, to implement improvements in these areas.</p>

<p>Create views, access and public spaces</p>	<p>‘Hubs’ are areas of the ravines that have the capacity for more intense programming such as natural and cultural heritage interpretation and activities. ‘Gateways’ are significant connection points between the urban landscape and the ravines where greater accessibility can be provided. ‘Portals’ on the ravine edge offer views of and into the ravine sometimes at street-level such as over bridges, emphasizing the intersection of nature and city. There are several existing locations that could serve as ‘hubs’ within or ‘gateways’ for our ravine system, including the Humber Arboretum, the Toronto Botanical Gardens, the Toronto Zoo, and the Ontario Science Centre.</p>
	<p><b>ACTION 9:</b> Develop key opportunities to develop ‘hubs’ within or ‘gateways’ or ‘portals’ into our ravine system based on planned investments and the Priority Investments Areas Study.</p>
<p>Increase public ownership of ravine lands</p>	<p>About 40 per cent of Toronto’s ravines are privately owned. This limits the City’s ability to improve connections in the ravine systems that are vital for wildlife and important for recreation. Gaps exist within the north-south system of each watershed as well as the east-west linkages between them. By increasing the amount of public land within the ravine parkland system, we can diffuse recreational pressures on the existing ravine parks and increase protection and restoration measures in these new areas.</p>
	<p><b>ACTION 10:</b> Work with the TRCA, as well as other agencies, municipalities and the Province, to develop a valley lands acquisition strategy that identifies opportunities to bring additional lands within the ravine system – including buffer areas adjacent to ravines – into public ownership with a focus on natural habitat and trail connections.</p>

## INVESTMENT IN ACTION:

### Highland Creek

Since the urban development of the 1960's – 70's, stormwater runoff with the Highland Creek Watershed has presented a number of challenges including creek bed erosion, increased risk to infrastructure, such as creek bank trails and underground pipes, and loss of fish species due to the degradation of habitat. As a result, Highland Creek was identified as a priority watershed in Toronto Water's Wet Weather Flow Master Plan.

Focus on this area became even more critical when a major storm event in August of 2005 caused severe erosion of the creek channel that resulted in exposed sanitary sewers and a sewer break and discharge into the creek.

As part of the Wet Weather Flow Master Plan, Highland Creek was the first watershed to undergo a geomorphic systems study to address stream erosion, restore the ecological integrity of the watershed and protect vulnerable infrastructure. The Geomorphic Master Plan completed in early 2011 identified various restoration projects in the Highland Creek watershed to be carried out over the next two decades.

Between December 2011 and June 2015, the City of Toronto invested over \$10 million to restore a valley segment of Highland Creek from west of Markham Road to where the East Highland and Malvern Creeks meet. Riffle pool structures were built to protect underground infrastructure and improve aquatic habitat, and the channel was realigned away from the glacial valley wall to protect valued wooded areas and property from erosion and provide areas for new wetlands and flood relief.

Creek before restoration



Creek after restoration



## What we heard:

*“Link new urban development to investments in the ravine system.”*



## CONNECT

### THE CHALLENGE

Ravines are considered by many as a cherished escape from the fast pace of urban life. We heard overwhelmingly during consultations that ravines are valued for wildlife and biodiversity, but also as spaces for quiet reflection and connection with nature.

Ravines follow the boundaries set by the land, their watersheds. They don't respect political jurisdictions, crossing ward and municipal boundaries. Ravines cut through neighbourhoods, social and economic barriers. Because of this, ravines provide a valuable opportunity to improve cohesion and inclusion between Toronto's neighbourhoods and communities.

The large size and connectedness of our ravines is one aspect that makes them so important for ecological function and recreation. It is possible in some areas to travel kilometers in these green spaces without having to venture back into more urban surroundings.

Opportunities to access our ravines build and strengthen the emotional and spiritual connections Torontonians feel for them. However, the steep topography and sensitive nature of these sites can make access challenging. Gaps in ownership of the land also can be a barrier to access.

We must strive to improve the physical connections into and between ravine areas for ecological function, infrastructure and recreation. By providing opportunities for all Torontonians to access the ravines in a safe and sustainable way, we can strengthen their sense of connection to and shared ownership of these spaces.

### ACTIONS

Provide safe, sustainable trails and wayfinding

Without proper infrastructure, recreational uses can negatively impact the natural environment through trampling of vegetation, soil erosion, and disturbance to wildlife. By providing wayfinding signage and formal trails and access points where appropriate, the City can guide how people interact with these spaces in a way that minimizes negative impacts and maximizes the experience and enjoyment of users.

Unfortunately, many areas of our ravine system are not currently accessible to most Torontonians due to a lack of trails or degraded infrastructure. The City must increase opportunities for people of all abilities to enjoy and explore the ravines in a manner that respects the ecological health of the system.

	<p><b>ACTION 11:</b> Complete the Toronto Parks &amp; Trails Wayfinding Strategy pilot in the Lower Don Valley and provide recommendations on how to implement wayfinding throughout Toronto’s ravine system.</p>
	<p><b>ACTION 12:</b> Review existing trails and access points and develop an implementation plan to address gaps in the system and connections to trails that run east-west and to trail systems in adjacent municipalities.</p>
Tell our stories	<p>Because ravines have remained largely undeveloped, they contain important stories and links to Toronto’s past. Archaeological evidence found in Toronto shows the integral connection between the original inhabitants of the Toronto area and its surrounding lakes and rivers. The City has committed to working with Indigenous communities to improve public awareness of Aboriginal life in Toronto.<sup>16</sup> There is also a history to be found in the ravines, leftover from the industrialization of the area (mills, quarries), the geology and landforms. These stories should be gathered and remembered through signage and art at appropriate sites in our ravines.</p>
	<p><b>ACTION 13:</b> Develop opportunities to honour and share stories of special and historic spaces and ways of relating to the natural environment within our ravines in collaboration with Indigenous communities, City of Toronto Economic Development, Heritage Services and the City Manager’s Office.</p>

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## CONNECTION IN ACTION:

### Toronto Parks & Trails Wayfinding Strategy

The Toronto Parks & Trails Wayfinding Strategy, currently underway, is developing consistent, accessible and predictable signage and information system for all of Toronto's parks, including ravine areas. It is an opportunity to reduce visual clutter and encourage the use and discovery of parks and ravines. The pilot will run in the Lower Don in the spring of 2017.



### What we heard:

*“Ravines are part of the way we define ourselves as a city. Ravines and neighbourhoods make up the fabric of Toronto.”*



## PARTNER

### THE CHALLENGE

Land in Toronto’s ravines is a patchwork of residential, commercial, institutional, industrial, utilities, railways and many other uses and ownership, in addition to the park and natural areas managed by various City divisions. To add further complexity, ravines are part of larger regional watershed systems overseen by the TRCA that extend into neighbouring municipalities and provide a critical link between the provincially protected Greenbelt and the Oak Ridges Moraine to the Lake Ontario shoreline. Toronto’s portions of these watersheds can be significantly impacted by management decisions made upstream, outside of our city limits. The immense size of our ravines, including beyond our city limits, and the many and varied land ownership, management and uses creates significant complexity for management of these areas.

To date, decisions for our ravines have often been made in an uncoordinated way, where staff capacity and limited resources have led to issues being dealt with on a project-by-project, and sometimes ad-hoc basis. To add to the lack of coordination, these areas are often the “backyards” of many neighbourhoods, creating a sense of isolation of these local ravines from the larger watershed.

We recognize that our management of the ravines must have a broader watershed and city-wide focus. Planning and improvements in the ravines must be evidence-based and grounded in system-wide priorities. We must continue to improve partnerships with other municipalities and stakeholders, private landowners, and within our own divisions to enable more holistic ravine management.





Figure 3: The various City divisions and other agencies and interests that are involved in the management of Toronto’s ravines.

ACTIONS	
<p>Expand the Community Stewardship Program</p>	<p>The City’s Community Stewardship and Parkland Naturalization programs currently engage thousands of volunteers in ravine stewardship each year. In addition to benefiting the natural environment, these programs provide volunteers with opportunities to connect with nature and contribute to the health of Toronto’s ravine system.</p> <p>There is an interest in growing these programs to include additional areas and provide even more opportunities for volunteers to get involved in ravine maintenance and care.</p>
	<p><b>ACTION 14:</b> Build partnership opportunities and capacity to expand the Community Stewardship Program in order to include additional sites. Identify candidate sites.</p>
<p>Ensure best practices at a watershed level</p>	<p>Toronto’s ravines are part of larger regional watershed systems overseen by the TRCA that extend into, and can be impacted by, neighbouring municipalities and provide a critical link between the provincially protected Greenbelt and the Oak Ridges Moraine to the Lake Ontario shoreline.</p>

	<p><b>ACTION 15:</b> Work with the TRCA, the Province and other municipalities to continue to ensure implementation of best practices for all urban river valleys that connect to Toronto’s ravine system. Work with the TRCA to establish forums for dialogue, bringing these parties together and reinforcing the importance of continuity of the ravine systems and comprehensive inter-municipal management.</p>
Support local stewardship	<p>There are over 100 “Friends of” groups now working in Toronto<sup>17</sup> and a lot of this work is taking place in ravines. Despite this, there is limited capacity and currently no formal framework to expand opportunities to work with and address new requests from these groups.</p> <p>In creating stewardship opportunities, it is important to recognize that restoration of natural environments can be very unique, requiring professional training and specialized equipment. A framework needs to be established to clarify what types of activities are appropriate for volunteers to do and in which locations, and when professional staff are required.</p>
	<p><b>ACTION 16:</b> Establish a framework to support further opportunities to engage volunteer groups, such as “Friends of” groups, in ravine stewardship. These opportunities should be in line with the on-going PFR Volunteer Strategy and guided by the assessment of demand and vulnerabilities in the Priority Investment Areas Study.</p>
Partner with private donors	<p>Managing the multiple pressures on ravines created by intensification, increased recreational use, climate change, weather events and invasive species will require ongoing and significant investment. The City has a long history of working with communities, stakeholders, foundations and businesses to improve our parks and must now explore how these types of relationships can be applied to fund enhancements to our ravine system.</p>
	<p><b>ACTION 17:</b> Identify opportunities to partner with and leverage private philanthropic support to invest in specific ravine enhancement projects, such as improved access, hubs, and gateways, and natural feature enhancements.</p>

## The Toronto Parks and Trees Foundation

The Toronto Parks and Trees Foundation is the official funding partner of the City of Toronto's Parks, Forestry and Recreation Division and has been helping Toronto transform its parks and green spaces since 2002.

The Foundation helps to foster a culture of collaboration with the City, community groups, neighbourhood and the business community on park and green space enhancements that cannot be achieved through public funding alone. Examples include park-specific revitalization projects and the Toronto Street Tree Trust.



## The Don Valley Brick Works Park and Weston Family Quarry Garden

From 1889 to 1989, the Don Valley Brick Works was the location of a thriving brick-making and distribution industry in Moore Park Ravine. The Toronto and Region Conservation Authority (TRCA) and the City of Toronto began restoration of the site in 1995 with the generous support of the W. Garfield Weston Foundation. Today, the former quarry, now known as the “Weston Family Quarry Garden” has been transformed into a flagship restoration site and natural environment park, providing crucial habitat for a variety of species. The park highlights the City’s dedication to healthy ecosystems, and strong partnerships.



## Toronto's Community Stewardship Program

The City of Toronto's Community Stewardship Program (CSP) involves volunteers in on-going maintenance and monitoring activities at various natural areas. The Program has been in operation since 2000 and has engaged between 50 - 130 people per year.

For example, in 2015, staff coordinated the CSP at seven sites around the city and worked with these volunteers to:

- plant 800 native trees, shrubs, wildflowers
- remove hundreds of pounds of invasive plants
- maintain natural surface trails at Crothers Woods
- conduct a photo monitoring program that tracks improvements to the sites





## CELEBRATE

### THE CHALLENGE

No other city in the world has a ravine system like Toronto. Our ravines are a signature feature of Toronto and a vital city asset. They act as place-makers, distinguish neighbourhood boundaries and character and help to define Toronto’s identity on the world stage. We must celebrate these spaces and encourage recognition of and respect for this magnificent system throughout Toronto and the rest of the world.

But as Sabina Ali from Thorncliffe Park Women’s Committee<sup>18</sup> noted at the Chief Planner’s Roundtable on Ravines, many residents are unaware of the beauty of the ravine below them in the valley or are scared to enter due to suspected criminal activity.

Equally important is teaching people about the sensitivity of our ravines and the cumulative effect of activities within them. Given the limited capacity for enforcement of by-laws, all Torontonians must be engaged in and educated about the protection of our ravines.

### ACTIONS

Celebrate our ravines

The more people that love the ravines, the greater our ability to protect and enhance them. A campaign to promote and celebrate these spaces could include a coordinated program of seasonal events, art installations, and materials that invite people to visit the ravines and create awareness of the scope and value of these spaces and our collective impact on them.

**ACTION 18:** Develop a campaign and events to engage Torontonians, including children and diverse communities, to celebrate the ravines and foster understanding of and respect for the scope and value of Toronto’s ravine system, such as a “Ravine Day”.

**ACTION 19:** Develop outreach plans to particular population groups including park users, property owners adjacent to ravines, pet owners and underserved communities. Communicate good stewardship practices for uses and activities in ravines to ensure that these do not adversely impact natural habitats and, where possible, restore and enhance natural areas.

**ACTION 20:** Develop a communications strategy to promote ravines as a natural asset and a key part of Toronto’s identity in collaboration with Tourism Toronto and other key stakeholders.

## “Enduring Wilderness”

In 2012, the City of Toronto commissioned renowned photographer Robert Burley to create a collection of photographs celebrating Toronto’s natural parklands as a way to both examine and promote our 21st-century relationship to nature.

The resulting book *An Enduring Wilderness: Toronto’s Natural Parklands* by Robert Burley (published by ECW Press, April 2017) explores the complex relationship between Toronto’s wilderness spaces and civic life. It seeks to raise awareness about the often hidden and remote wild spaces within the City’s park system and speaks to the growing public interest in the value of natural places and their importance to our quality of life.

The book explores wilderness spaces along the Lake Ontario shoreline, the valleys of the Humber, Don, and Rouge Rivers and several creeks and lost rivers. The photos are augmented with selections of poetry and prose by some of well-known Toronto writers, including Anne Michaels, George Elliott Clarke, Alissa York, and Michael Mitchell. A historical essay and an appendix highlight the history, biodiversity, and cultural value of these urban parklands.







## Paddle the Don

Once a year, Toronto and Region Conservation Authority (TRCA) provides an opportunity for people to paddle the Don River from Ernest Thompson Seton Park to the mouth at the Keating Channel.

The event focuses on enjoying nature, celebrating the Don River Watershed and providing an opportunity to reflect on all the benefits we derive from the natural environment and their integral role in the health and functioning of the city and surrounding region.



## The Evergreen Brick Works

Evergreen Brick Works is a popular destination that is housed, in part, in a converted brick-making factory. It is home to many social and cultural events such as weekend farmers' markets, heritage tours, children's activities and public forums focused on sustainability. Evergreen is a non-profit organization with a mandate to deliver on sustainable city-building activities.



# MOVING THE STRATEGY FORWARD

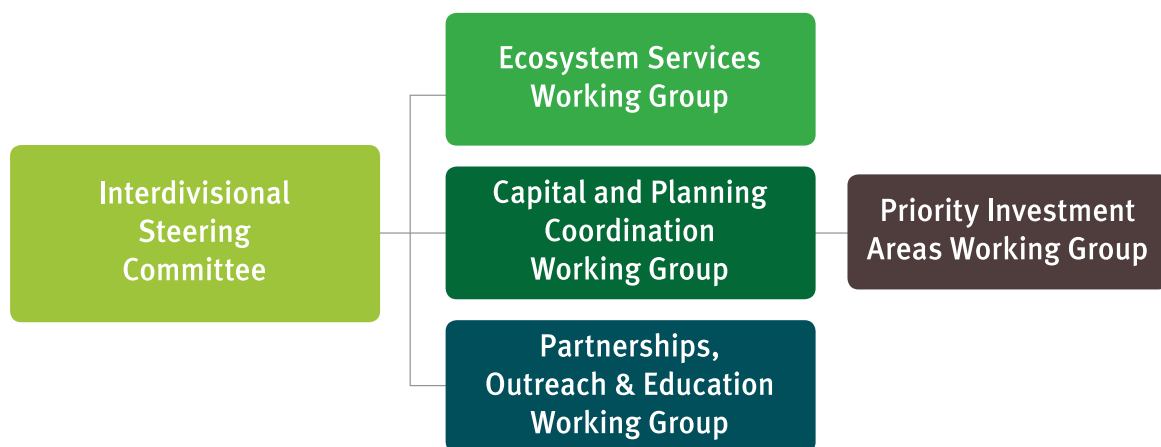
Toronto’s first Ravine Strategy provides a strong framework to guide our actions in these vital natural areas of our city. It is the first phase in decision-making and management. How the Strategy is implemented will help the many divisions and stakeholders with interest in the ravines navigate the fine line between protection and use, and identify and prioritize the actions and investments needed.

## Interdivisional Steering Committee on Ravines

Many divisions of the City are involved in managing our ravines. Parks branch carries out day-to-day maintenance of recreational infrastructure such as benches and trails. Urban Forestry branch manages the trees and forests and engages the public in use and stewardship of these areas. Toronto Water, along with the TRCA, monitors and protects the rivers and streams. City Planning protects ravines and natural areas through development of Official Plan policies and requirements for a Natural Heritage Impact Study, which is reviewed by Urban Forestry and TRCA.

There is a large amount of essential physical infrastructure in ravines. This includes sewers, rail corridors as well as gas and hydro lines. Access to this infrastructure is required by a number of bodies, both internal and external to the city for monitoring, upgrades and state of good repair activities. These activities can impact restoration efforts in ravines and as a result should be coordinated where possible.

The Interdivisional Steering Committee will serve as a coordinating body for the implementation of Ravine Strategy on matters of mutual interest amongst City divisions and the TRCA. The Committee will also have a role in coordinating City activities with the interests and activities of external stakeholders through Working Groups.



The Committee will be co-chaired by Parks, Forestry and Recreation’s General Manager, and City Planning’s Chief Planner and Executive Director. In addition, core members will include senior management staff of the Toronto and Region Conservation Authority, Toronto Water, Economic Development and Culture, Public Health, Transportation Services and the Toronto Partnership Office.

Three Working Groups will report to the Interdivisional Steering Committee:

### **Ecosystem Services**

This Working Group will bring together experts from the City of Toronto, TRCA, as well as academic partners to identify research needs and to work together to improve the natural environment in our ravines. Their focus may include topics such as monitoring and reporting on social, environmental and financial performance (triple bottom line accounting), climate change impacts, and international best practices in protecting urban natural areas.

### **Capital & Planning Coordination**

This Working Group will provide greater coordination in the planning and implementation of capital projects in ravine lands, such as erosion, sewer, and trail works, which are delivered by several City divisions and the TRCA. By identifying opportunities to coordinate and prioritize capital projects across City divisions and with the TRCA in ravine lands, the group will focus on optimizing efficiencies, as well as environmental protection and remediation.



## What we heard:

*“The City needs to find a balance between making these spaces accessible to people to enjoy and protecting the habitats and waterways within the ravines. These are public spaces and part of our City - they are our collective asset to protect and to enjoy.”*

This Working Group will also include a sub-group to engage City and TRCA staff and external partners in the planning and implementation of improvements in Priority Investment Areas, once identified.

### **Partnerships, Outreach & Education**

This Working Group will bring together the City and TRCA with external stakeholders from the community and not-for-profit sector to collectively advance actions related to outreach and community engagement. It will also actively work to leverage planned investment in the system with philanthropic donations and activities.



## Priority Investment Areas

The City of Toronto is intensifying. With the population projected to grow to 3.4 million by 2041, there is a need to better understand the capacity of our ravine system as well as current and future demands that may be placed on it in order to effectively target priorities for protection, investment, connection, partnership and celebration.

As part of the Ravine Strategy, the City developed a methodology to identify priority areas to guide future planning exercises aimed at ensuring the protection of these natural spaces, while offering safe and sustainable opportunities for people to connect with, contribute to, and celebrate the ravines. Recognizing areas of demand and vulnerabilities in our ravine system can help direct management efforts.

The methodology will allow the City to prioritize areas where protecting ecosystems, controlling erosion, managing recreational use, improving access, and meeting and maintaining accessibility standards is needed and start to identify opportunities for collaboration with internal and external partners.

## DEFINING AREAS in the RAVINES

The Ravine and Natural Feature Protection Bylaw boundary was used to delineate the City's ravine system. This includes creeks, valley slopes to top of valley slope and contributing natural heritage features.

The ravine system was then subdivided into individual parcels utilizing the TRCA's valley segment classification system<sup>19</sup> which a) partitions the watercourses into valley segments, and b) classifies the segments into distinct morphological units.

The delineation of the valley segments was achieved by dividing the valley system by distinct physical elements including hydrography (catchment size), stream slope

and surficial geology. Distinct geological units, stream order and major confluences further refine the partitioning. Catchment size, slope and soil structure were then used to characterize each segment.

This segmental breakdown of the ravine system, was then overlaid with Provincially Significant Wetlands, Areas of Natural and Scientific Interest and Environmentally Significant Areas to ensure that these protected areas are wholly within any given parcel. Small sections of ravines fragmented from the main contiguous system were grouped into the nearest associated unit being considered and evaluated as part of that parcel.



## CRITERIA FRAMEWORK

The framework to identify priority areas was based in the Ravine Strategy’s framework for how we need to think about ravines (see page 3). Criteria related to population growth are added to the existing framework to recognize the additional pressures on these areas from Toronto’s growing population.

	6	Interface	Access, wayfinding, park users
	5	Experience & Quality	Stewardship, art, education, interpretation
	4	Parks & Greenspace	Spaces and facilities for human use
	3	Intensification & Growth	Major planned projects, growth centres, population density
	2	Infrastructure	Rail, hydro, roads, trails, water, sewer
Foundation	1	Ecology & Landform	Level of habitat quality and sensitivity to ensure key habitats and species are protected





**Ecology & Landform** criteria identified areas requiring a higher level of protection and management to protect and enhance their environmentally significant qualities, including:

- areas of high ecological significance designated in Toronto’s Official Plan or by the province, including Environmentally Significant Areas, Provincially Significant Wetlands, and Areas of Natural and Scientific Interest
- known locations of sensitive species with ecologically-appropriate buffers
- areas where restoration has recently taken place or has been identified for future work
- canopy cover
- presence of interior forest habitat

**Infrastructure**, such as trunk sewer lines, erosion control structures and multi-use trails located in the ravines need to be maintained. Criteria for this category in the framework included:

- the presence of this infrastructure
- planned maintenance and capital works
- areas where there are existing high maintenance needs

**Intensification & Growth** criteria include proximity to expected growth areas undergoing major planning studies as well as approved developments near ravines where additional density can be anticipated. These criteria help tell us where we can expect to see additional people using the ravines and additional pressures in near future.

**Parks & Green Space** criteria helped to identify areas where there is currently a lot of human activity that may need investment to improve safety and sustainability of the use, including:

- existing recreational facilities and parking lots
- intensity of existing use of ‘ad hoc’ trails from crowd-sourced data

Criteria related to **Experience and Quality** looks at the quality of the experience for park users,

opportunities to animate these spaces, and importance of these spaces to the surrounding neighbourhood. Data to be considered include:

- lack of culture and recreation facilities nearby
- social equity, such as adjacency to low income neighbourhoods
- heat vulnerability of adjacent neighbourhoods where ravines can serve as cooler, shaded areas for recreation and commuting





**Interface** criteria look at how the ravines connect to the city, including the number of access points and how people can get into them.

Each category of criteria within the matrix is weighted to reflect their importance in the framework and our ravine system, with ecology most important therefore the highest weighting and interface least critical to the ravines therefore the lowest weighting.

Scores are assigned to each parcel by GIS analysis of the data based on high/medium/low or yes/no ranking representing the criteria in the framework and a long list of sites will be identified. This long list of priority sites represents ravine parcels where there are more high level scores than medium and low scores, which allows the sites to be compared relative to each other.

The long list of sites will then be run through a secondary criteria matrix that still follows a weighted framework with ecology as the most important category. Criteria on habitat quality, potential for flood impacts, upcoming capital work on infrastructure, ownership, level of nearby expected intensification, social equity and opportunities to improve access allow a finer scale analysis to identify the final list of Priority Investment Areas.



## NEXT STEPS

Ten Priority Investment Areas will be selected based on this framework and criteria matrices. These sites comprise the priorities for new implementation projects of the five principles set out in the Ravine Strategy – Protect, Invest, Connect, Partner and Celebrate.

The Priority Investment Areas will:

- prioritize additional studies and data collection to ensure any actions proposed work to first and foremost protect and/or enhance the ecology of these sites
- focus coordination of capital work between City divisions and external partners, such as the TRCA
- identify opportunities to improve facilities within parks and access points into the ravines in a manner that limits impacts to the natural environment
- allow the City and external partners to work together on opportunities to celebrate and animate our ravines in a manner that respects the ecological integrity of these spaces

These Priority Investment Areas will not all be homogenous. Different drivers will emerge as to why an area is a priority and, as such, management efforts will not be identical for

each area. Actions in some areas may focus more on protection while other areas may present greater opportunities to animate and celebrate the ravines while diverting human impacts away from more sensitive natural areas.

The process for identifying Ravine Priority Investment Areas is not a static one. Just as ravines are dynamic systems, so must be our focus and efforts to protect and improve these spaces. Not only will new priorities need to be identified once current improvements to an area are complete, but also unpredictable storm events, infestations of invasive species and other significant events may require a shift in priorities. The framework will allow for this, but can also be updated as new data becomes available, such as findings from climate change assessments.



With twenty actions identified in the Strategy to protect and enhance our ravines, we must recognize that it will take time to implement all of them. Some actions will take significant time to plan and implement successfully, while others can be delivered more quickly.

### Quick Wins

Quick wins are actions that can be delivered quickly once initiated and can have an immediate, visible impact in the next one to five years.

Principle	Action
PROTECT	1. (a) Develop and implement Management Plans for three Environmentally Significant Areas (ESAs).
INVEST	7. Develop an ecosystem services analysis for greenspace in Toronto, including both the market and non-market value provided by green infrastructure and associated ecosystem services in the ravine system. 8. Identify ten Priority Investment Areas based on the Ravine Strategy framework and undertake studies and develop plans, as needed, to implement improvements in these areas.
CONNECT	11. Complete the Toronto Parks & Trails Wayfinding Strategy pilot in the Lower Don Valley and provide recommendations on how to implement wayfinding throughout Toronto’s ravine system.
PARTNER	14. Build partnership opportunities and capacity to expand the Community Stewardship Program in order to include additional sites. Identify candidate sites.
CELEBRATE	18. Develop a campaign and events to engage Torontonians, including children and diverse communities, to celebrate the ravines and foster understanding of and respect for the scope and value of Toronto’s ravine system, such as a “Ravine Day”.

## Short-term & Ongoing Actions

Short-term actions can be started and completed within the next five to ten years. On-going actions are currently taking place on a small or pilot basis and can be expanded in the next five to ten years.

Principle	Action
PROTECT	<p>2. Ensure high quality planning, design, construction and maintenance in our ravines by continuing to develop and implement best practices for capital projects and on-going maintenance of infrastructure and natural ecosystems, including trail accessibility, dumping and litter, and invasive species management.</p> <p>3. Develop tools, including staff training and a set of criteria, for staff to assess requests for appropriate activities, events and temporary installations to ensure protection of the natural value of our ravines.</p> <p>5. Expand the network of partnerships with the TRCA and with academic and educational institutions to identify research needs, develop baseline inventories of ravine health, recreation use, and public engagement activities and improve monitoring and reporting in Toronto.</p>
INVEST	<p>6. Leverage planned investment in infrastructure to make improvements in ravines and coordinate these activities through annualized capital coordination.</p> <p>9. Develop key opportunities for ‘hubs’ within or ‘gateways’ or ‘portals’ into the ravine system based on planned investments and the Priority Investment Areas Study.</p>
CONNECT	<p>13. Develop opportunities to honour and share stories of special and historic spaces and ways of relating to the natural environment within our ravines in collaboration with Indigenous communities, City of Toronto Economic Development, Heritage Services and the City Manager’s Office.</p> <p>17. Identify opportunities to partner with and leverage private philanthropic support to invest in specific ravine enhancement projects, such as improved access, hubs, and gateways, and natural feature enhancements.</p>
CELEBRATE	<p>19. Develop outreach plans to particular population groups including park users, property owners adjacent to ravines, pet owners and underserved communities. Communicate good stewardship practices for uses and activities in ravines to ensure that these do not adversely impact natural habitats and, where possible, restore and enhance natural areas.</p>

## Long-term Actions

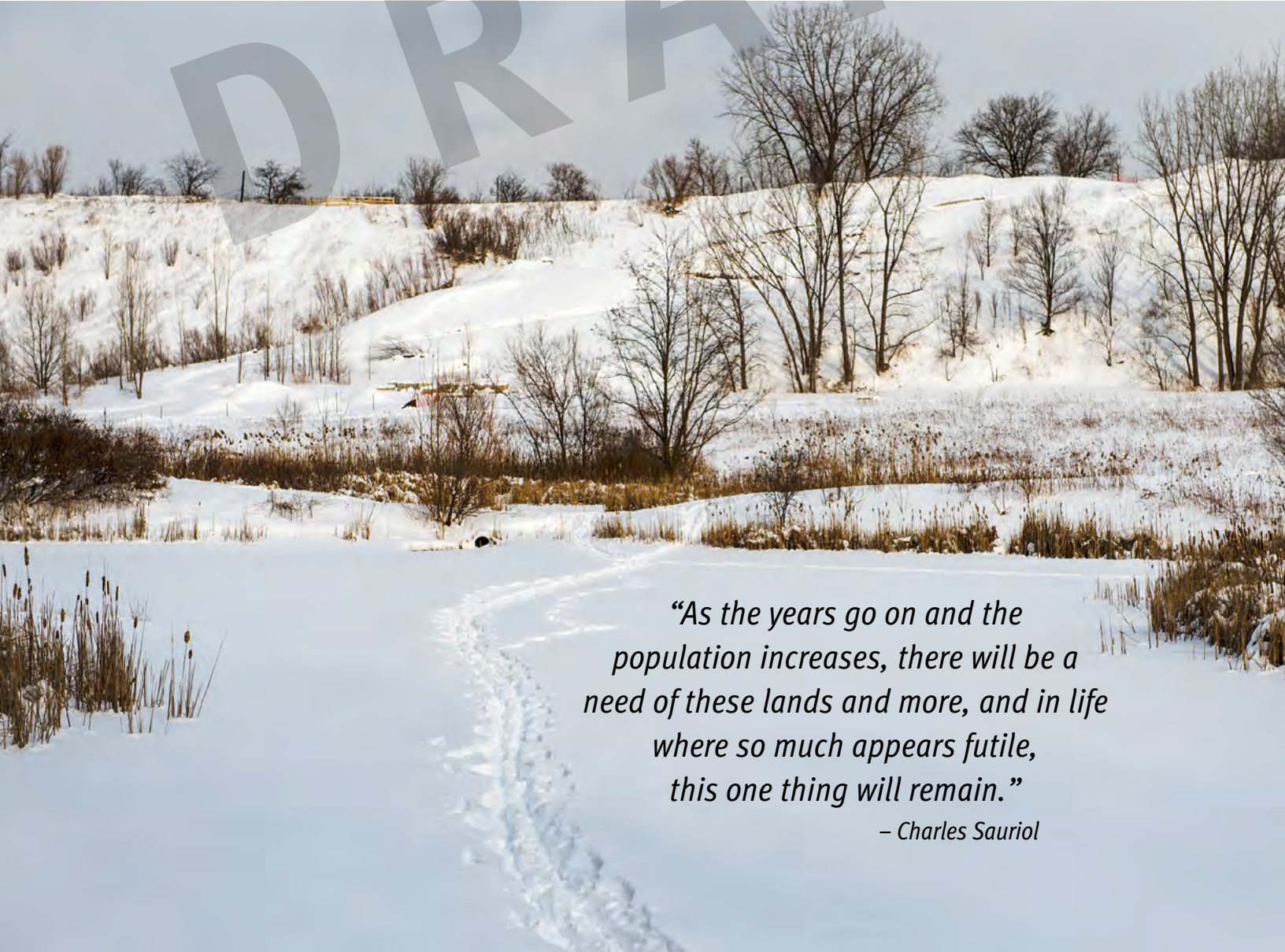
These complex actions will take a significant amount of time and/or funds to complete. While they may be initiated within the next few years, completion would not be expected for more than ten years.

Principle	Action
PROTECT	<p>1. (b) Develop and implement Management Plans for the remainder of Environmentally Significant Areas (ESAs).</p> <p>4. In partnership with the TRCA and other key stakeholders, undertake an assessment of potential climate change impacts on the ravine system, including impacts on the natural systems and existing and proposed infrastructure.</p>
INVEST	<p>10. Work with the TRCA, as well as other agencies, municipalities and the Province, to develop a valley lands acquisition strategy that identifies opportunities to bring additional lands within the ravine system – including buffer areas adjacent to ravines – into public ownership with a focus on natural habitat and trail connections.</p>
CONNECT	<p>12. Review existing trails and access points and develop an implementation plan to address gaps in our system and connections to adjacent municipalities.</p>
PARTNER	<p>15. Work with the TRCA, the Province and other municipalities to continue to ensure implementation of best practices for all urban river valleys that connect to Toronto’s ravine system. Work with the TRCA to establish forums for dialogue, bringing these parties together and reinforcing the importance of continuity of the ravine systems and comprehensive inter-municipal management.</p> <p>16. Establish a framework to support further opportunities to engage volunteer groups, such as “Friends of” groups, in ravine stewardship. These opportunities should be in line with the on-going PFR Volunteer Strategy and guided by the assessment of demand and vulnerabilities in the Priority Investment Areas Study.</p>
CELEBRATE	<p>20. Develop a communications strategy to promote ravines as a natural asset and a key part of Toronto’s identity in collaboration with Tourism Toronto and other key stakeholders.</p>

# CONCLUSION

A healthy and robust ravine system is crucial to the future of Toronto. If we want to create a truly great city, we need to align our city-building efforts to create a bold vision for these areas. We need to think of, and manage this system as whole, not as a series of areas, interests and projects. Toronto has developed our first Ravine Strategy to address this growing interest in both using and protecting the ravines and in the many important roles ravines perform.

The Toronto Ravine Strategy is the first phase in an ongoing management process to guide Toronto's policies, activities, investments and stewardship for our ravines. The recommendations in this Strategy address the challenges and opportunities in the ravine system and act as catalysts to move the strategic vision forward. Realization of the Strategy will have profound implications for the future of our city both for the park system as our population grows and for environmental sustainability as we face new challenges such as climate change.



*“As the years go on and the population increases, there will be a need of these lands and more, and in life where so much appears futile, this one thing will remain.”*

*– Charles Sauriol*

# ENDNOTES

- <sup>1</sup> Toronto Municipal Code. Chapter 658, Ravine and Natural Feature Protection. [www.toronto.ca/legdocs/municode/1184\\_658.pdf](http://www.toronto.ca/legdocs/municode/1184_658.pdf)
- <sup>2</sup> For more information on the history and ecology of Toronto’s ravines, see Appendix 1 at [www.toronto.ca/ravinestrategy](http://www.toronto.ca/ravinestrategy)
- <sup>3</sup> Johnson, Jon. 2016. Pathways: On Indigenous Landscapes in Toronto. Ground, Winter, [http://oala.ca/ground\\_issue/ground-36-data/pathways-indigenous-landscapes-toronto/](http://oala.ca/ground_issue/ground-36-data/pathways-indigenous-landscapes-toronto/)
- <sup>4</sup> Bonnell, Jennifer L. 2014. Reclaiming the Don. University of Toronto Press.
- <sup>5</sup> Bateman, Chris. July 9, 2016. Historicist: How a Murder Fed Anxieties about Toronto Ravines. Torontoist. <http://torontoist.com/2016/07/historicist-ruth-taylor-murder/>
- <sup>6</sup> A lot of good work has been done to tell the story of the “Lost Rivers” of Toronto: [www.lostrivers.ca](http://www.lostrivers.ca).
- <sup>7</sup> Mayers, Adam. November 21, 2007. Toronto’s hidden rivers. Toronto Star. [http://www.thestar.com/news/gta/2007/11/21/torontos\\_hidden\\_rivers.html](http://www.thestar.com/news/gta/2007/11/21/torontos_hidden_rivers.html)
- <sup>8</sup> Toronto Facts: Diversity. City of Toronto. [www1.toronto.ca/wps/portal/contentonly?vnextoid=dbe867b42d853410VgnVCM10000071d6of89RCRD](http://www1.toronto.ca/wps/portal/contentonly?vnextoid=dbe867b42d853410VgnVCM10000071d6of89RCRD)
- <sup>9</sup> Toronto Public Health. 2015. Green City: Why nature matters to health—An Evidence Review. [www.toronto.ca/legdocs/mmis/2015/hl/bgrd/backgroundfile-83421.pdf](http://www.toronto.ca/legdocs/mmis/2015/hl/bgrd/backgroundfile-83421.pdf)
- <sup>10</sup> Ibid.
- <sup>11</sup> Methot, Suzanne. August 20, 2012. Toronto Is An Iroquois Word. <http://dragonflycanada.ca/toronto-is-an-iroquois-word/>
- <sup>12</sup> See Appendix 1 for details on current threats to Toronto’s ravines.
- <sup>13</sup> See Appendix 2 for additional details on public consultation for the strategy.
- <sup>14</sup> Based on numbers from 2015
- <sup>15</sup> City of Toronto. 2013 Every Tree Counts: A Portrait of Toronto’s Urban Forest. [www1.toronto.ca/City%20Of%20Toronto/Parks%20Forestry%20&%20Recreation/Urban%20Forestry/Files/pdf/E/every\\_tree\\_counts.pdf](http://www1.toronto.ca/City%20Of%20Toronto/Parks%20Forestry%20&%20Recreation/Urban%20Forestry/Files/pdf/E/every_tree_counts.pdf)
- <sup>16</sup> Aboriginal Affairs: Statement of Commitment. City of Toronto [www1.toronto.ca/wps/portal/](http://www1.toronto.ca/wps/portal/)
- <sup>17</sup> <https://parkpeople.ca/>
- <sup>18</sup> Ali, Sabina. December 16, 2015. Thorncliffe Park Women’s Committee: Revitalizing Public Green Spaces. Presentation at Toronto Chief Planner Roundtable. <http://www1.toronto.ca/City%20Of%20Toronto/City%20Planning/Chief%20Planner%20Roundtable/RavinesSabinaAli.pdf>
- <sup>19</sup> As defined by the classification methodology of Kilgour, B and Stanfield, 2000, Development of a landscape-based protocol for predicting fisheries potential in Ontario. (unpublished)

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## PHOTO CREDITS

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Toronto and Region Conservation Authority: 40 (left) Celebration in Action:



