TORONTO

Taylor Creek Park
Management Plan

Final Report

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We acknowledge the land we live and work on is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. We also acknowledge that Toronto is covered by Treaty 13 with the Mississaugas of the Credit and the Williams Treaties signed with multiple Mississaugas and Chippewa bands.

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Executive Summary

Taylor Creek Park receives intensive use on an annual basis. Numerous compounding issues are having a variety of impacts on the Natural Heritage System and the Taylor Creek Park Environmentally Significant Area (ESA), resulting in the City of Toronto making the decision to pursue the development of a Management Plan for Taylor Creek Park.

The City of Toronto Parks, Forestry and Recreation Division, led the initiative to prepare this Management Plan. The process of preparing the Management Plan was the final phase of a three-part process that comprised the following stages: (i) Status Report, (ii) Taylor Massey Creek Subwatershed Master Plan Update and (iii) Taylor Creek Park Management Plan. Details regarding the process can be found on the City's website at:

https://www.toronto.ca/city-government/planning-development/construction-new-facilities/parks-facility-plans-strategies/taylor-massey-sub-watershed-master-plan/

The Management Plan process was coordinated by the members of the Taylor Massey Working Group, which is led by the Parks, Forestry and Recreation division and includes support and input from the following divisions: Toronto Water, City Planning, Cycling Infrastructure and Programs and Solid Waste Management. The Toronto and Region Conservation Authority (TRCA) was a key stakeholder. The process also included extensive public consultation.

The Management Plan was developed with the Ravine Strategy as its foundation and respects the interdivisional roles and responsibilities of various relevant divisions within the City of Toronto and the TRCA.

The Management Plan Study Area is situated within the Taylor Massey Creek Subwatershed, which is denoted by the City's Ravine and Natural Feature Protection By-Law boundary. The Study Area was defined by the municipal boundary for Taylor Creek Park and extends from the Don River Valley in the west to Victoria Park Avenue in the east.

The Taylor Creek Park Status Report completed in January 2016 provided a baseline for evaluating management opportunities as part of the Management Plan. Utilizing this information and applying a systems-based approach to site assessment in combination with additional field work, the Study Team developed a suite of high-level 'park-wide' as well as 'area-specific' management recommendations. The various types of recommendations were grouped into categories as follows:

A. **Park-Wide Recommendations** - High-level recommendations that provide guidance for further studies and on-going maintenance, are less prescriptive than site-specific projects and address a balance of perspectives.

B. **Coordinated Improvement Areas (CIAs)** – Promote inter-divisional or agency coordinated implementation, in which solutions are proposed in a coordinated effort in order to reduce disturbance footprint, frequency and cost.

C. **Anchor Projects** - Are significant, infrastructure or creek stabilization-based projects that require large footprints for staging and construction and afford opportunities to combine projects. Anchor projects are associated with 'Coordinated Improvement Areas' to which other projects are combined based upon proximity.

D. **Quick Wins** - A number of smaller projects that are located outside of the Coordinated Improvement Areas can be implemented more quickly on their own. 'Quick-Win' projects generally relate to public safety or environmental protection and enhancement.

The recommendations set out in the Management Plan focus on the following 'foundational' principles as set out in the Ravine Strategy:

- Protection of the natural and cultural heritage system;
- Improvements to watercourse stability and health; and,
- Enhancements to trail/ circulation system within the Park.

The recommendations were evaluated and refined through an extensive stakeholder and public consultation process which included a Public Meeting as well as the utilization of Social Pinpoint, an interactive on-line survey tool that remained on the City's website throughout the study process. The recommendations were subsequently finalized and will guide the future management of the various components of Taylor Creek Park.

The Management Plan also provides guidance related to life-cycle maintenance for trails as well as recommendations for monitoring of watercourse rehabilitation and ecological restoration sites.

1.0 Introduction

The *Taylor Creek Park Management Plan* (herein known as the Management Plan) will guide and coordinate the future preservation, improvement, on-going and future management, maintenance and public use of the parkland open space system within Taylor Creek Park. The Management Plan comprises the third of three steps in the Taylor Massey Creek planning process, as approved by the Parks & Environment Committee on June 22, 2015 and City Council on July 7, 2015. The Management Plan builds upon the two studies that preceded it, the *Taylor/Massey Creek Geomorphic Systems Management* Plan (TMP GSMP) prepared by Parish Geomorphic in 2015, and the *Taylor Massey Creek Subwatershed Management Plan Update,* prepared by Schollen & Company Inc. in 2018.

The Management Plan considers the diversity of features and functions and their interconnectedness within the Study Area, as well as its context, including natural areas, park infrastructure, recreational amenities, trails, stormwater facilities and other utilities.

The Management Plan seeks to coordinate interests amongst stakeholders, agencies and divisions across two municipal Wards, and provides a cohesive plan for future capital investment. It is intended to provide guidelines and direction to coordinate management actions in an effort to effectively and efficiently protect and enhance sensitive natural environmental features, address flood and drainage issues and improve safety along the trail system within Taylor Creek Park.

The mandate to prepare the Management Plan arose from concerns about water and sewer infrastructure, former landfill sites, stream bank erosion, protection of environmentally significant habitats, spread of invasive species, and the degraded condition of bridges, trails, picnic facilities, benches, signs, washrooms and water fountains.

The Management Plan was informed by an Engagement Program that featured consultation with agencies, stakeholders and City divisions, as well as with the local community. Consultation included members of the Taylor Massey Working Group, which is led by Parks, Forestry and Recreation and includes Toronto Water, City Planning, Cycling Infrastructure, Solid Waste Management and the TRCA, as well as other external stakeholders such as Hydro One Networks Inc. (HONI). Coordination amongst stakeholders both internal and external to City divisions will be essential to facilitate the implementation of the Management Plan.

1.1 Study Area

The Study Area is defined by the Taylor Creek Park boundary as set out by the City of Toronto, in combination with other municipal parks that are contiguous with the Park, including Donora Park, Stan Wadlow Park and Cullen Bryant Park.

The Study Area encompasses a 3.7 km stretch of the Taylor Massey Creek corridor as well as Curity Creek and Ferris Creek. Ferris Creek and Curity Creek are tributaries that feed into Taylor Massey Creek northwest of Ferris Road and south of Curity Avenue, respectively. Although now known as Taylor Massey Creek, historically the watercourse was referred to as Taylor Creek in Toronto and Massey Creek in Scarborough, with Victoria Park Avenue being the dividing line between the former municipalities of Toronto and Scarborough. The watercourse within the Study Area drains an area of 253 ha.

The Study Area encompasses parkland, meadows and forested landscapes and includes pockets of wetlands and high-quality forest. A hydro corridor borders the ravine system along its southern edge and several former known landfill sites are located within the Study Area.

The Study Area is loosely bounded on the west by the Don Valley Parkway and by Victoria Park Avenue on the east. O'Connor Drive and Dawes Road are major north-south arterial roads that bisect the Study Area. The Study Area is also traversed by some residential roads. Much of the northern and southern edges of the Taylor Creek Park ravine are defined by private residential lands, large apartment complexes (including a Toronto Community Housing complex), a long-term care facility and two school properties. While a large portion of the Study Area is encompassed within the City's Ravine and Natural Feature Protection By-Law boundary, the ravine natural areas extend into many of these privately-owned lands. The hard surface areas associated with the surrounding residential roads and large building complexes contribute to powerful downstream flows within the creek, which can erode the banks of the watercourse during significant storm events.

The Study Area includes a Provincially-owned hydro electric corridor and City-owned parks as illustrated in Figure 1. Specific features that are located within, or which are proximate to, the Study Area include:

- Stan Wadlow Clubhouse and Park
- Community Gardens (at Haldon Avenue)
- Victoria Park Avenue Subway Station
- Children's Peace Theatre
- Coxwell Ravine Park
- Parkside Public School
- Crescent Town Elementary School
- Donora Park
- Cullen Bryant Park
- Access to Lower Don & East Don trails

Approximately 25% of the Study Area (excluding the hydro corridor) comprises open space/manicured landscape. The maintained lawn areas serve as multi-use recreational spaces for various-sized groups and include modest picnic facilities. These areas are accessible directly from the main east-west official asphalt trail system. Some picnic areas are separated by grade and are accessed by stairs. There are two permitted fire pit areas. As illustrated in Figures 1.1 and 1.2, recreational areas are serviced by one operational washroom and five parking areas. The open space areas are subject to intense seasonal use (Refer to park usage data provided in Figure 20).

Approximately 34% of the Study Area land area is located within the floodplain as defined by the TRCA. Refer to background mapping included in Appendix B.

The jurisdiction of Taylor Creek Park is divided amongst many City divisions and extends across two municipal Wards. The Management Plan is an important tool that provides strategic direction to guide the appropriate use and protection of sensitive features, recommendations for improvements to the current maintenance and monitoring systems in place and coordination and planning of future capital investments.

Figure 1: Park System

Map Source – City Open Data

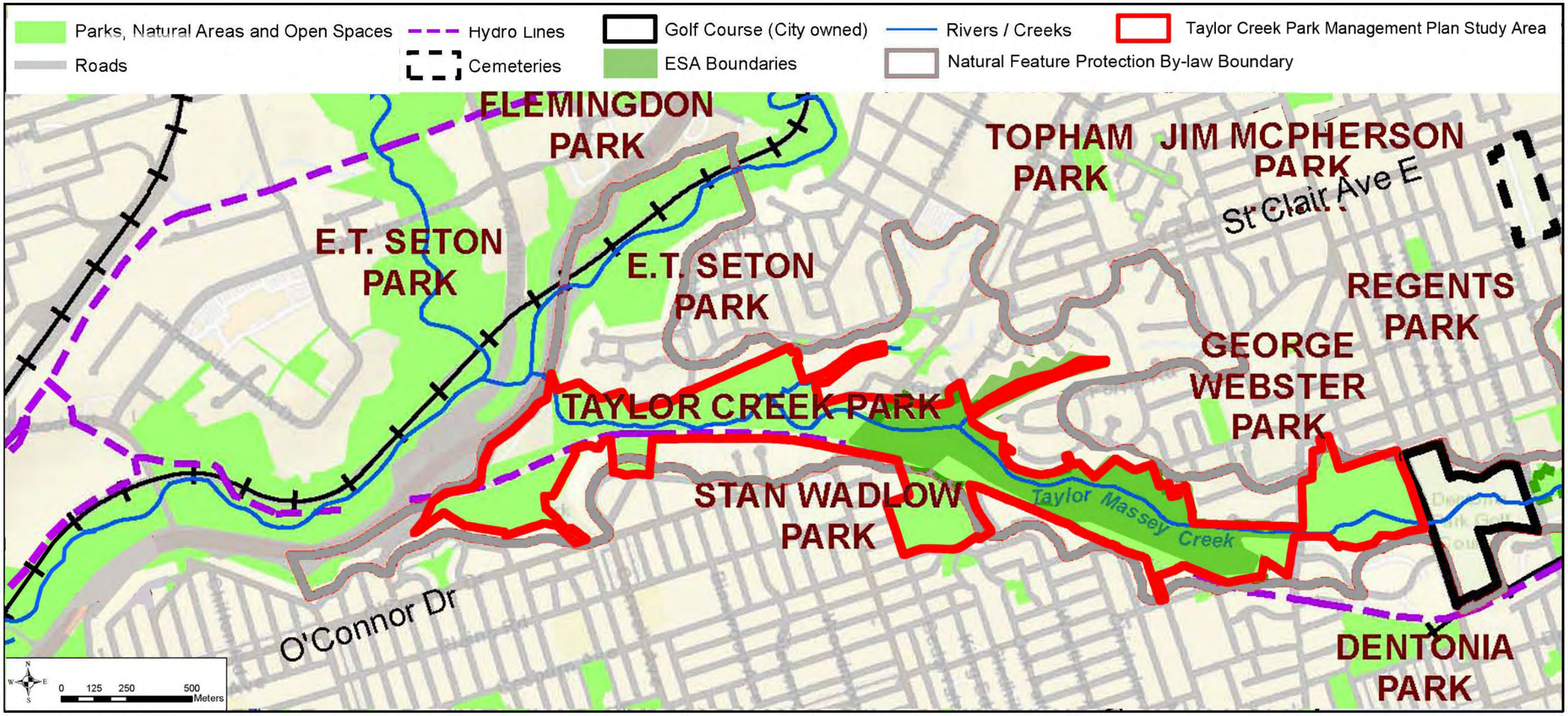


Figure 2.1: Taylor Creek Study Area West

Figure 2.2: Taylor Creek Study Area East

Trail Upgrade 2018
Newly Paved Road
Existing Trail Network (10 Year City Cycling Network Plan)
Proposed Trail Network (10 Year City Cycling Network Plan)
Existing Ad-hoc Trail

Dog Park
Children's Peace Theatre
Parking
Stairs
Washroom
Wetland

ESA Boundary
Hydro Corridor
City-owned Parkland
Contour
Permanent Easement - No Management Agreement
Property Boundary

Taylor Creek Park Study Area
Natural Feature Protection By-law Boundary
Timber Footbridge (Upgraded)
Steel Footbridge (Replaced)
Weir

Official Access
Unofficial Access

Taylor Creek Park Management Plan
Base Map

Area 2: Taylor Creek Park East

0 25 50 100 Meters

1.2 Subwatershed Context

The Management Plan considers the subwatershed context of the Study Area, which is defined as the ravine lands along the entire length of Taylor Massey Creek. The subwatershed encompasses 128 hectares and extends from the headwaters south of Highway 401 downstream to the confluence with the East Don River, west of the Don Valley Parkway.

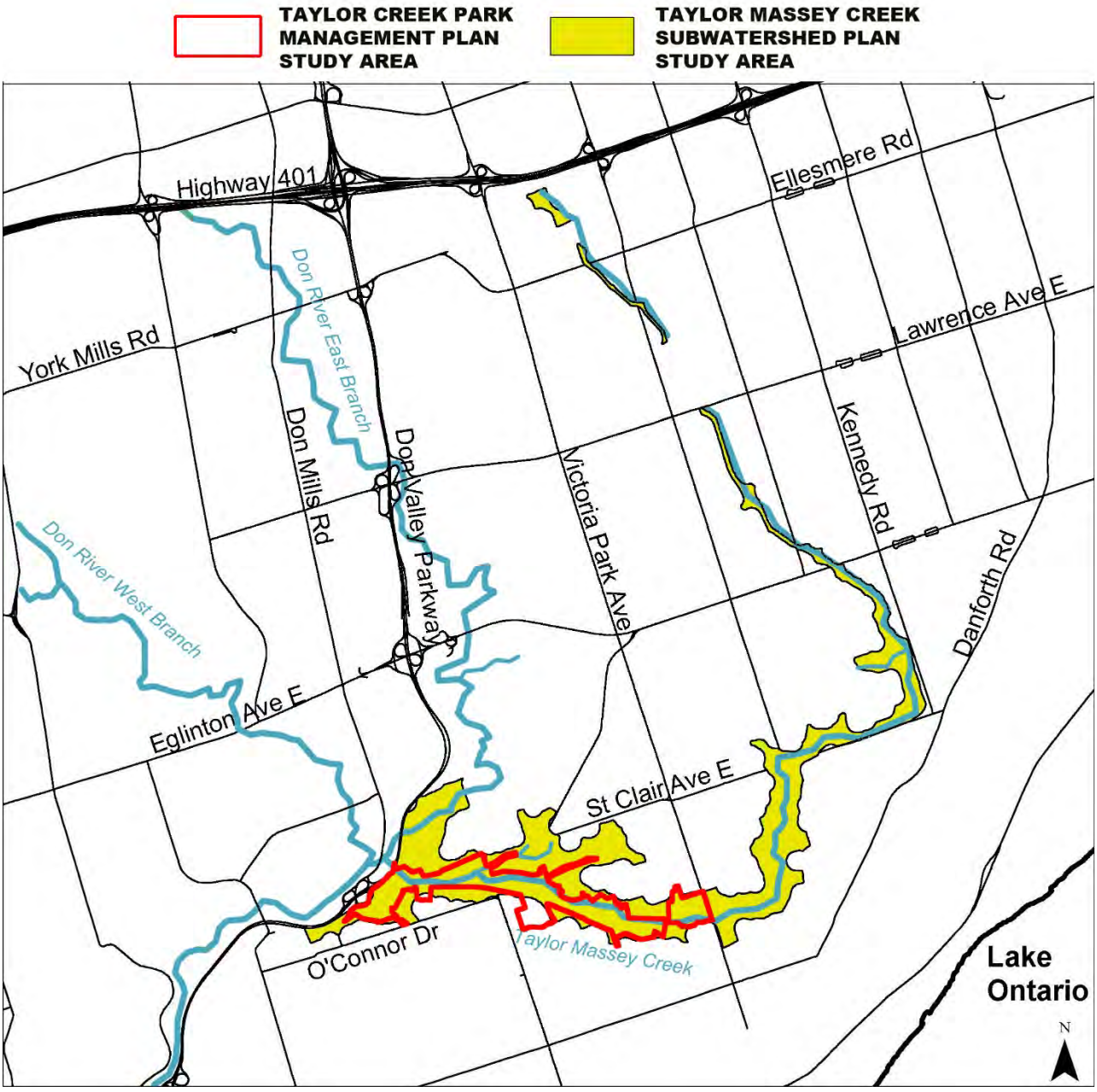


Figure 3: Subwatershed Context Map

In order to better understand the varied conditions and landscape typologies that exist within Taylor Creek Park, the Study Area was divided into 'Management Areas' which are consistent with those that were identified in the *Taylor Massey Creek Subwatershed Master Plan Update,* which relies upon the road network and infrastructure crossings to define the points of subdivision. The relative complexity of issues within a given area, and the potential to require investment to fund necessary capital and restoration projects, were factored into the delineation of the limits of the Management Areas, which are depicted in Figure 4 below. Due to the differences in characterization from one side of the Study Area to the other, the key focus of management recommendations varies as described in Figure 4.

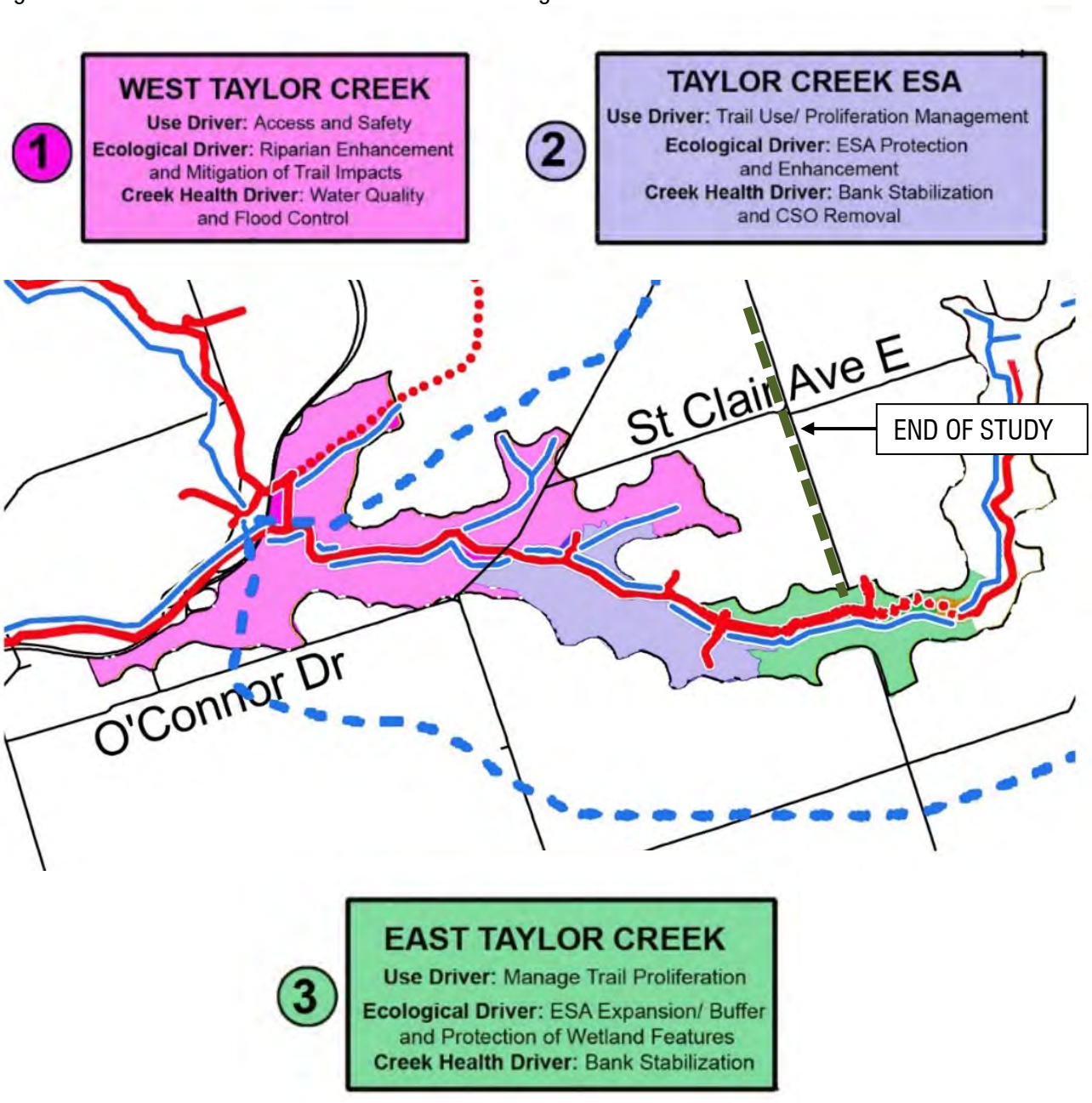


Figure 4: Taylor Massey Creek Subwatershed Study Management Areas 1-3

1.3 Land Ownership

The lands within the Taylor Creek Park Study Area are primarily owned by TRCA (58%). The hydro corridor which runs along the south side of the Study Area is owned by HONI, and one small parcel of Ministry of Transportation (MTO) owned land exists on the west end of the Study Area. The entirety of the Study Area is managed and maintained by the City of Toronto, Parks Forestry and Recreation (PFR) under a land management agreement with the TRCA. TRCA has regulatory authority over the floodplain areas of the parkland under Ontario Regulation 166/06, and partners with the City to manage the impacts of flooding and erosion. The ravine lands are also regulated by the City of Toronto under the City's Ravine and Natural Feature Protection By-Law.

1.4 Policy Context

The following sections describe the regulations and policies that apply to the Study Area.

1.4.1 Provincial Policy

- **Species-at-Risk**
  The Ministry of Environment, Conservation and Parks (MECP) protects important habitats within Ontario that support significant species of flora and fauna. The Ministry of Natural Resources and Forestry (MNRF) requires clearance (Letter of Advice or Overall Benefit Permit) for proposed development within habitat of Species-at-Risk. The development/site alteration proposed may be denied or may require that specific setbacks be applied from the sensitive habitat or that compensation for impacts on habitat be provided. Two species that are sensitive to disturbance and, which are identified within the Study Area, are noted in the table below.

Table 1: Species at Risk Habitat

Species at Risk	Habitat	Relationship to Urban Habitat
Bird Eastern wood pewee (Species of Special Concern)	Wide variety of large and small woodlands; common	Flexible habitat requirements but not generally found in urban parks and gardens
Bat Little brown myotis (Endangered)	Attics and tree cavities, forages over small water bodies; not specifically recorded but likely	Overlap in habitat between urban parks and gardens and forest habitat

- **Ontario Regulation 166/06**
  The TRCA regulates, and may prohibit, site alterations within valley and stream corridors. Permit requirements should be verified with the TRCA at the conceptual and detailed design stage. Any works proposed within TRCA regulated lands, despite being managed by the City of Toronto under a management agreement, are subject to archaeological assessments, and will require approval by TRCA staff.

1.4.2 Municipal Policy

- **Ravine and Natural Feature Protection By-law (City of Toronto Municipal Code Ch. 658)**
  This By-Law is a tool to protect important natural features that are vulnerable to degradation due to the removal of trees, changes in grade or lack of management. The By-Law area includes tableland forests and forested portions of the Lake Iroquois shoreline.

- **OPA Policy (OPA 262 Environmental Policies and Designation of ESA Areas BL No. 1158-2015)**
  The policy applies to the Taylor Creek Park ESA and guides the protection of special and unique natural heritage features. Specifically, the policy has bearing on the Natural Heritage System and ESA's in the following way:

  - Provision of a set back from toe-of-slope;
  - Protection of ESAs where they extend above top-of-bank;
  - Protection of buffer areas and functions; and,
  - Prohibition of alteration to existing slopes to facilitate new development.

2.0 Supporting Plans and Guideline Documents

Several reports informed the Management Plan. The following sections summarize how each document influenced the Management Plan.

2.1 Taylor Massey Creek Subwatershed Master Plan Update

The *Taylor Massey Creek Subwatershed Management Plan Update,* prepared by Schollen & Company Inc. in 2018 established three Management Plan areas and the 'foundational' criteria that guided the evaluation of these areas within Taylor Creek Park as part of the Management Plan.

2.2 Taylor Massey Creek Status Report

The generation of the Status Report was the first step of a three-phase planning process for Taylor Massey Creek, as approved by Parks & Environment Committee on June 22, 2015 and City Council on July 7, 2015. The report includes an inventory and assessment of existing assets, a summary of past and current reports, and a list of recently completed and planned projects. It was compiled and reviewed by the members of the Taylor Massey Creek Working Group, which is led by Parks, Forestry and Recreation and included City staff from Toronto Water, Transportation Services, Solid Waste Management as well as staff from the TRCA.

The information contained within the report was used as a base-line against which to determine and evaluate proposed recommendations.

2.3 Wet Weather Flow Master Plan (2003) Findings & Don River & Central Waterfront Project (2011 to present)

Creek restoration projects are one of the key elements of the Wet Weather Flow Master Plan (WWFMP), developed to address degraded water quality in the City's receiving waters and the other adverse effects of wet weather flows. A major source of water pollution in the city comes from stormwater runoff and combined sewer overflows (CSOs), which contain a mixture of stormwater and untreated sewage, and which are discharged from outfalls into Toronto's waterways after heavy rains or snowmelts. The WWFMP was developed based on the principles of managing wet weather flows on a watershed basis, recognizing rainwater as a valuable resource, and with a hierarchy of management practices and controls, starting with "at source", followed by "conveyance" and finally "end-of-pipe" controls.

WWFMP Findings Regarding Channel Rehabilitation

The WWFMP examined the role that the wet weather flow management through land use quantity controls would have on stabilizing the City's geomorphic systems through stormwater management source-control measures that lead to a reduction in the volume of storm water runoff from urban developments and impervious surfaces. The WWFMP concluded that source-control measures alone would not achieve the objective of geomorphic stability needed in Toronto's streams and rivers. Rather, the WWFMP concluded that physical intervention was needed, particularly because the channels had been straightened and were also often undersized.

Figure 5: Don River & Central Waterfront Project EA (2011)

In response to these findings, a 25-year implementation plan was developed, which identified projects and initiatives for implementation in five-year periods. This priority framework supports actions within the Toronto and Region Remedial Action Plan (RAP), which is considered integral to improving water quality conditions and to establish the Toronto and Region as a 'Great Lakes Area of Concern'. The implementation plan for the RAP includes watercourse restoration, remediation of basement flooding, improvements to coordination with municipal operations, greening new development, and public education.

Don River & Central Waterfront Project – Improvement of Water Quality in Taylor Creek Park

Specific to Taylor Creek Park, the project involves the construction of an extensive underground tunnel roughly following the alignment of Taylor Creek as illustrated in Figure 5. The footprint of construction includes staging areas, access routes and construction shafts for the deployment of equipment and materials to construct the underground tunnel.

The DR&CW project provides a limited basis for anchor projects within Taylor Creek Park which are used to develop the Management Plan of this study and which are described in detail further on in the report.

2.4 Geomorphic & Habitat Systems Studies

The TMC GSMP completed in 2015 by Parish Geomorphic, addressed erosion concerns and the degradation of Taylor Massey Creek's aquatic and riparian habitats. The Study identified that erosion has put some subsurface infrastructure within the Park at risk. The TMC GSMP further identified recommendations to enhance the stability and function of Taylor Massey Creek to protect vulnerable infrastructure from future erosion impacts. The key findings emerging from the Study included:

- Confirmation of the findings of the WWFMP that in-stream intervention is the necessary solution to resolve Taylor Massey Creek rehabilitation issues;
- A variety of solutions, with a range in scale and cost, are needed to address and prioritize infrastructure protection and aquatic habitat issues. These solutions range from small-scale repairs to large-scale restoration projects; and,
- A conclusion that channel-maintenance solutions and riparian plantings are appropriate for certain sites, which are defined in the report.

The TMC GSMP and a follow-up Implementation Study (Aquafor Beech, 2021) define 'anchor' stream restoration projects which are used to develop the Management Plan of this study and which are described in detail further on in the report.

2.5 City of Toronto 10 Year Cycling Network Plan

On June 9, 2016 Toronto City Council approved the *10 Year Cycling Network Plan* to 'Connect, Grow and Renew' infrastructure for Toronto's cycling routes. The Plan serves as a comprehensive roadmap, outlining the City's planned investments in cycling infrastructure from 2016-2025. The plan identifies opportunities for cycling infrastructure investments. It includes recommendations for cycle lanes on busy streets and recommendations for traffic-calmed routes, with cycling wayfinding on local roads. The Plan also includes a network of multi-use and boulevard trails that form important linkages to trails within the Study Area.

The existing and proposed cycling routes that surround the Study Area denoted on the City's *10 Year Cycling Network Plan* (illustrated on Figure 6) represent opportunities to link the ravine trail system with neighbouring communities, connecting to 'off-road' trails and the transit network. Illustrated in Figure 6, East Don Trail Phases 1 and 2 are currently being implemented and will be an important link northward from the Taylor Creek Park trail system.

2.6 Archaeological Assessment (Stage 1) of the Taylor Massey Creek EA

The TMC GSMP EA completed in 2015 by Parish Geomorphic was conducted as an Environmental Assessment (EA) of the Taylor Massey Creek corridor, and was aimed at identifying alternative methods to enhance the stability and function of Taylor Creek. Past activities have led to degradation of aquatic and riparian zone habitats, as well as extensive erosion, which has put some trails and subsurface infrastructure at risk. The EA process provided guidance in the development of design alternatives to eliminate erosion risks along the creek.

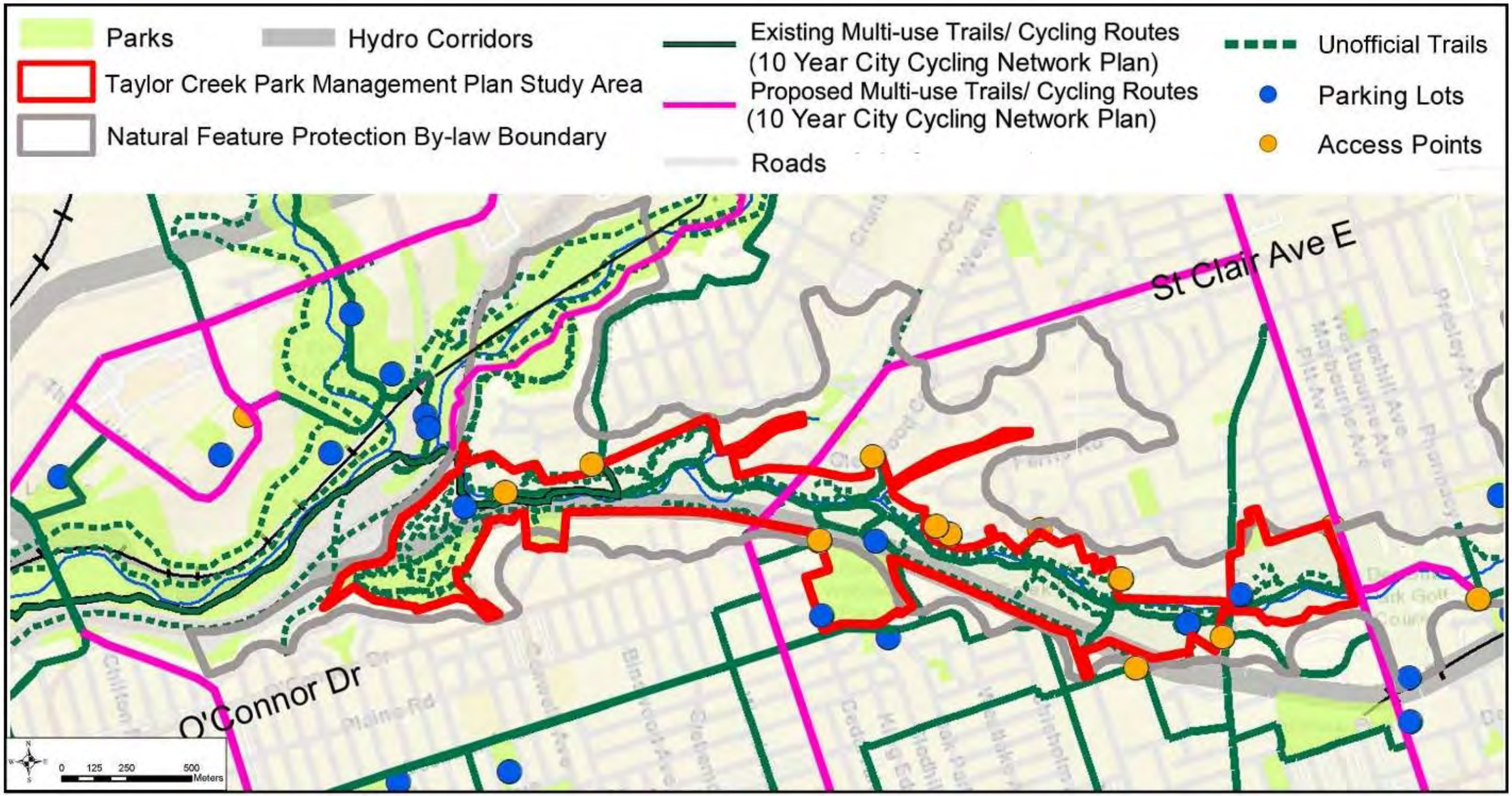
The objectives of the EA were to provide information about the geography, history, previous archaeological fieldwork and current land condition of the corridor in order to evaluate the potential for it to contain cultural heritage resources that might be impacted by any modifications proposed within the EA study area.

The EA recommended that, within all of the areas identified as having archaeological potential, a Stage 2 Assessment would be required prior to any ground-disturbing activities.

The areas of archaeological potential as well as those cleared of archaeological significance from past archaeological assessments are identified in Figure 11.

Figure 6: Cycling and Multi-use Trail Facilities

Map Sources – City Open Data and City's Cycling Network Plan



2.7 City of Toronto Environmentally Significant Areas Study

The Official Plan lays out a clear policy framework for the protection of ESAs. Development is not permitted within ESAs and activities are limited to those that are compatible with the preservation of the natural feature(s). ESAs are meant to capture the most locally and regionally significant terrestrial natural areas within the City's Natural Heritage System; affording a mechanism by which to protect vulnerable habitats and the species that rely on them. Background work to identify a potential ESA(s) within Taylor Creek Park was carried out between 2006 and 2008, and field work to assess landform and vegetation communities was completed between 2009 and 2012. The delineation of the Taylor Creek Park ESA illustrated in Figure 7, was approved by the Province within the new Official Plan on July 12, 2016. The ESA includes lands owned by infrastructure Ontario. The criteria for determining the ESA were based solely on ecological considerations.

Of relevance to the Management Plan, the City of Toronto ESA Study found that natural heritage features are affected by the following:

- Unofficial trail use;
- Off-leash dog use;
- Encroachment by adjacent landowners i.e. structures;
- Direct drainage of pool waters to creek;
- Removal of native vegetation for gardens;
- Dumping of garbage, particularly compost and building materials; and,
- Non-native species invasion.

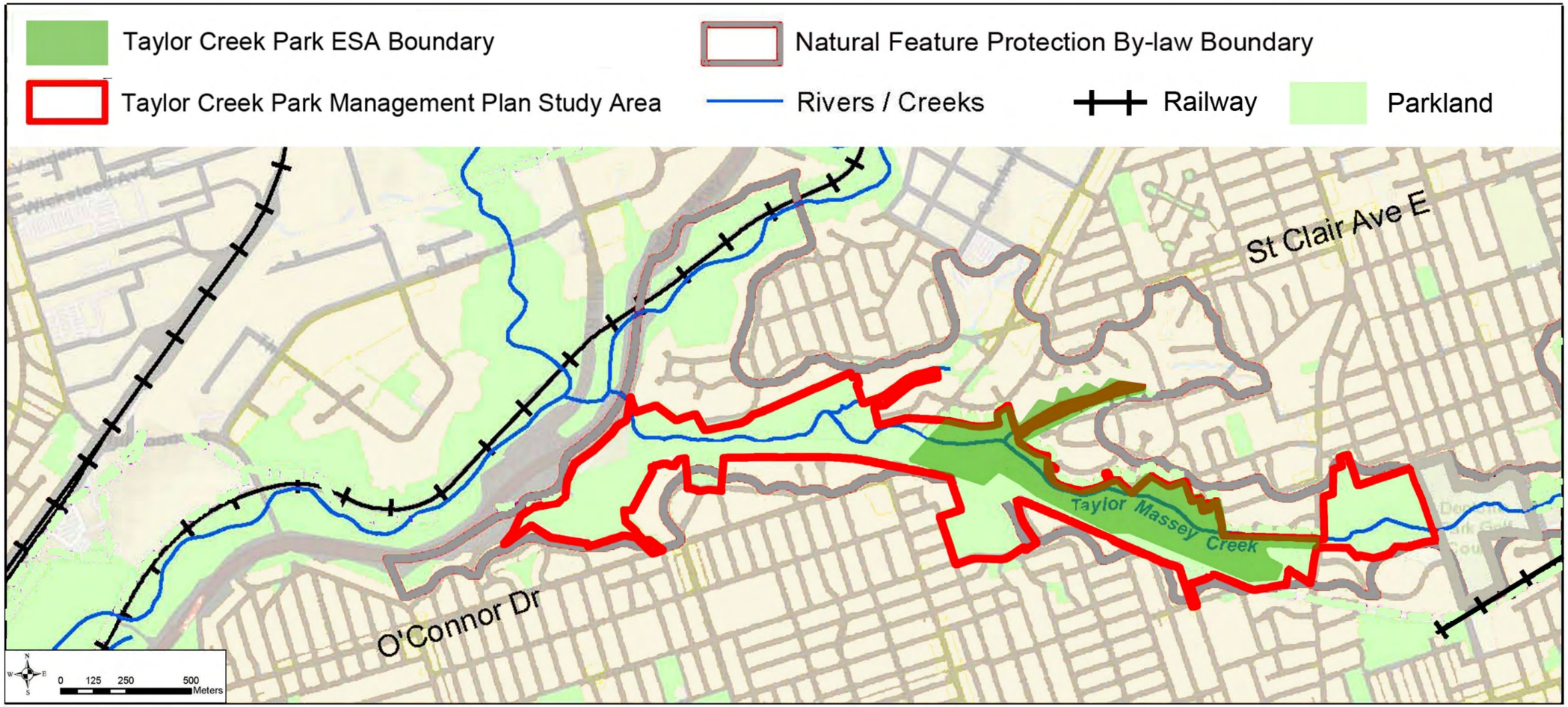
The study concluded that the ESAs would benefit from management, which could include targeted landowner and user outreach, education and stewardship, as well as City-led hands-on management. More generally, it was concluded that ESA protection should be elevated in Toronto due to the fact ESAs are:

- Located in a dense urban area where the population is expected to grow by an additional 360,000 residents by 2031 (City of Toronto, 2018), with resulting increased pressures on natural areas;
- Located within the City's Natural Heritage System, which also supports a range of recreation uses, is traversed by infrastructure, and under continual pressure to provide additional uses; and,
- Subject to a wide range of impacts and stressors, even under the current population levels, so there is a need to identify and protect the most sensitive and least degraded areas quickly to ensure they are not further degraded as the population continues to grow.

The intensive use Taylor Creek Park receives on an annual basis, the impacts that compounding issues are having on the Natural Heritage System, and the presence of the ESA, were key reasons why the City of Toronto decided to pursue the development of a Management Plan for Taylor Creek Park.

The City retained North-South Environmental Inc. under a separate study to investigate the potential to expand the Taylor Creek Park ESA. The portion of land between the current ESA and Taylor Creek was evaluated in October of 2017 and June of 2018 to identify if the habitat met the criteria for an ESA. The information was submitted to the City of Toronto in late 2018, however, this information is still under review.

Figure 7: Taylor Creek Park ESA



2.8 Taylor Massey Creek Characterization: Memorandum Report

Dougan & Associates were retained to complete a natural heritage characterization of the Taylor Massey Creek valley lands. The field work was completed between May to June, 2016. The Study included: Nocturnal Amphibian Surveys, Breeding Bird Surveys, Ecological Land Classification (ELC) and Botanical Inventories. The ELC data was obtained from the City of Toronto and TRCA and integrated into Geographic Information System (GIS) databases for this project. Significant wildlife species and plant species, including Butternut tree (Juglans cinerea), were identified within the Study Area. Species-at-Risk were also detected within the Study Area. The locations of these conservation priority species were included in the assessment mapping, but are not included in this report or appendices, due to the sensitivity of the data.

The Dougan report identified numerous invasive species present throughout the Study Area. In most cases ubiquitous coverage was noted in areas with the following species: European buckthorn (Rhamnus cathartica), Garlic mustard (Alliaria petiolata), European reed (Phragmites australis), and in most abundance, Dog-strangling vine (Cynanchum rossicum).

Additional field work that was conducted by North-South Environmental Inc. as part of this Study confirmed the conditions that were documented in the June 2016 memorandum.

2.9 Parks and Recreation Facilities Master Plan

Toronto is changing, the population is growing and recreation trends are shifting. A long-term plan to build and renew facilities across the city was needed to assist the City of Toronto in preparing to meet recreation needs into the future. In response, Parks, Forestry and Recreation generated a 20-year Parks and Recreation Facilities Master Plan to guide decision-making and investment in parks and recreation facilities that are owned and or operated by the City of Toronto. The Parks and Recreation Facilities Master Plan was adopted by City Council's Executive Committee on October 24, 2017.

The Parks and Recreation Facilities Master Plan built on past efforts and strengthens the City's ongoing commitment to improving recreational facilities by establishing a vision for facility provision. The study identified shortfalls in recreational amenities, and recommended the types and locations of recreational amenities that are to be implemented within specific parks. No specific recommendations were made for Taylor Creek Park. However, a key finding of the report was the identification of a shortfall in available funding to address repairs in parks. The Parks and Facilities Master Plan recommends "eliminating the state of good repair backlog and increasing annual investment from 1.1 percent to 2.1 percent of the total asset value", preventing a future backlog. The Master Plan identifies strategic investment and funding sources.

Since a key objective of the Parks and Facilities Master Plan is to establish a framework to identify gaps in facilities within specific parks commencing in 2019 to 2038, specific recommendations do not yet exist for Taylor Creek Park. However, future findings from park assessments carried out as part of the Parks and Facilities Master Plan have direct management impacts in the future and may influence the prioritization of projects.

2.10 Official Plan

Taylor Creek Park is designated in the Official Plan and on the Official Plan Map 9 (City of Toronto, 2015b) as 'Green Space System'. Specific policies in 'Chapter 2 Shaping the City', speak to actions that will be taken to improve, preserve and enhance the Green Space System by:

- Improving public access and enjoyment of lands under public ownership;
- Restoring, creating and protecting a variety of landscapes; and,
- Establishing co-operative partnerships in the stewardship of lands and water.

The Green Space System policies also seek to enhance the use and enjoyment of public spaces, including the protection of existing habitat and, where appropriate, restoring and enhancing habitat.

2.11 TRCA Restoration Opportunity Planning

The Restoration Opportunity Planning (ROP) and Habitat Implementation Plan (HIP) processes were designed by the TRCA Restoration Services division as mechanisms for strategic site selection and project implementation. The HIP methodology was developed to integrate the recommendations outlined in the TRCA watershed and jurisdictional strategies to site level implementation criteria. Rooted in these strategies, the HIP process assesses site level conditions and identifies habitat improvement opportunities that can contribute to watershed targets. Site assessment data has been collected through field investigations and is stored in the HIP database. The site assessment information includes visual observations of the following: general conditions, level of regeneration, habitat features present and existing habitat opportunities.

The Management Plan considered the HIP opportunities in the development of recommendations. As the recommendations set out in the Management Plan are to be implemented over time, it should be noted that some restoration initiatives that have been identified in the Management Plan may have been completed by TRCA. The status of implementation of these initiatives will need to be verified with TRCA and City of Toronto.

3.0 Foundation Principles and Data for the Management Plan

The Management Plan is founded upon a set of Guiding Principles that embody the framework laid out in the *Toronto Ravine Strategy*, while reflecting consultation and planning work completed as part of the *Taylor Massey Creek Subwatershed Master Plan Update*, the study that preceded the Management Plan.

As illustrated by the pyramid diagram in Figure 8, the framework sets out influences, building from the bottom up with the Natural Heritage System as the 'Foundation' of the ravine system. Without protecting the ravine system's most valuable asset there would not be a ravine system. The framework identifies 'Infrastructure' with the most significant influence on the health and function of the ecosystem and places less significance on the 'Interface' of the ravine system with the surrounding urban landscape.

Figure 8: Toronto Ravine Strategy Management Framework

The Guiding Principles that shaped the recommendations of this Management Plan include:

Natural Heritage Conserve, protect and enhance natural features and functions within the ravine environment.

Cultural Heritage Consider the cultural heritage features and archaeological potential of the site.

Experience Celebrate and interpret the unique qualities of the natural and semi-natural spaces within the subwatershed.

Context Connect all systems to the wider ravine and open space system.

3.1 Management Plan Evaluation Criteria

The framework set out by the *Ravine Strategy,* guided the identification of criteria that were utilized to vet potential Study Area improvement projects through the Management Plan process and related to three key areas of consideration:

- Natural systems;
- Creek health and stormwater management; and,
- Trails, recreation and cultural heritage.

Table 2: Management Plan Criteria

A. Natural Systems	B. Creek Health and Stormwater Management	C. Trails, Recreation and Cultural Heritage
• Protect best quality habitat and features	• Improve flood storage • Attenuate water flows	• Ensure a continuous and connected trail system
• Reduce fragmentation	• Improve water quality	• Link to neighbourhoods and transit system
• Reconnect natural systems	• Improve bank and slope stability	• Afford a variety of experiences

The criteria were supported by the stakeholders and the public through the consultation process. Figure 9 illustrates how the criteria correlate to the Ravine Strategy framework. It should be noted that the criteria listed on the right side of Figure 9 are organized from highest (top) to lowest (bottom) in importance, correlating inversely with the pyramid on the left.

Figure 9: Management Plan Criteria - Correlation to the Ravine Strategy Framework

These criteria were utilized to generate a 'long-list' of projects that correlate with the management objectives.

The Management Plan provides a balance of perspectives and ensures that requirements of the various interest groups were respected. Moreover, the Management Plan ensures that the recommendations and maintenance regimes complement the proposed improvement projects. The Management Plan is to be utilized as a tool to secure funding for implementation, in an effort to achieve the objectives as well as to achieve environmental and financial sustainability. Implementation of the Management Plan is not anticipated to be a simple task and the process requires on-going coordination, division of responsibility and adaptive approaches to address climate change, shifting political views and community needs over time.

The Management Plan, supported by its Park-Wide recommendations and the implementation of the identified area-specific improvement projects (Coordinated Improvement Areas), will play an important role in elevating the prominence of Taylor Creek Park as an important environmental, recreational, social, and educational asset within the City's ravine system, inspiring genuine interest and catalyzing funding to implement the Plan. This interest will help provide the momentum necessary to move the Management Plan forward through implementation.

3.2 Data Sources

The criteria utilized in the evaluation of Taylor Creek Park relied upon a number of data sources. The Study Team obtained a substantial amount of background data pertaining to the Study Area from the City, TRCA and Land Information Ontario (LIO). North-South Environmental Inc. also contributed data obtained from previous natural heritage assessments that were conducted in Taylor Creek Park.

The majority of the data was provided in Arc GIS, and as such, are georeferenced to actual site locations. The GIS data gathered includes stored databases that can be regularly updated. A key recommendation emerging from this Management Plan process is the need to standardize data gathering, sharing and updating amongst agencies and divisions in the City of Toronto going forward (Refer Section 6.6 of the report). Data management is a valuable tool for monitoring and tracking management activities and trends.

The inventory and analysis phase of the Management Plan process included verification of the data set through a review of aerial imagery, ground-truthing and review of the 'Trail Forks' website (https://www.trailforks.com/trails/taylor-creek-trail-58180/) to verify desire lines for cycling and pedestrian circulation patterns.

3.3 Background Review Sources

Background drawings, reports and various data were collected and reviewed to gain an understanding of the biophysical and recreational attributes of the Study Area. Background materials included:

- Third party trail use count data
- Land use planning and policy documents
- Cultural heritage and recreational information
- Utilities information
- Plans/details of former landfill operations
- Community context
- Previously completed restoration project locations and potential restoration opportunities mapping (TRCA)
- Existing patterns of use
- Local demographics, patterns and trends
- Existing site services and planned infrastructure improvements
- Community context
- Stormwater management/drainage plans
- Flood mapping & flood mitigation structures
- Initiatives carried out by volunteer organizations
- Capital works plans and budgets

A summary of the findings of the review are described in the following sections and informed the development of recommendations.

3.3.1 Natural Heritage Features

Members of the Study Team visited the site several times throughout the process of developing the Management Plan. The following sections provide a summary of the observations.

Physiography: This site is large and diverse, though linear, with broad areas on both sides of Taylor Massey Creek. The corridor is incised toward the east of the Study Area and the floodplain widens towards the Don River valley system in the west. Between the ESA and the Don River, the physiography of Taylor Creek Park

consists of steep slopes covered by deciduous forest trees consisting of Sugar maple (Acer saccharum), Red oak (Quercus rubra), American beech (Fagus grandifolia) with occasional Hemlock (Tsuga canadensis). Norway maple (Acer platanoides) is present but is not common. The understory on the slopes is relatively sparse, and often dominated by non-native species such as Dog-strangling vine (Cynanchum rossicum). There are areas of more complex topography on the slopes: small terraces and narrow ravines, such as the Curity and Ferris Creek systems, that add diversity to the vegetation and support shrub species that are unusual in Toronto, such as Northern fly-honeysuckle (Lonicera canadensis), Round-leaved dogwood (Cornus rugosa) and Marginal wood-fern (Dryopteris marginalis). Seepage areas occur along the northern slopes of the valley. A flat valley with successional forest, small areas of swamp and marsh interspersed with manicured areas surrounds Taylor Creek.

Invasive Species: Large tracks of forest and edges of open spaces within the park are infested with many varieties of invasive herbaceous species. Most notably: Rough manna grass (Glyceria X maxima) and Dog-strangling vine (Cynanchum rossicum) form dense monocultures. Garlic mustard (Alliaria petiolata) is most dominant in seepage areas, while Common reed (Phragmites australis) is becoming more common in ditches and ponds. Common buckthorn and European buckthorn (Rhamnus cathartica) dominate the shrub layer of some parts of the forest. Black alder (Alnus glutinosa) is present but not dominant in the tree layer.

Hydro Corridor: The corridor runs along the south side of the Study Area in an east to west alignment. The corridor supports several somewhat unusual native species in open habitats which have been planted by HONI and are persisting in this habitat. The hydro corridor, which is vegetated primarily with meadow, shrubs and young trees, lends habitat diversity to the site.

Fauna:
Fauna found within the Study Area include a high diversity of species characteristic of habitats in urban settings, such as American robin (Turdus migratorius) and Black-capped chickadee (Poecile atricapillus). Successional species include Yellow warbler (Setophaga petechia), Black-billed cuckoo (Coccyzus erythropthalmus) and Gray catbird (Dumetella carolinensis). Forest-dependent species include Eastern wood-pewee (Contopus virens) (a Species at Risk) and Rose-breasted grosbeak (Pheucticus ludovicianus). Four area-sensitive species were noted: Hairy woodpecker (Leuconotopicus villosus), Blue-gray gnatcatcher (Polioptila caerulea), Least flycatcher (Empidonax minimus) and White-breasted nuthatch (Sitta carolinensis). Scarlet tanager (Piranga olivacea), an additional area-sensitive species, is occasionally noted singing in the ravine and may be breeding. A Chimney swift (Chaetura pelagica), which is considered to be nationally and provincially threatened in Ontario, was noted foraging overhead and is likely nesting in the adjacent neighbourhood. Predatory species include Red-tailed hawk (Buteo jamaicensis) and Cooper's hawk (Accipiter cooperii), as well as mammalian predators such as Coyote (Canis latrans), Red fox (Vulpes vulpes) and Ermine (Mustela erminea). Four cavity-nesting species were recorded including Little Brown myotis (Myotis lucifugus), Pileated woodpecker (Dryocopus pileatus), Downy woodpecker (Picoides pubescens) and the Great crested flycatcher (Myiarchus crinitus).

There is a greater presence of species richness and higher-quality habitat as evidenced by species abundance and diversity within the Taylor Creek ESA in relation to areas outside of the ESA.

Hydrology and Seepage Areas: Seepage on slopes supports wetland conditions; contributing to the quality of water in the ponds. Seepages generally support additional biodiversity of wetland species. The areas of seepage on the south slope of the valley within the ESA were referred to by stakeholders as "fen-like areas" and are some of the highest quality natural areas within the Park. These areas support many species of calcareous seepage that are rare in the TRCA jurisdiction and/or the Region. These sensitive habitats depend on groundwater discharge, and although they are also largely dominated by non-native species, including Garlic mustard (Alliaria petiolata) and Rough manna grass (Glyceria X maxima) the native species within them provide biodiversity to the Park.

Forest Habitat: Areas of higher-quality on woodland slopes support a higher proportion of native vegetation with several species uncommon in Toronto habitats. These areas are mainly dominated by native trees and shrubs and with some additional diversity of sensitive woodland plant species in the understory and ground (herbaceous) layers. Dead Ash and Elm trees in this area provide habitat for Species-at-Risk bats.

Sensitive Bird Habitat: A wide diversity of bird species includes many common species of several bird guilds such as wetlands (e.g., Common yellowthroat, Red-winged blackbird), forests (e.g., several woodpecker species, Northern cardinal, Red-eyed vireo, Great crested flycatcher) and successional habitats (e.g., Gray catbird, Cedar waxwing). The Study Area supports breeding bird species that are less common in urban habitats such as Sharp-shinned hawk, Scarlet tanager (forest habitats), Spotted sandpiper and Swamp sparrow (wetlands).

Table 3: Habitat Requirements of Sensitive Fauna Found in Taylor Creek Park

Uncommon Species	Habitat	Relationship to Urban Habitat
Star-nosed mole (mammal)	Wetland edges and moist soils adjacent to wetlands	Not found in urban parks and gardens unless they are close to wetland edges
Green heron (wetland bird)	Treed wetland edges	Not found in urban parks and gardens
Northern mockingbird (successional bird)	Shrubby successional areas	Flexible habitat requirements; sometimes found in urban parks and gardens if suitable habitat present
Blue-gray gnatcatcher (successional bird)	Treed late-successional areas and open woodlands	Area-sensitive, but incorporates adjacent treed neighbourhoods into its home range
Pileated woodpecker (forest bird)	Mature woodlands with large tree cavities	Area-sensitive (requires larger wooded habitats) but can incorporate treed neighbourhoods into its home range
Cooper's hawk (forest bird)	Interspersed woodlands and open areas	Generally found in larger, more diverse habitat but can incorporate gardens and parks into its home range; sometimes hunts prey at bird feeders
Veery (forest bird)	Swamps and moist woodlands; rare	Area-sensitive (needs large woodland areas); generally, not found in urban parks and gardens

Wetland Habitat: There are several small ponds and wetland restoration areas within the Study Area. These small ponds support a variety of native wetland species that are not found in other types of wetlands, such as duckweeds and water-lilies. Many also support Green frogs and American toads. Although these are adaptable amphibian species which can breed in a variety of small ponds, their presence is notable.

Amphibian breeding is an important function that has been lost in many areas of Toronto, and these species also provide prey for a variety of wetland mammals and birds.

Vernal pools throughout the southern part of the Study Area provide breeding habitat for amphibian species such as Green frog, Leopard frog and American toad. Gray treefrog, a more sensitive species rare in the Toronto area, have also been recorded though in very low numbers.

3.3.2 Ecological Sensitivity Assessment

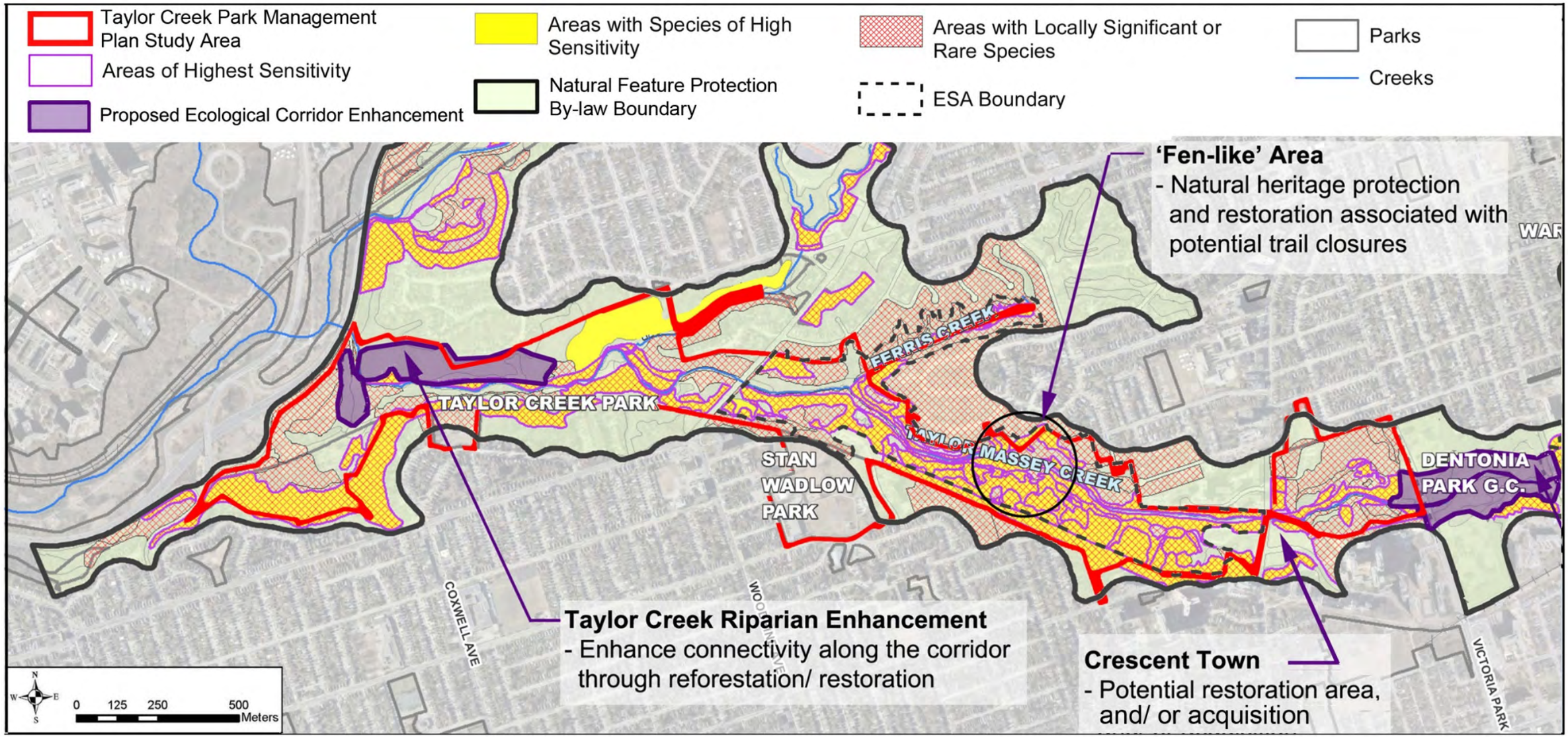
Ecological Land Classification (ELC) mapping and a comprehensive Flora and Fauna Survey was completed by Dougan & Associates in September of 2016. The findings from this assessment were integrated into the data set for the Subwatershed Study and provided a snapshot of conditions as well as a baseline to evaluate existing conditions and forecast the future trends.

The data was utilized to conduct a Significant Wildlife Habitat Assessment (completed as part of the process of preparing the ecological sensitivity mapping for the Subwatershed Study) which informed the Management Plan. The findings as illustrated in Figure 10, provided important direction with respect to restoration recommendations. The analysis identified opportunities to connect fragmented parts of the riparian corridor and create buffers to enhance the resilience of the existing Natural Heritage System. The opportunities also informed decisions related to trail enhancement, realignment or closure. Figure 10 below illustrates the findings of the sensitivity analysis.

The assessment is an important tool that was used as an indicator of the quality of habitat health. The information represents a baseline against which future trends can be assessed. An understanding of the status of ecological quality informed the Management Plan recommendations relating to the protection of the natural heritage features and the mitigation of potential impacts, as well as to guide recommendations related to the restoration of natural heritage resources in any particular location within the Study Area.

Figure 10: Natural Heritage Features Sensitivity Assessment

Map Source: Taylor Massey Creek Subwatershed Study Master Plan Update



For reasons of confidentiality, only L2 – L3 ranked flora and fauna species that are considered to have relatively low Coefficients of Conservatism (floristic quality assessment – an indicator of habitat quality), are illustrated on mapping within this report (Refer to Appendix B – Background Mapping). The highest ranked species (L1) and Species-at-Risk data were considered internally to determine areas of the highest environmental sensitivity and constraint, but have been excluded from the mapping, due to the sensitivity of the data.

Observations in the field that were made as part of the Management Plan process helped confirm the accuracy of the findings from the previous assessments.

3.3.3 Water Quality and Aquatic Biota

Fisheries data (Parish Geomorphic, 2015) indicate that Creek chub, White sucker, Longnose dace, and Blacknose dace are the dominant species found within the subwatershed. These species are termed "tolerant fish species", meaning that they tolerate warm-water environments and oxygen impairment. The biodiversity within this aquatic system is low, and has been for quite some time. In 1949, farmland and forests were the dominant land cover, however, the lack of biodiversity at that time was due to the seasonal drying of the stream and nutrient inputs from both sewage and agricultural lands, which likely contributed to pre-urban impairment (TRCA, 2009b). Presently, "poor water quality has been cited as the most significant impairment to the presence of a diverse fish community within Taylor Massey Creek" (TRCA, 2009b).

Taylor Massey Creek has the worst water quality in the Don River Watershed (MTRCA, 1994), due to two issues specific to the tributary: combined sewer overflows (CSOs) and historic landfills. In TRCA's Regional Watershed Monitoring Program in 2002-2005, Taylor Massey Creek had the lowest percent of samples that met established guidelines for chloride, copper, and iron compared to three other monitoring stations located in the Don Watershed (TRCA, 2009f). Macroinvertebrate density sampling in Taylor Massey Creek indicated that the water quality is fair to poor, caused by significant organic pollution and low dissolved oxygen levels in stream sediments.

The *Outfall Monitoring Program*, initiated in Taylor Massey Creek in 2005 (City of Toronto Water, 2007), is intended to identify and eliminate sources of contamination, primarily combined stormwater and sanitary sewers, that are discharged from sewer outfalls. A 2013 update indicated that a number of priority outfalls have been delisted in the Taylor Massey Creek watershed since the start of the program. However, several other outfalls remain on the priority list (City of Toronto Water, 2014).

The major project that will improve water quality in the Taylor Massey Creek is the Don River and Central Waterfront Project (Refer to section 2.3). It is a key project considered in the recommendations of the Management Plan and involves the construction of a by-pass tunnel to reduce combined sewer overflows into waterways. The bypass tunnel, shafts and associated staging and access roads are anticipated to have major impacts on the park and implications on other park improvement projects, including those that are

either already planned or that are proposed as a component of this Management Plan, both from a time and financial perspective.

3.3.4 Cultural Heritage and Archaeological Potential

Areas of archaeological potential were mapped based upon data available from the City's Open Data sharing website. Based on a range of factors that include slope, forest cover and landscape typology, areas were pre-screened for their potential for archaeological interest. Some areas have been field verified by various archaeologists (outside of this Study). Proposals for improvements or alterations within lands that have archaeological potential will trigger the need for Stage 1 and 2 archaeological assessments to be completed.

Although there are relatively few culturally significant features within the Study Area, there are several points of interest within and in close proximity to the Park that include:

- Goulding Estate/ Dentonia Farm Park*
- Children's Outdoor Peace Theatre
- Cultural Centers, Schools and Social Services Facilities
- Pinewood Cemetery*
- Murals and Sculptures
- Former Lake Iroquois Shoreline (through Taylor Creek Park)

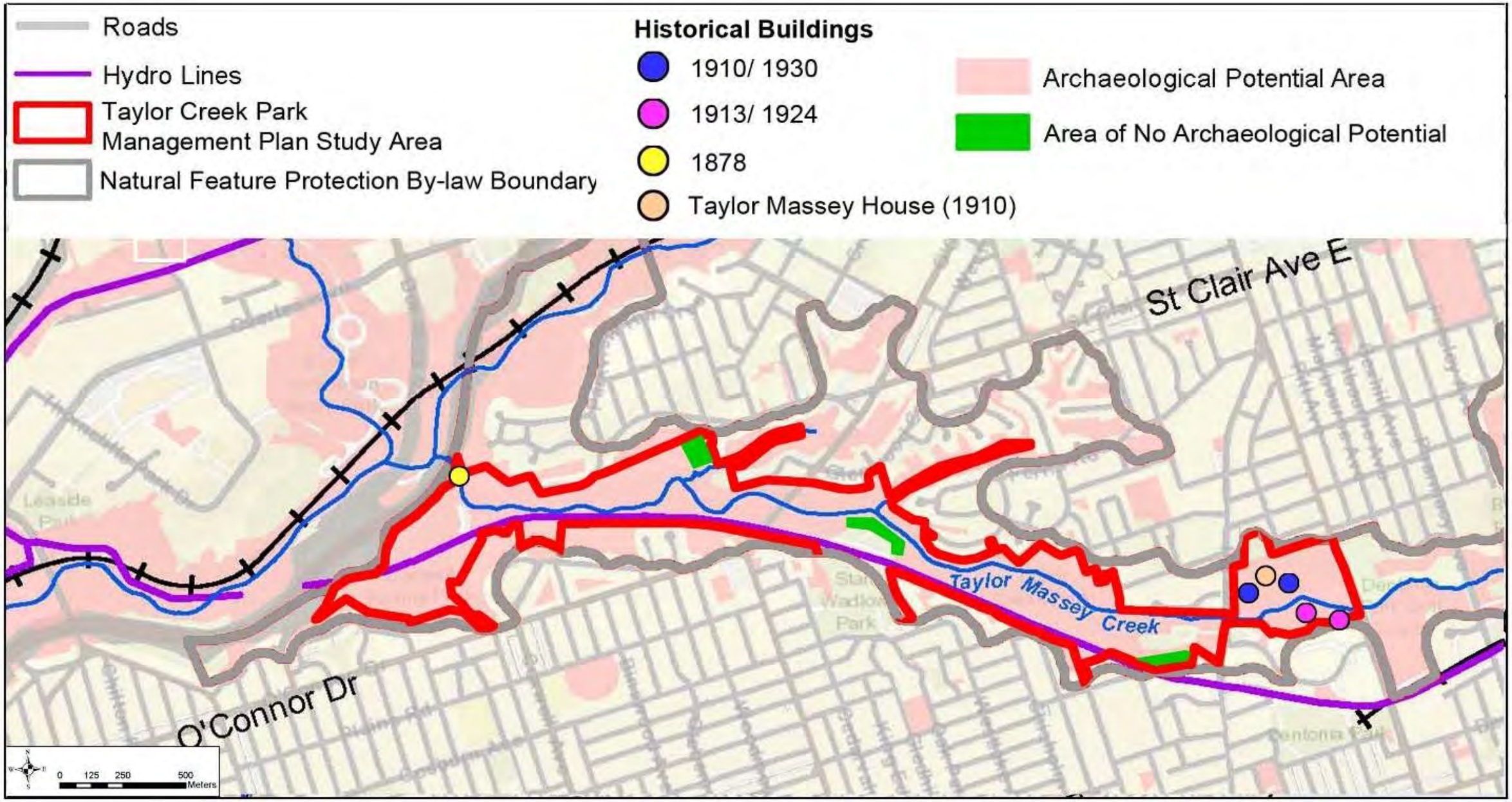
**Identified as culturally significant*

Some anecdotal narratives that were discovered during the consultation process and that may represent opportunities for interpretation include:

- Indigenous Peoples' daily life within, and use of, the subwatershed;
- The Taylor and Massey families who lived in the area and for whom the creeks are named;
- The devastating effects of Hurricane Hazel in 1954 on the Taylor Massey Creek ravine system – much of the landscape in the ravine today has evolved as a direct result of the impacts from that event; and,
- A historical former railway line that followed Taylor Massey Creek and connected Toronto to the satellite communities east of the city all the way to Lindsay, Ontario was known at one point in time as "The Milk Run".

Figure 11: Areas of Archaeological Potential

Map Source – City Open Data



3.3.5 Geomorphic Condition

The present alignment of Taylor Massey Creek has remained largely unchanged since the time that it was illustrated in the 1958 *Planning Study for Metropolitan Toronto*. In the planning study, the Taylor Creek is illustrated as a straightened and lined channel, with banks comprised mainly of gabion-basket structures, in order to ensure that the channel remained straight. These modifications accommodated urban development and a new sanitary trunk sewer. Channel construction is estimated to have been phased over the period from 1959 to 1970.

There are numerous erosion control structures and outfalls that outlet into Taylor Massey Creek. Several outfalls and sections of gabion retaining walls line the banks of the creek within the Study Area and these are in various states of disrepair. Toronto Water has conducted detailed assessments of many of these structures and rehabilitation is planned through the division's forecasted capital works plans. A detailed geomorphic assessment of the Taylor Massey Creek is presented in the TMC GSMP that was prepared by Parish Geomorphic in 2015.

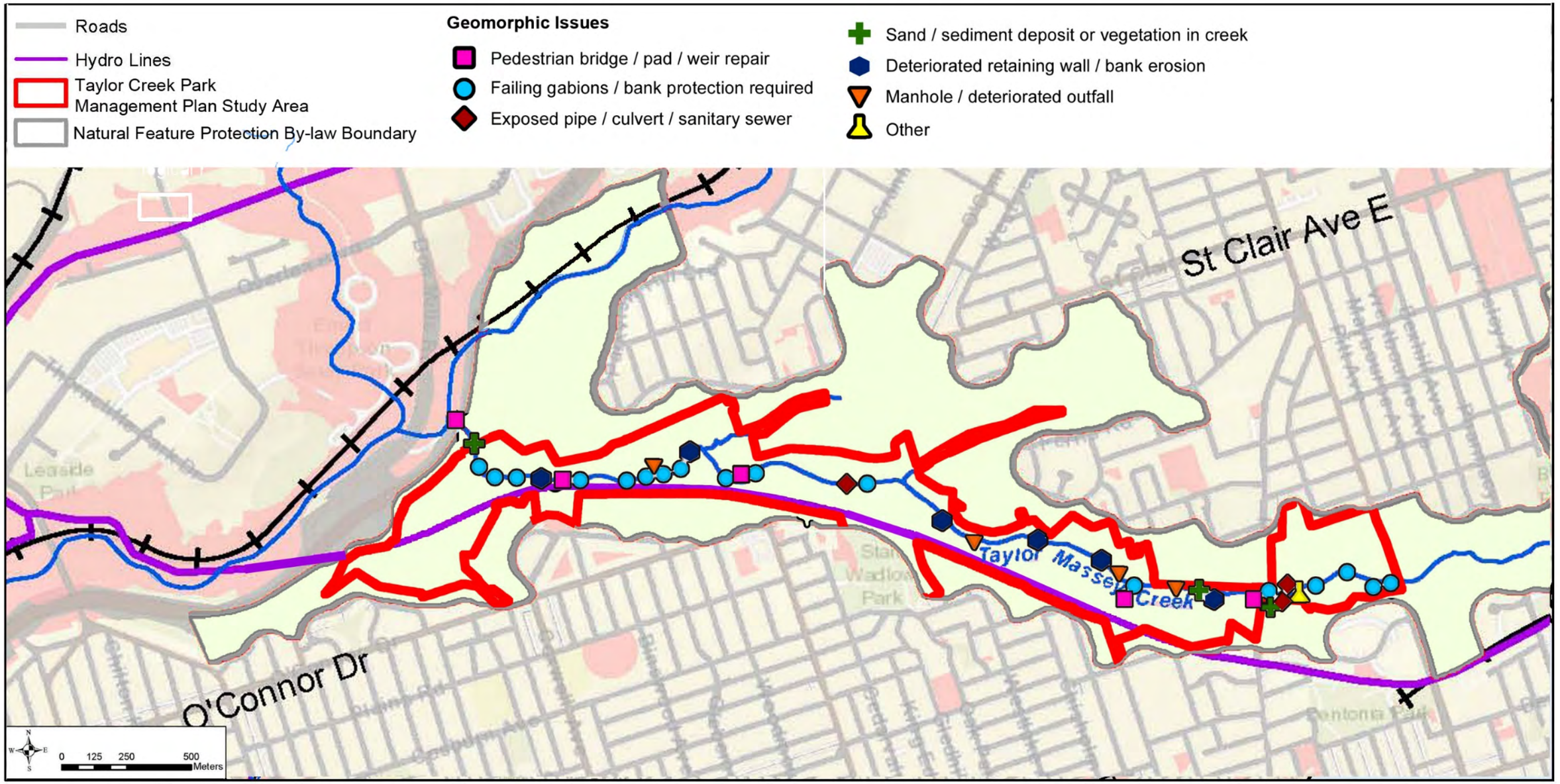
As with the City, the TRCA's clear priority is to manage risks to property and public safety associated with flooding and erosion. The TRCA also conducts its own individual assessments of structural conditions and erosion hazards as a separate initiative from the City of Toronto's efforts. With regard to Toronto Water infrastructure, TRCA field crews assign an initial priority ranking to each asset that is inspected. The actual detailed assessment and ranking of priorities are then finalized by Toronto Water staff.

As illustrated in Figure 12, the typical infrastructure that is regularly inspected by TRCA staff includes: channelized sections of the creek, culverts, footbridges, retaining structures, revetments and flow deflectors.

TRCA also investigates and responds to storm damage hazard sites on a priority basis. Under the Toronto Water program, sanitary sewer crossings, manholes and outfalls are routinely monitored. In addition to the regular inspection and monitoring TRCA performs, TRCA inspects infrastructure on behalf of Toronto Water. TRCA erosion area inspection sites and Toronto Water assets are illustrated in Figure 12 for information purposes. The information provided to the Study Team was sourced from the TRCA database of inspections. The inspection sites (and potential new sites identified over time) will be subject to further inspection and classification of risk in order to maintain an up-to-date data base.

TRCA inspection work of Toronto Water assets is funded by the City of Toronto. TRCA prioritizes its capital works in collaboration with the City of Toronto as part of the *Coordinated Watercourse Management Plan* that was prepared by Toronto Water in 2014.

Figure 12: TRCA Erosion Control Structures and Mapped Erosion Sites



Detailed inventories of Toronto Water infrastructure associated with the watercourse are undertaken in 5-year cycles, to capture changes in the condition of structures, identify new erosion hazards and assess risks to infrastructure due to erosion and slope instability. The monitoring data, which includes sites that were monitored in 2012 and 2017, has been used to inform previous plans and reports, and were considered in the process of programming this Management Plan.

3.3.6 Infrastructure and Utilities

The Taylor Creek Hydro Corridor extends 1.3 km along the southern and eastern edges of the Study Area from its west boundary to Dawes Road. An existing unofficial trail through the corridor presents the opportunity for official trail development.

Two parallel sanitary sewers run throughout much of the Taylor Massey Creek stream valley, crossing the creek in multiple locations. A number of sewers with manholes exist in proximity to the creek. Numerous stormwater outfalls, which service either the separated storm sewer system or the combined sewer system, are present in the valley. A water main crosses in several locations below the creek. Pedestrian trails and pathways were built subsequent to the construction of the sewer systems and channelization works. Construction access routes were often used as the basis for the alignment of trails. Since further infrastructure-related work is anticipated within the valley, opportunities for future trail upgrades and/or relocations may be realized through coordination with infrastructure improvements.

Several planned infrastructure projects will affect features within Taylor Creek Park, including the instream condition of the creek system. These initiatives are referred to as “Anchor Projects” further on in this report and include: the Don River and Central Waterfront Project (including the Lower Don/Coxwell bypass), various stream restoration projects identified in the TMC GSMP (10-20-year implementation plan), basement flooding mitigation studies (on-going) and sewer outfall and combined sewer outfall replacement projects. These projects are all being led by Toronto Water.

Figures 17 and 18 illustrate the works that are identified in the TMC GSMP which are also “Anchor Projects” for various Coordinated Improvement Areas discussed further in Section 5.0.

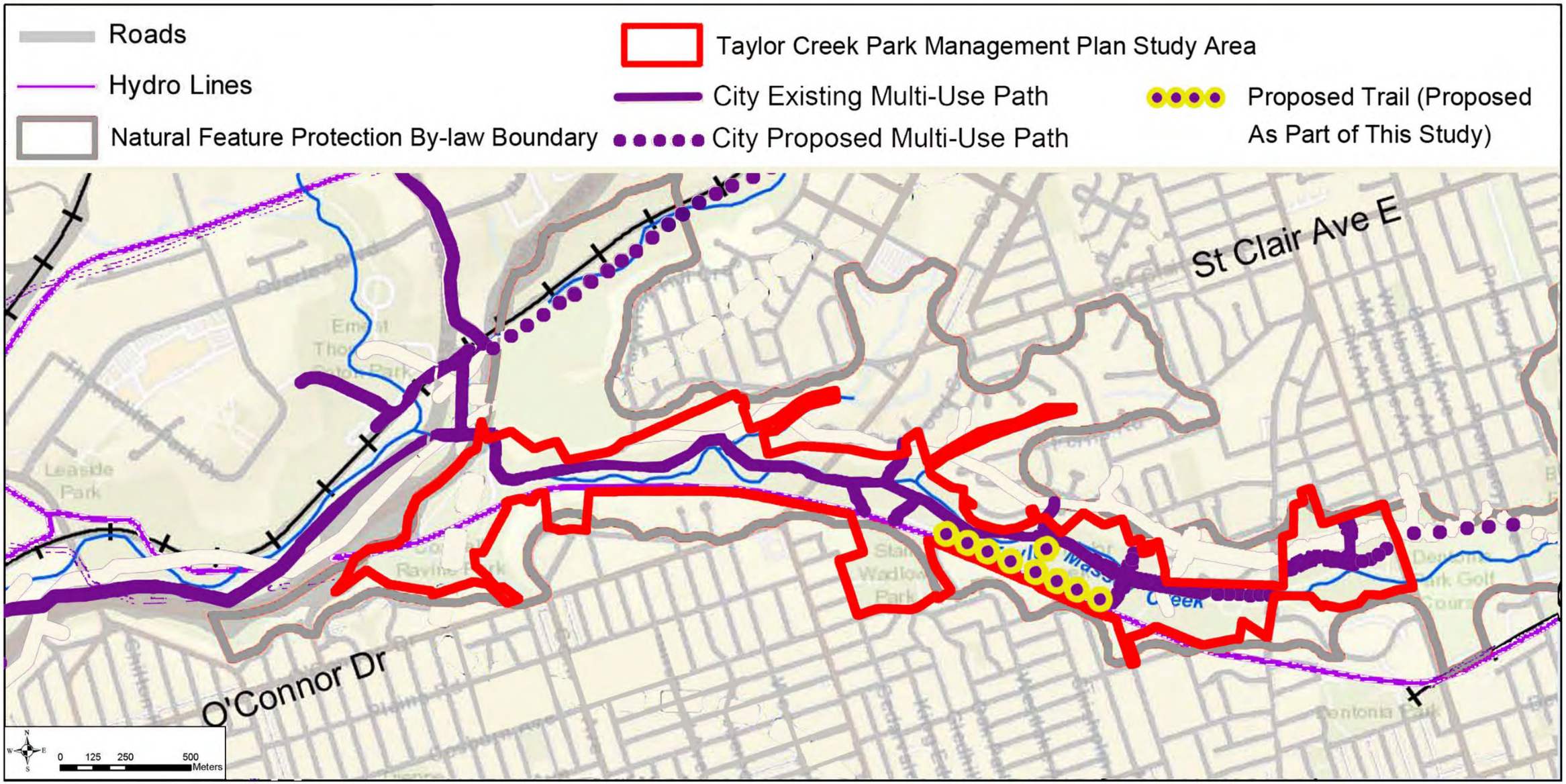
3.3.7 Trails and Access

There are approximately 3.5 km of asphalt multi-use official trails within the Study Area. Another 1.5 km of unofficial trails (unplanned trails often traversing natural areas) provide alternate-routes to the main official trails. A well-used unofficial trail transects the hydro corridor which flanks the southern edge of the Study Area. In some cases, unofficial trails parallel the official trails that are located within the ravine. Many of these trails are incompatible with environmentally sensitive features and/or the geomorphic condition of the creek system. In many cases unofficial trail creation/use has led to erosion issues which have resulted in

impacts to natural heritage features (i.e., trampling of native sensitive understorey plants) as well as safety concerns (i.e., eroded areas that can lead to localized slope instability over time) that are addressed in the Management Plan. Further detailed explanation of the erosion issues, and locations of specific concerns, are set out in the TMC GSMP 2015.

The large O'Connor Drive viaduct provides impressive views down into the valley and exists as an iconic landmark from within the valley. The main official asphalt multi-use trail in the valley runs along the south side of Taylor Massey Creek, switching to the north side, west of O'Connor Drive. There is no official connection of the official trail to O'Connor Drive. The official trail in the valley is continuous but is disconnected at Dawes Road. Users are required to cross at the signalized intersection in order to continue eastward along the trail system. A steep incline out of the valley is required to make a connection to Victoria Park Avenue at the east end of the Study Area.

Figure 13: Existing and Proposed Trail Infrastructure



3.3.8 Surrounding Land Uses and Encroachment

The majority of the land uses that surround the ravine system comprise residential neighbourhoods. As land ownership demarcation pre-dated modern-day regulations with respect to floodplains there are a number of privately-owned lands that are situated partially within the Study Area (defined by the City's Ravine and Natural Feature Protection By-Law Boundary). Many residential properties that extend east and west from O-Connor Drive extend down the steep ravine valley slopes, some of which exhibit erosion and other encroachments, such as dumping and clearing.

3.3.9 Surrounding Transportation Network

The Study Area is well-serviced by TTC bus routes and the nearby Kennedy subway/GO station, which forms a transit hub. The Victoria Park Avenue subway station and Main Street GO station are also proximate to Taylor Creek Park. Transit provides an alternative option to driving for users to access the ravine trail system. Directly linking the trail system within the Study Area to transit stops and routes presents an opportunity to fill gaps in the current circulation system.

Figure 14: Land Uses

Map Source – City Open Data

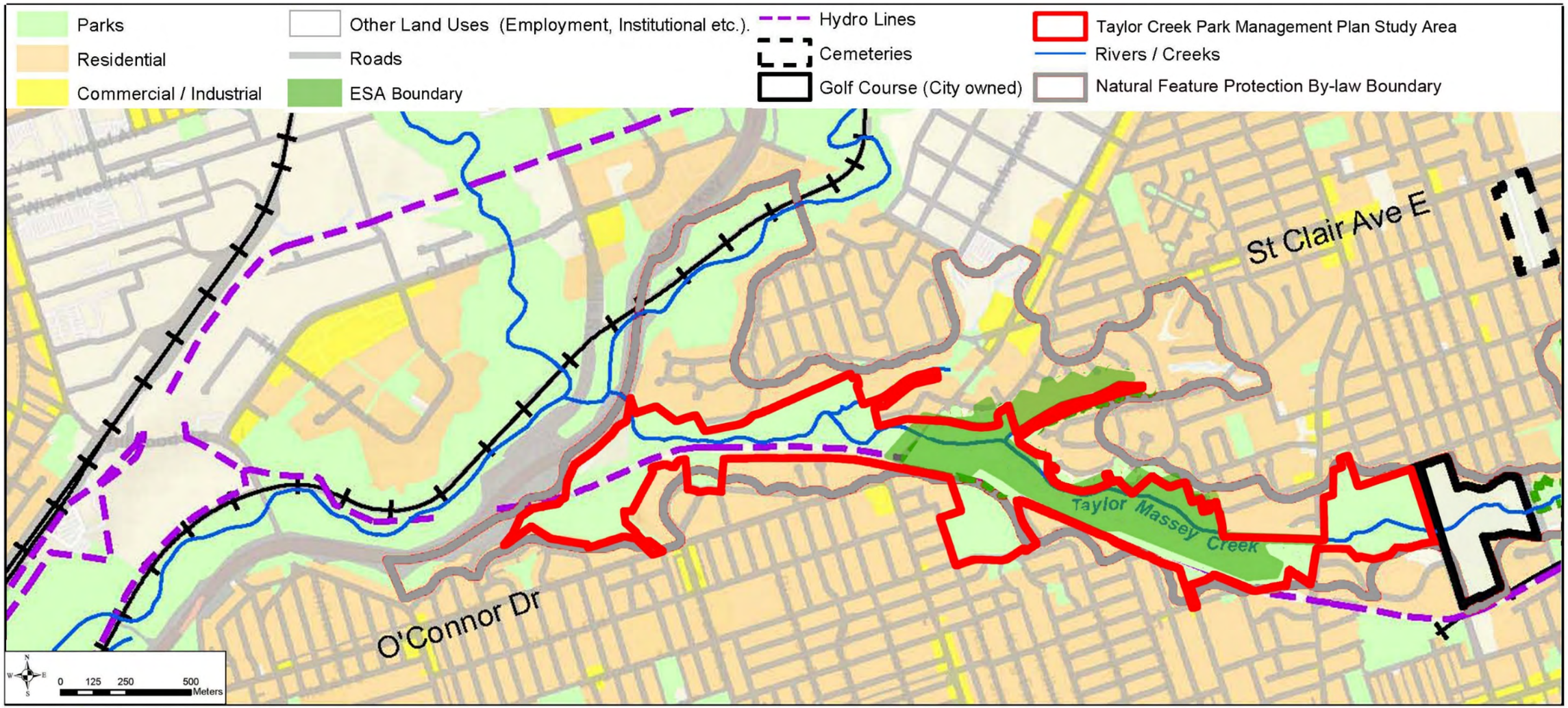
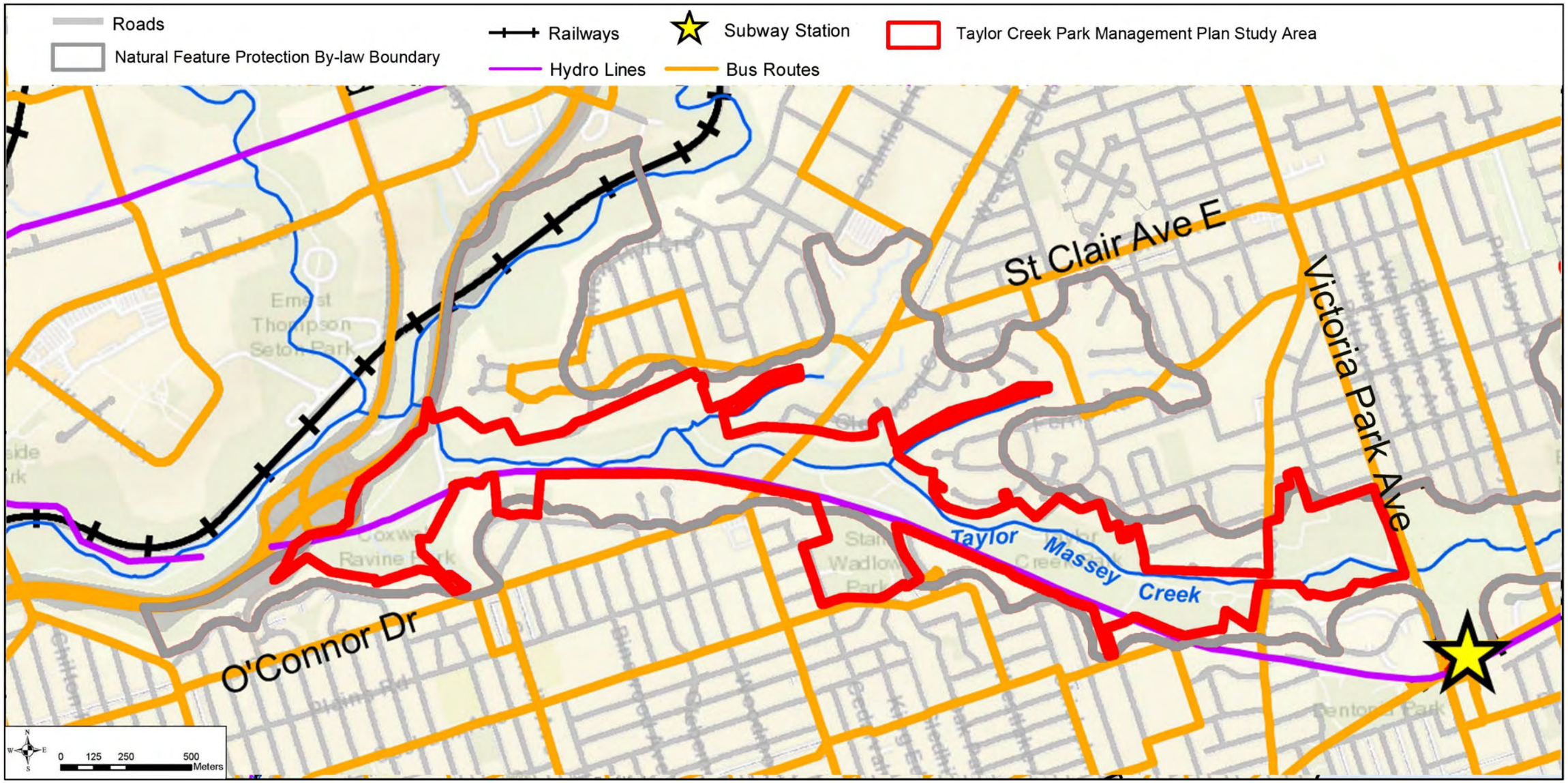


Figure 15: Transit Context

Map Source – City Open Data



3.3.10 Former Landfill Sites

There are 4 known former landfill sites that are monitored and managed by the City of Toronto located within the Study Area which are identified in Figure 16. These former landfill sites were operated in the 1950s and 1960s. Information related to these sites is limited, therefore the locations and sizes of the sites are not well defined. All of the sites are monitored for environmental conditions on a regular basis, with some sites having controls put into place to limit potential environmental impacts. The former landfill sites present limitations on potential uses, as soil quality and integrity may be affected. Where feasible, former landfill sites may present opportunities for trails. Limited restoration planting opportunities may also be accommodated contingent on proper planning and the technical evaluation of proposed designs.

3.3.11 Watercourse Rehabilitation Projects

Figures 17 and 18 illustrate the existing conditions within the watercourse as documented in the TCP GSPM 2015. Various projects are proposed by Toronto Water to stabilize and rehabilitate Taylor Massy Creek within the Study Area.

The current capital works status for planning the watercourse projects is summarized as follows:

- **2018 – 2020** - Site 1 and 2 (MC-1 and MC-2) and Sites 2 and 6 (MC-3 and MC-4)
- **2018 – 2019** - Initiation of a Study to Develop Concept Plans for Priority Sites
  - Plans and profiles of the restoration works, access route, and other construction-related effects
- **2019 – 2020** - Site 2 (MC-1 and MC-2)
  - Coordination with an outfall associated with a Basement Flooding PP project along Glenwood Crescent

The Management Plan considered the priority projects identified in the WWFMP, as well as the findings of the TMP GSMP, in order to establish the final list of improvement projects. The capital investment projects represent opportunities for coordination with other projects that are identified in this Management Plan that will contribute to the restoration of the watercourse, enhancement of flood control and water quality, and mitigation of erosion.

Figure 16: Known Former Landfill Sites

Map Source – City Solid Waste Management

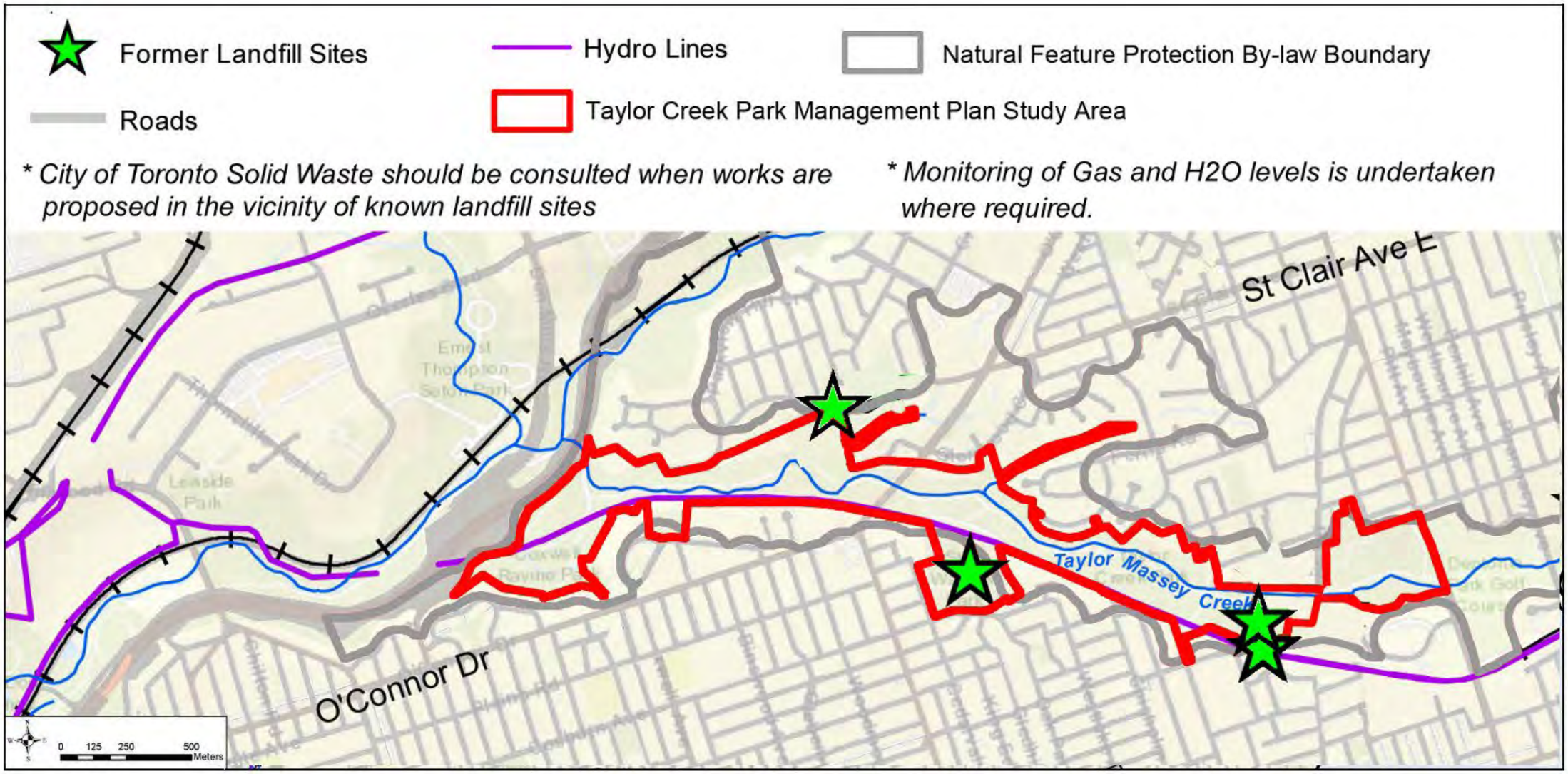


Figure 17: Watercourse Projects MC-1 and MC-2 Proposed for Implementation at Taylor Creek Park Source – TMC GSMP, 2015

MC-1 and MC-2

Constraints:
- Sanitary sewers and stormwater outfalls
- Existing trails

Goals:
- Protect infrastructure and trails
- Reduce stream power
- Allow for natural channel adjustment processes
- Widen channel

Site 1:
FG, EB, PO - Upstream of the outfall the channel has widened significantly (on the south bank) to the point that the old gabions are sitting as a mid-channel bar. This puts the outfall at risk as widening translates downstream. This area should have a full re-design: either widen and re-establish south bank requiring the outfall is cut back and field fit with a new headwall, or fill the area that has widened and cut back the north bank to widen and direct the channel away from the south bank.

Site 2:
EB, FG. MH - South bank has severe gabion failure due to this the manhole now sits at the top of bank. The banks should be rebuilt with vegetated rip-rap tying into the remaining gabion wall. The north bank is also eroding, this bank should be cut back to widen the channel and take pressure off the south bank. It can then be rebuilt and vegetated, with rip-rap if necessary.


Failed gabions and eroding bank(Site 1)


Widened section meeting gabions (Site 1)


Exposed till in bed and bank (Site 1)


Failed gabions and eroding bank (example)


Eroding bank with manhole at top (Site 2)


Extent of gabion loss and erosion (Site 2)

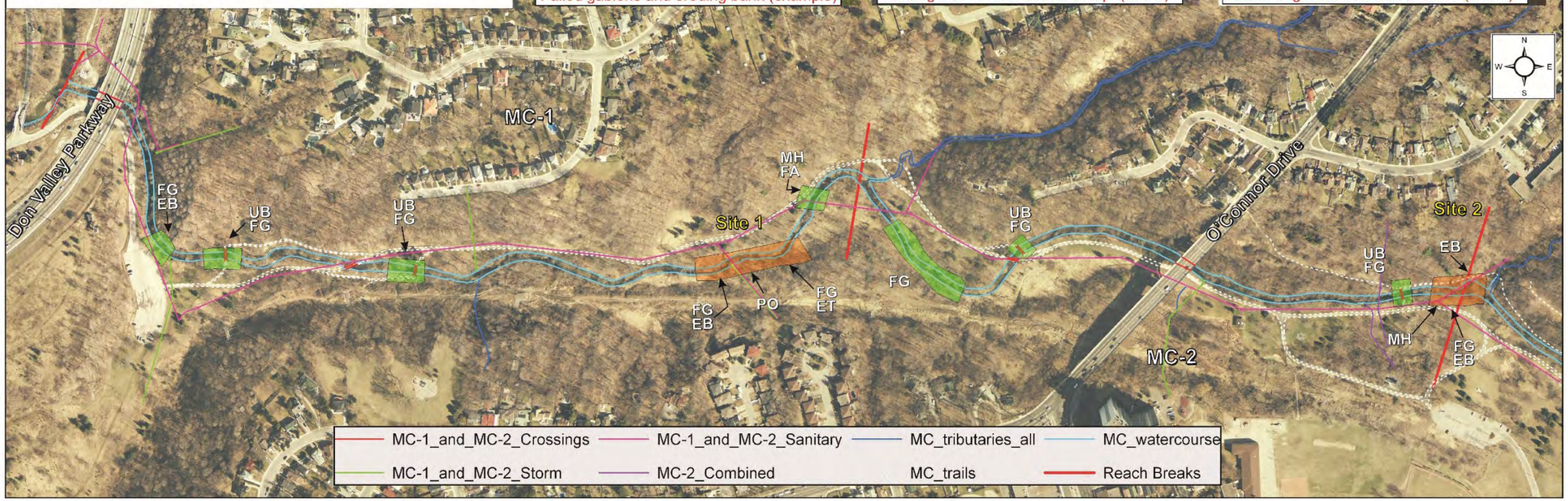


Figure 18: Watercourse Projects MC-3 and MC-4 Proposed for Implementation at Taylor Creek Park Source – TMC GSMP, 2015


Trail indicated by fencing, eroding bank(Site 1)


Eroding bank meeting channel bed (Site 1)


Eroding bank and gabion loss (Site 2)


Coverage of sanitary crossing (Site 3)


Eroding south bank (Site 5)


Failing gabions upstream end of Reach

MC-3 and MC-4

Constraints:
- Sanitary sewers and stormwater outfalls
- Existing trails

Goals:
- Widen channel
- Reduce stream power
- Allow for natural channel adjustment processes
- Protect infrastructure and trails

Site 1:
EB, TR, FG - Complete gabion failure, resulting in the top of bank retreating to the edge of the trail, the base layer of gabions is intact and the bed is stable. This area is currently being restored by TRCA.

Site 2:
EB, TR, FG - Similar to **Site 1** but the base layer of gabions is also gone and there is a pool at the base of the bank. Bank treatments would be the same as **Site 1**, some additional in channel would may be needed to tie the treatments in with the bed due to the pool.

Site 3:
ES* - Sanitary sewer is covered by line of boulders, long-term plan should be to modify this to be a complete riffle design for better long-term stability.

Site 4:
UB*, FG - Bridge was lost during storm in the process of replacement, outfall is impacting the opposing gabions. TRCA is currently restoring this location.

Site 5:
EB and EB - Both banks are eroding as the channel is attempting to widen and alter the planform through natural process. This area presents an opportunity to realign the stream away from the sanitary sewer while widening the channel cross-section

Site 6: EB and FG - At this location there is a large mid-channel bar, the northern bank has evidence of failed gabions and is eroding. The banks should be stabilized to protect the sanitary sewer with some additional in channel work.

3.3.12 Recreational Facilities and Pedestrian Access

The City of Toronto currently manages four parks within the Study Area including:

- Taylor Creek Park
- Donora Park
- Cullen Bryant Park
- Parkside School/ Stan Wadlow Park

Although Parkside School/Stan Wadlow Park is located outside of the ravine boundary line, it has been included within the Management Plan Study Area since it is contiguous with the ravine. Parkside School/Stan Wadlow and Taylor Creek Park contain facilities that are subject to permitting for sporting events and group gatherings. The two parks attract relatively small numbers of users in comparison with parks that are situated outside of the Study Area. For example, nearby Dentonia Park sees the highest number of annual permits and highest level of use of parks in the Taylor Massey Creek subwatershed, providing insight into the potential pressures for recreational use that are exerted on natural areas.

There are two washrooms located within the Study Area. As illustrated in Figure 19, the washroom located near Parkside/Stan Wadlow Park has been decommissioned. Renovations are being planned for the washroom near Dawes Road which are scheduled for implementation in 2028.

Parkside/ Stan Wadlow Park includes a number of baseball diamonds, a skate park, an indoor ice rink, a dogs-off-leash area, a tennis wall, a playground and a splash pad. Taylor Creek Park includes two permitted fire pits, as well as a number of picnic areas with informal open space areas.

A great asset to the community is the Children's Peace Theatre which is a Non-Governmental Agency (NGO) that runs camps for kids and workshops for youth. The agency utilizes the Taylor Massey heritage house which also functions as a wedding venue. The house is currently in need of repairs and is operated/ maintained by the City of Toronto.

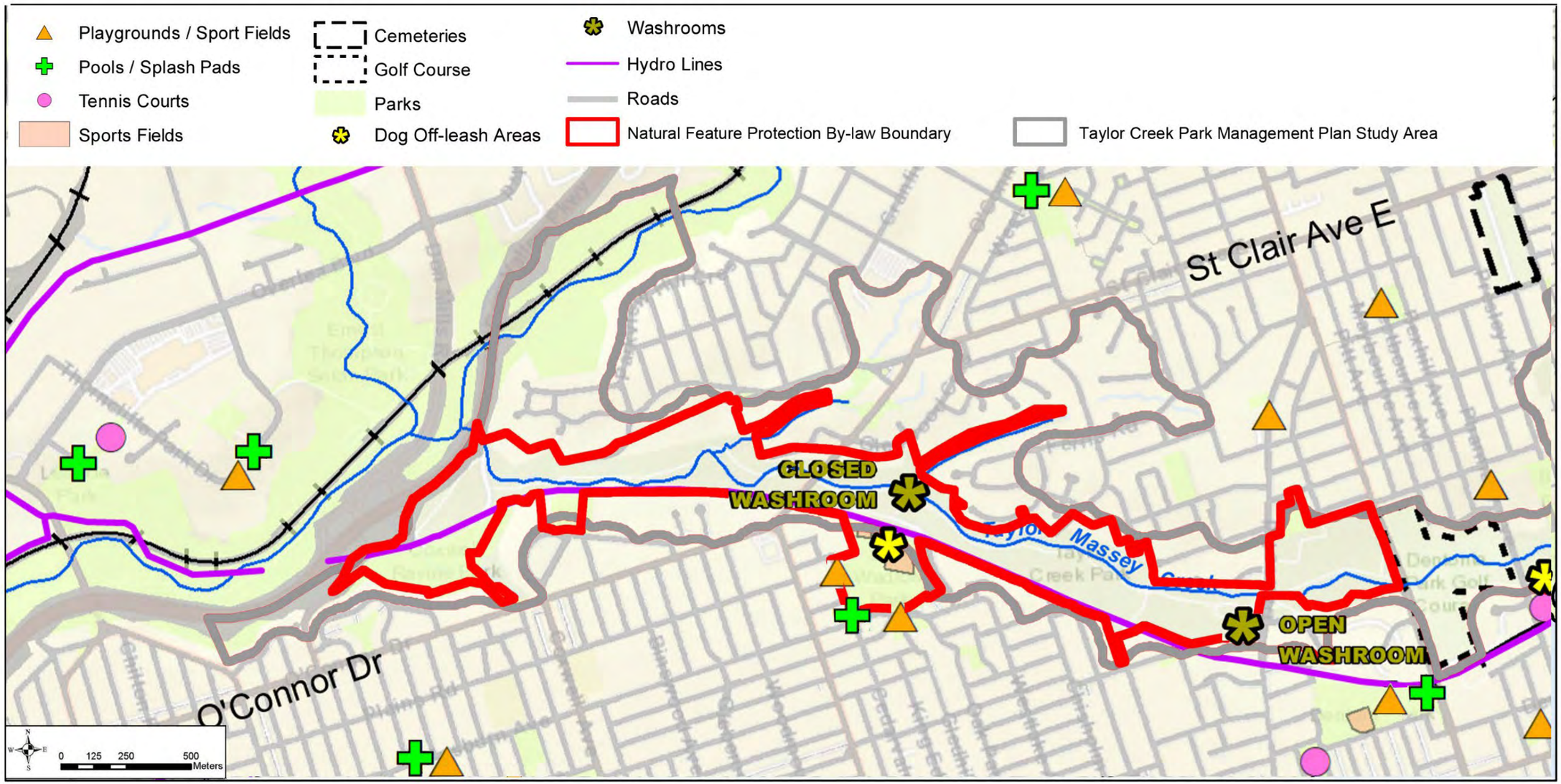
There are a number of pedestrian bridges within the Study Area, some of which have been replaced with wider span structures. Several staircases provide access to the valley. There are several improvements planned by City Parks Forestry and Recreation to replace stairways and access paths. The locations of the existing stairways are illustrated on Figures 2.1 and 2.2. These are intended to be implemented in 2023. Several benches exist along the trail system in various states of repair.

Several informal playing fields are situated within the floodplain areas of the ravine system. There are no planning mechanisms, nor would it be technically appropriate, to enable expansion or addition of recreational facilities within the floodplain. Other than the existing fields that are located in tableland parks adjacent to the ravine, there is little to no available tableland to accommodate the expansion of active recreation facilities.

There are five parking lots that service the recreation areas within the Study Area (Refer to Figures 2.1 and 2.2). Parking lot rehabilitation works are planned for the Don Mills Road and Haldon Road parking areas, (scheduled for implementation in 2028) while improvements to the parking lot east of Dawes Road have been put on hold.

Figure 19: Recreational Facilities

Map Source: City Open Data and City GIS Data



The Dentonia Park Golf Course owned by the City while outside the scope of this report, offers green-space connectivity as well as provides opportunities for future trail connections to Taylor Creek Park. The provision of a safe pedestrian crossing at Victoria Park Avenue would require some investigation in order to connect trails within the Golf Course to Taylor Creek Park.

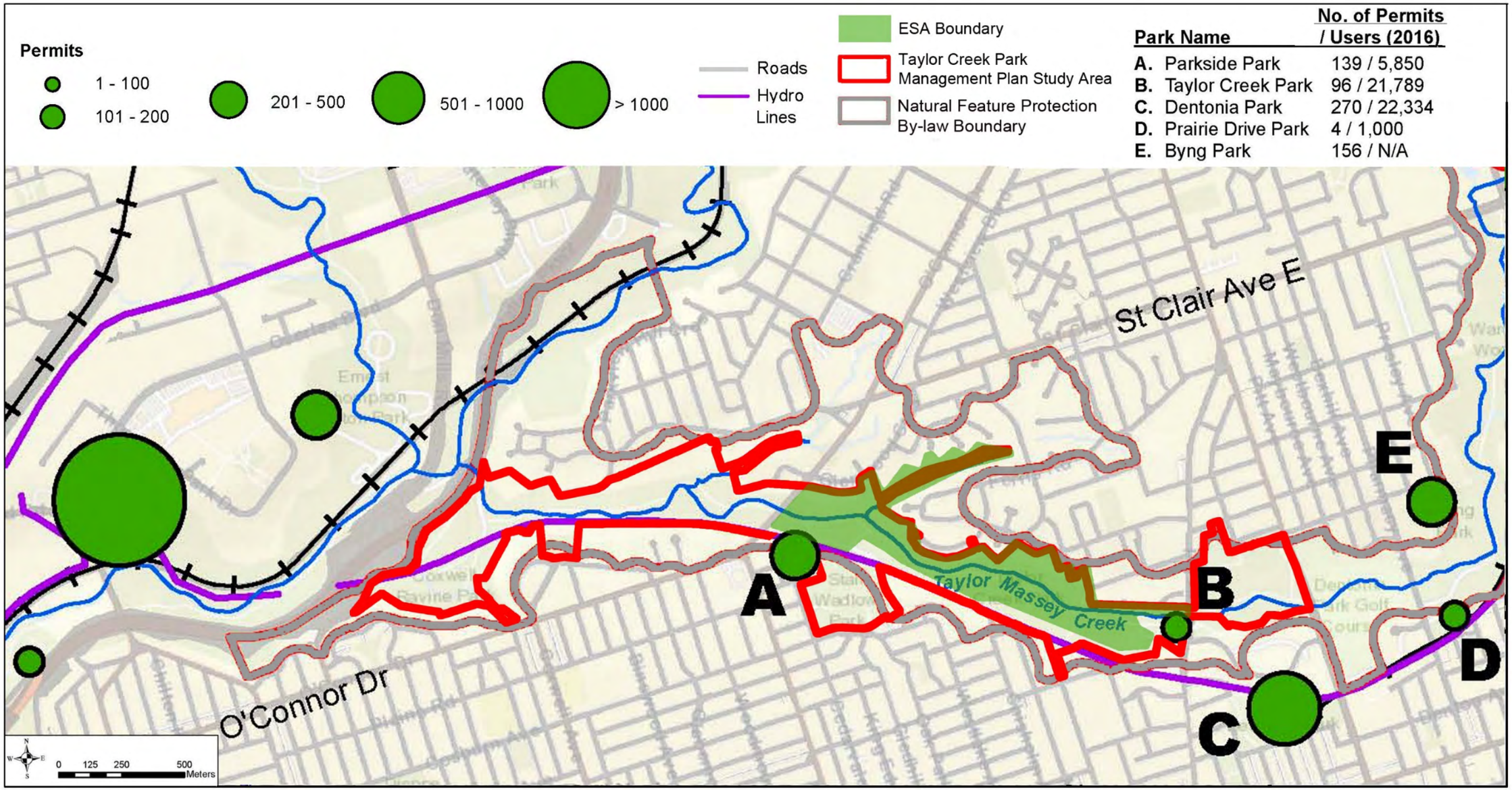
3.3.13 Park Use and Permits

Park permits and use data provide an understanding of where facilities currently support high permit demand and also indicates where recreational activities are concentrated within the Study Area. Large group activities and gatherings that occur within or next to the ESAs are often associated with management problems such as unofficial trail creation, invasive species proliferation, soil compaction, trampling of understorey vegetation and garbage accumulation. The potential impacts of permitted uses within or adjacent to the ESAs should be monitored to identify short and long-term cumulative impacts.

Municipal Licensing & Standards provides by-law administration and enforcement services, including targeted strategies to address graffiti and noise, and enforce regulations, including dogs-off-leash and commercial and residential waste issues.

Figure 20: Park Permits Per Annum

Map Source – City Planning Data



4.0 Issues, Opportunities and Constraints

As discussed in section 3.0, the framework for the Taylor Creek Management Plan relates to the *Toronto Ravine Strategy*. The same Guiding Principles are employed to evaluate opportunities and constraints within the Study Area. This evaluation process resulted in the identification of recommendations organized under three 'foundations' of the Study including: Natural Heritage Health, Creek Stability and Function and Recreational Park Uses, Trails and Public Safety.

Through site review and analysis, the consultant team identified management issues and opportunities within the Study Area which are summarized below.

Table 4: Issues and Opportunities

Management Issues	Opportunities
Natural Heritage System	
• Residential encroachment • Ecological impacts to the Taylor Creek ESA and seepage areas • Vegetation management/invasive species issues • Decline in biodiversity and increase in monocultures of invasive species • Loss of understorey habitat	• Enhance biodiversity • Protect sensitive vegetation/employ buffers Remove invasive species • Enhance outreach and access to the Ravine Property Homeowner's Guide produced by the City of Toronto • Rehabilitate degraded/ eroded natural areas seeking opportunities to work in partnership with the Toronto and Region Conservation Authority • Support unhoused residents to find habitation outside of the park setting, providing social benefits and opportunities for ecological restoration
Creek Stability	
• Erosion control • Creek bank stability • Limited flood storage/flood capacity concerns	• Stabilize slopes and banks • Increase capacity/incorporate Low Impact Development initiatives • Address flood management concerns
Trails and Access	
• Proliferation of unsanctioned trail use • Limited accessibility • Unbalanced access and parking strategy across the park • Conflicts between user groups • Need for improved signage and wayfinding	• Restore degraded parts of the trail system • Improve accessibility of the trail system • Remove or replace outdated or damaged infrastructure • Investigate alternatives to separate uses or prohibit and enforce prevention of certain uses • Explore Parks and Wayfinding Strategy to investigate signage needs

The following sections describe the management issues, threats and challenges, opportunities and constraints in detail.

4.1 Evaluation of Natural Heritage System Health

The following observations were made by members of the consultant team during several visits to the site and present a summary of the issues that were identified pertaining to the health and condition of the Natural Heritage System within Taylor Creek Park.

Issues, Threats and Challenges:

- Non-native fauna contributes to a decline in native biodiversity in the following ways:
    - Presence of cats in urban areas is contributing to the decline in small mammal population;
    - Small mammals contribute to the spread of non-native plants. There are few mammal burrows that would support ground-dwelling salamanders that could once have bred in the ponds and summered in forests, also moving the seeds of native plants throughout the forest; and,
    - Several of the ponds support goldfish (Carassius auratus), a non-native species that is known to have detrimental effects on aquatic systems.
- The park is experiencing a loss in understorey habitat in some areas. There are likely interacting factors that contribute to this condition. These could include the following:
    - Some sloped forested areas where mountain bike use and unsanctioned informal trails are prevalent are denuded of ground flora, in many cases caused by increased erosion;
    - The ground plane is heavily shaded by Norway Maple trees (Acer platanoides), resulting in reduced germination of ground flora, and/or,
    - Erosion is displacing seeds before they can germinate.
- Non-native plant species remain a significant threat to biodiversity in the Study Area. Numerous invasive species are present throughout the Study Area – in many cases ubiquitous coverage was noted including:
    - Rough manna grass (Glyceria X maxima) forming monocultures in some areas;
    - Dog-strangling vine (Cynanchum rossicum) is the most abundant of the invasive species found occurring next to trails and in clearings.
    - Common buckthorn and European buckthorn (Rhamnus cathartica) dominate the shrub layer of forests;

- Black alder (Alnus glutinosa) was inadvertently planted in Taylor Creek Park prior to the year 2000 and has since become more common in ponds and ditches. Alders become large trees with prolific seeds and readily regenerate in moist soils;
- Common reed (Phragmites australis) is an aggressive, vigorous non-native species which will out-compete virtually all other native species to form a dominant stand; and,
- Garlic mustard (Alliaria petiolata) which dominates many seepage areas.

Opportunities:

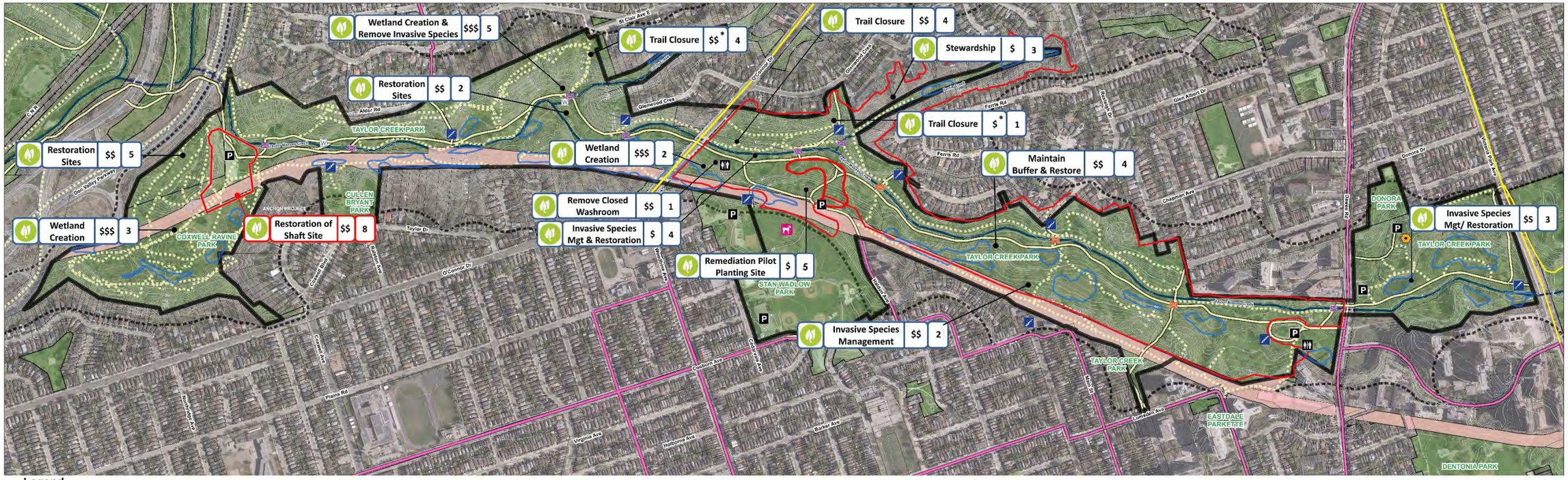
- Focus investment on addressing invasive species, and unofficial trail creation and use in the highest quality habitat areas of Taylor Creek Park, especially within the ESA and sensitive seepage areas;
- Due to the rampant spread of invasive species a comprehensive vegetation management plan for the Study Area is recommended;
- Further investigations (i.e., breeding bird surveys) should be conducted prior to the implementation of recommended projects to confirm base conditions, ensure minimization of disturbance to the Natural Heritage System and to enable the tracking and monitoring of the success of each project; and,
- New opportunities for restoration should be identified. This could include manicured areas that are not being used for recreation because of location or size, narrow areas along paths, slopes and wetter areas. These areas could be naturalized with appropriate native species, improving species and habitat diversity.

Constraints:

- Due to the ubiquity and scale of invasive species colonization, addressing the problem in full capacity will be a challenge. A plan that will address the issue in a comprehensive manner is recommended to be implemented in coordination with all other Management Plan project opportunities, where invasive species are an issue; and,
- Steep valley slopes complicate access to implement invasive species management initiatives. Disturbance to the valley may be necessary to implement improvements which will likely result in the requirement for additional restoration. Many of the areas of concern are located within the ESA, which present challenges from a natural heritage protection perspective.

The opportunities and constraints are summarized in Figure 21 and include Park-Wide recommendations to address protection of natural features and the enhancement of the ecological system.

Figure 21: Ecology and Natural Systems Management initiatives Map



Legend

- Existing Asphalt Multi-Use Trail
- Existing Trail Network (10 Year City Cycling Network Plan)
- Proposed Network as per 10 Year Cycling Network Plan
- Existing Unofficial Foot-Trail Network
- Wetland
- ESA Boundary
- Hydro Corridor
- City-owned Parkland
- Taylor Creek Park Study Area
- Taylor Massey Sub-Watershed Study Area
- Dog Park
- Children's Peace Theatre
- Parking
- Timber Footbridge (Upgraded)
- Steel Footbridge (Replaced)
- weir
- Stairs
- Washroom
- Ecology Project Category
- Anchor/ Restoration Project
- Potential Quick Win Project

Source: Contour lines from Land Information Ontario - Greater Toronto Area Digital Elevation Model 2002 - Last revision date: 2015-08-18

Taylor Creek Park Management Plan

Ecology and Natural Systems Management Initiatives

0 50 100 200 Meters

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4.2 Evaluation of Creek Stability

As noted in section 3.3.3 and 3.3.5 there are several planned infrastructure projects that will affect the watercourse within the Study Area for the next few decades, including the Don River and Central Waterfront Project (including the Lower Don/Coxwell bypass), various stream restoration projects, basement flooding mitigation studies (on-going) and sewer outfall and combined sewer outfall replacement projects. However, in the short-term there are a number of key issues that were observed that will need to be addressed to protect public safety and contribute to the improvement of water quality and creek stability. These include:

Issues, Threats and Challenges:

- Gabion-basket retaining walls that are deteriorating are reaching the end of their service life;
- Several bridges that no longer satisfy the requirements for flood management;
- Exposed sections of the trunk sewers that will require replacement;
- Stormwater outfalls that will require re-alignment to prevent erosion in some cases;
- Human/dog foot traffic that is contributing to erosion;
- Exposed or clogged drainage culverts that will require maintenance or replacement;
- Eroded sections of the creek and areas with increased vulnerability to erosion due to intensified storm events and frequency; and,
- Erosion that is contributing to reduced water quality.

Opportunities:

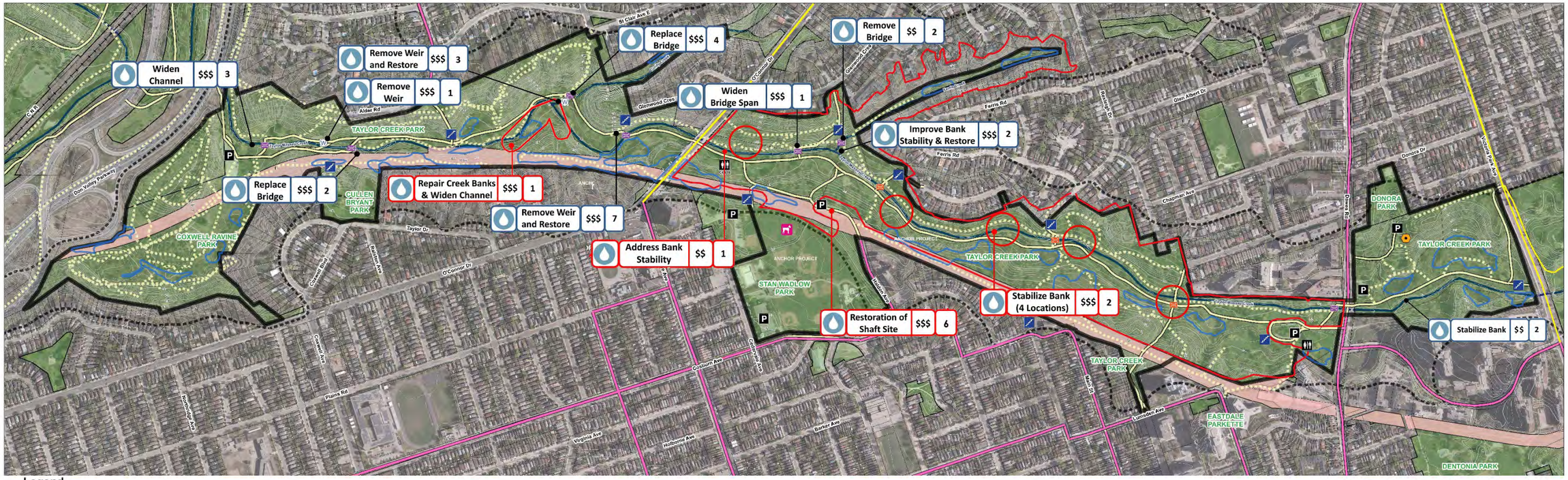
- Address creek stability in a comprehensive manner with soft engineering and widening of the banks (where space permits). This initiative may require the relocation or the removal of some trails. This work can be planned to incorporate trail improvements to address safety and maintenance issues;
- Expand and coordinate monitoring initiatives among City divisions and external stakeholders. Monitoring initiatives at Taylor Creek Park are currently led by both Toronto Water and the TRCA. These initiatives assist in documenting the state of the watercourse and include: the Wet Weather Flow Tributary Monitoring Program (on-going), creek flow monitoring and TRCA's geomorphic and aquatic habitat monitoring programs; and,
- Standardize data collection between organizations to enhance monitoring.

Constraints:

- Many of the areas requiring bank stabilization work are located within the ESA or sensitive seepage areas. Staging areas and access routes associated with this work could further impact the natural environment and careful planning will be required to protect and restore natural features that may be impacted by construction; and,
- Limitations imposed by the narrow floodplain make it difficult to allocate available compensation flood storage areas.

The opportunities and constraints are summarized in Figure 22 and include Park-Wide recommendations to address flood management and creek stability.

Figure 22: Creek and Stormwater Management Initiatives Map



Legend

- Existing Asphalt Multi-Use Trail
- Existing Trail Network (10 Year City Cycling Network Plan)
- Proposed Network as per 10 Year Cycling Network Plan
- Existing Unofficial Foot-Trail Network
- Wetland
- ESA Boundary
- Hydro Corridor
- City-owned Parkland
- Taylor Creek Park Study Area
- Taylor Massey Sub-Watershed Study Area
- Dog Park
- Children's Peace Theatre
- Parking
- Timber Footbridge (Upgraded)
- Steel Footbridge (Replaced)
- weir
- Stairs
- Washroom
- Water Project Category
- Anchor/ Stormwater Mgt Project
- Potential Quick Win Project

Key Map

Source: Contour lines from Land Information Ontario - Greater Toronto Area Digital Elevation Model 2002 - Last revision date: 2015-08-18

Taylor Creek Park Management Plan
Creek and Stormwater Management Initiatives

0 50 100 200 Meters

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4.3 Evaluation of Trails, Circulation and Access

The main trail system follows the creek, providing a continuous route from a newly refurbished parking lot on the west side of Dawes Road to Don Mills Road and connecting to the East Don Trail and Lower Don River trail systems. A parking lot at Haldon Road provides a midway access point. The main official trail crosses the creek at several locations. Bridges have been constructed to facilitate the crossings. The trail is asphalt and its width is suited to a multi-use function. An unofficial gravel trail located on the north side of the creek provides a unique recreational experience for users.

Issues, Threats and Challenges:
The key trail issues that need to be addressed to protect public safety, as well as geomorphic and natural systems include:

- Sections of trail surface that are in disrepair;
- Narrow sections where trails have circumvented or been impacted by erosion;
- Sections of trails that are vulnerable to erosion or creek bank instability;
- Sections of trails with improper trail drainage;
- Trails in seepage areas that are vulnerable to soil compaction;
- Trails crossing natural springs reduce water quality;
- User conflicts between cyclists and pedestrians using the same multi-use park trails are common;
- Reduced sight lines due to vegetation increases the risk of collisions;
- Lacking amenities, such as benches and garbage bins in some areas of the Park;
- Redundancies in the trail system i.e., informal unofficial trails and maintenance access routes; and,
- Multiple access points from surrounding neighbourhood roads with official and unofficial access paths that lead to the main official trail. Many of the paths are steep and/or eroded. Some lack adequate signage and wayfinding.

Opportunities:

- Redundancies in the trail alignment should be addressed to reduce pressure on natural features, freeing up space for creek stabilization and flood management initiatives;
- Relocate trails that are vulnerable to erosion and this work can be coordinated with stabilization work. Wherever possible, access should be improved to comply with Accessibility for Ontarians with Disabilities Act (AODA);
- A comprehensive signage and wayfinding plan should be developed to improve user orientation and promote safe use and accessibility;
- Improvements to the drainage/conveyance system are required to prevent water and ice buildup over the trails;
- The unofficial trail within the hydro corridor that poses less disturbance to natural heritage features could be formalized in order to offer an alternative parallel route to the main official trail in the valley; and,

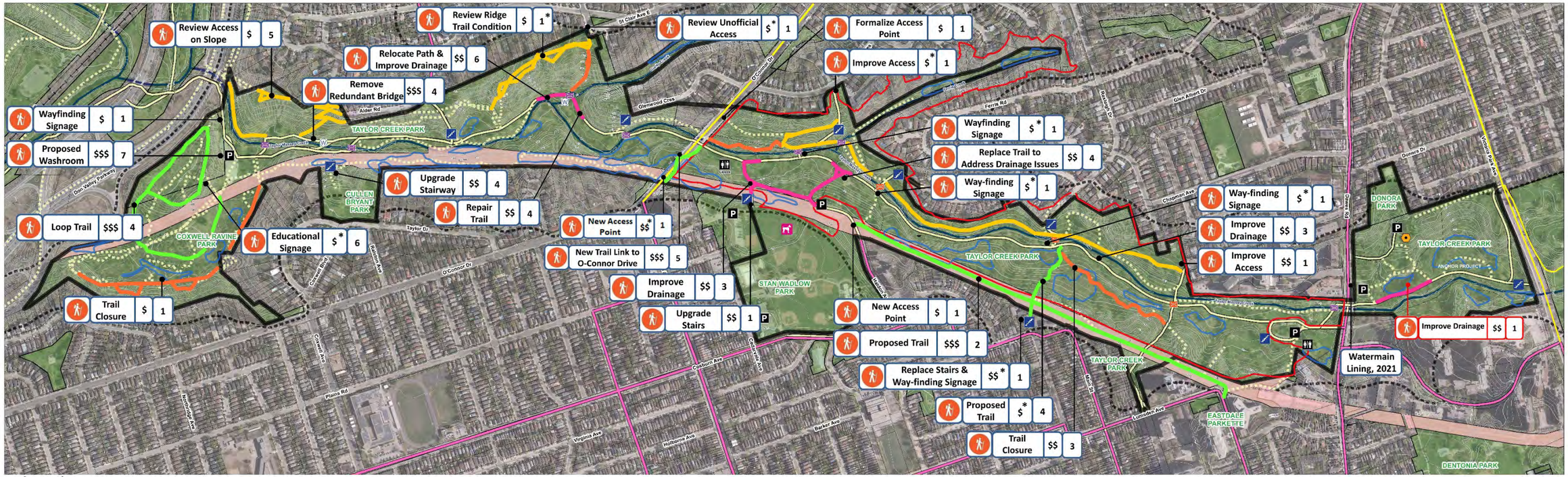
- New trails could be located within the areas associated with the former landfill sites.

Constraints:

- Limited space and topography within the valley constrain the trail corridor, leading to flood vulnerability in some sections. Rehabilitating flood-prone trails may result in the requirement to construct extensive sections of boardwalk, which can be costly and require more up-keep; and,
- Due to the steep valley slopes, there are limited opportunities to retrofit access points to achieve optimal compliance with the AODA.

The opportunities and constraints are summarized in Figure 23 and includes Park-Wide recommendations to address trail access, recreation and signage.

Figure 23: Trails and Access Point Management Initiatives Map



4.4 Foundation A Guiding Principle - Natural Heritage System

The Management Plan envisions a stable and enhanced creek system, with improvements to the stormwater management system and water quality. The recommendations set out in the Management Plan are aimed at protecting the most sensitive habitats, in particular within the Taylor Creek ESA, buffering and enhancing this system through restoration in order to build resilience against future pressures associated with anticipated increased levels of public use and climate change.

The ravine system is of importance to various agencies that have jurisdiction. However, as identified in the guiding principles of the Ravine Strategy and this Management Plan, the Natural Heritage System is the foundation for the ravine system and must be protected and enhanced where possible. Without the health and vitality of this natural system, the other uses would not be possible. In order to meet this goal, the following recommendations are set out:

- A vegetation management strategy should be developed that sets out priorities for management according to the sensitivity of the habitat, the abundance and relative aggressiveness of non-native species, with a specific focus on the ESA;
- Trails should be rationalized to reduce trampling and erosion, with a focus on reducing access points;
- Trails should be managed, particularly along the former railway line/hydro corridor on the south side of Taylor Creek Park, to reduce the proliferation of unofficial trails that impact sensitive seepage habitats which in-turn support fen habitat indicators;
- Water quality should be maintained and enhanced in amphibian breeding ponds;
- Wildlife habitat elements that contribute to diversity, such as downed woody debris, standing dead trees, areas of vernal pooling and successional vegetation, should be left in place wherever possible. Compensation should be provided where it is not possible to retain these features;
- Additional wildlife habitat elements such as nest boxes and bat boxes should be installed, along with a plan for their ongoing maintenance;
- Trail uses that may be incompatible with the protection of habitat integrity should be resolved, in consultation with local trail user groups, etc.;
- Edge enhancements through planting of native species should be implemented at the interface with urban development in an effort to restore areas of encroachment;
- Trail enhancements, such as boardwalks and stairways, should be implemented in areas of potential high impact and erosion;
- Linkages between habitats should be enhanced wherever possible, filling gaps in the riparian vegetation system; and,
- Enhancements to the riparian corridor along the creek should be a specific priority, especially in highly-manicured areas, where it is clear that severe erosion is occurring, or that the space is underutilized.

4.5 Foundation B Guiding Principle - Creek Health and Stormwater Management

Since the majority of the lands within the Study Area are subject to potential flooding and the effects of erosion, the Management Plan recommends an approach that aligns with the TRCA's 2010 Stormwater Management Criteria for Watershed Protection "to protect and improve watershed health, promote a more resilient stormwater system and adapt to the effects of a changing climate."

The approach strives to combat the consequences of "hydro-modification" in the urban subwatershed which include: streambank erosion, increased peak flows and pollutant loading, reduced base flow, loss of habitat and risk to infrastructure. The objectives of the criteria are to: enable manageable stormwater rates and volumes, prevent increased flood risk, protect water quality, improve base flow, prevent major erosion, protect habitat, and maintain hydrological and ecological functions.

The approach speaks to the benefit of implementing Low Impact Development initiatives, while at the same time as addressing issues at the end of the stormwater drainage system.

4.6 Foundation C Guiding Principle - Trails, Recreation and Cultural Heritage

The Management Plan seeks to improve the trail system such that it remains safe and connected, comprised of hard-surface/asphalt and natural surface trails. The asphalt trails are intended to be multi-use and are intended to be accessible to all, where possible. The main east-west asphalt trail is proposed to function as a spine trail through the Study Area, to which side trails will connect to the surrounding neighbourhoods and on-road cycling routes. Natural surface trails offer an experience of nature that differs from the asphalt trails, enabling passive recreation within the forested areas of Taylor Creek Park and specifically within the Environmentally Significant Area (ESA) as well as providing opportunities for education. Where unofficial trail use is resulting in impact to the Natural Heritage System or where trails are redundant, these trails should be re-aligned or closed to leave only an official sanctioned natural surface trail network.

A theme that evolved as a product of the consultation process was the desire to increase the diversification of the passive recreational experiences that are offered within the Study Area. Enabling a wider range of passive-based experiences could afford the dual benefit of making the Study Area more accessible to a wider constituency of users, affording the opportunity for environmental education and aiding stewardship-building and the potential for 'cross-programming'.

Consideration for enhancements to the recreational system needs to anticipate the impacts that potential increases in use may have on the Natural Heritage System. The multiplicity of uses needs to complement natural heritage features and functions while respecting safety concerns within the floodplain.

In addition, in order to optimize the range of programming opportunities that could be considered for implementation within specific areas in the future, several categories have been defined as a means to organize potential program opportunities. To establish a unique identity for the Study Area that is complimentary to the ravine system, the following themes were established related to education, recreation and leisure programs within the Study Area. It is important to note that not all of these activities

are appropriate for all areas of the Study Area. First and foremost, the natural environment must be respected during the evaluation of any permitted programming within the Study Area, and each opportunity evaluated individually.

Table 5: Themed Social and Recreational Activities

EDUCATION	RECREATION	LEISURE
• Passive interpretation e.g., interpretive signage	• Active e.g., organized sports	• Social e.g., gathering spaces
• Active learning e.g., academic research	• Passive e.g., hiking	• Cultural e.g., activities pertaining to cultural groups or heritage
• Skills development e.g., training course	• Nature-based e.g., bird watching	• Special events e.g., organized walks/rides
• Curriculum support e.g., outdoor classrooms	• Adventure e.g. geocaching	• Arts e.g., temporary installations
• Cultural e.g., guided tours	• Accessible e.g., sensory trails	• Environmental e.g., awareness or stewardship events

5.0 Management Plan Recommendations & Park Improvement Projects

The process for developing recommendations involved the evaluation of data and site analysis. Through this process, site conditions were assessed based upon the principles set out in the Ravine Strategy resulting in a 'long list' of potential projects. In order to more effectively address the breadth of projects that were identified the 'long list' was condensed into three project types: 'Coordinated Improvement Areas', 'Anchor Projects and 'Quick Wins'. Opportunistic relationships amongst projects were identified based on proximity and timing in order to group complimentary projects together.

Constraints to implementation were considered and these influenced the priority and/or viability of some projects. It was also considered whether any projects should be grouped together in order to improve efficiency of implementation and cost.

5.1 Recommendations and Improvement Projects

Four classes of recommendations and projects are proposed to address the range of Park-Wide and site-specific opportunities that were identified in the process of developing the Management Plan. The recommendations and projects are described below.

A. **Park-Wide Recommendations** - High-level recommendations that will be applied throughout the Park. They include guidance related to further detailed study and ongoing maintenance. The Park-Wide recommendations are expressed at a high-level and apply to all projects. Rather than being prescriptive like the area-specific improvement projects, the recommendations provide guidance and address a balance of perspectives.

B. **Coordinated Improvement Areas (CIAs)** - Recognizing that many projects will not be completed in isolation and will often require inter-divisional or agency coordination, solutions have been proposed in order to reduce disturbance footprint, frequency and cost of the projects by planning and implementing projects in combination. In order to optimize effectiveness, coordination relies on communication and oversight by a working-group of representatives from each division/ agency in order to schedule, implement and monitor. Each CIA is anchored by at least one large "Anchor Project," which is often infrastructure-related, that requires a bigger footprint for staging and is usually subject to a predetermined construction schedule. Other projects within the CIA are recommended to occur at the same time or in coordination with the Anchor Project.

C. **Anchor Projects** - Large infrastructure or creek stabilization projects that require significant footprints for staging and construction. Anchor Projects are the key initiatives in each 'Coordinated Improvement Area' as there may be multiple benefits that can be achieved from planning multiple improvements in a given area at one time. This consolidated approach will reduce the frequency of disturbance to the ravine system, will improve efficiency, and will fulfill multiple objectives of the Management Plan.

D. Quick Wins - A number of smaller projects located outside of the Coordinated Improvement Areas which can be implemented more quickly on their own. These 'Quick-Win' projects generally relate to public safety or environmental protection and enhancement.

The Management Plan recommendations were developed through an iterative process of refinement with members of the Working Group, stakeholders and the public. It should be noted that minor revisions to the recommendations were made to respond to the feedback received. Therefore, the wording of the recommendations presented in this report may differ than that which is found in the Online Survey Summary Report in Appendix A.

5.2 Park-Wide Recommendations

High-level, Park-Wide recommendations are meant to be applied throughout the Park. They relate to further detailed study and ongoing maintenance. The Park-Wide recommendations provide guidance regarding; access, management, enhancement and protection of the Natural Heritage System. The recommendations were presented and refined through the stakeholder and public engagement process. The recommendations are described below.

5.2.1 Foundation A: Natural Heritage System

- Protect highly-sensitive seepage and forest areas;
- Manage invasive and hazardous plants within the park according to evolving best management practices and prioritization;
- Manage access to and proliferation of unofficial trails within ESAs;
- Monitor potential impacts of permitted uses within or adjacent to the ESAs to identify short and long-term cumulative impacts;
- Address residential encroachment such as the creation of structures in public lands and practices such as dumping yard waste and draining pool water to creeks through neighbourhood outreach and education;
- Investigate opportunities to plant flowering native plants attractive to pollinators and migrating birds;
- Repair fragmented landscapes to re-establish a connected corridor;
- Improve policy, procedure and enforcement of permitted activities within ESAs and other sensitive natural areas; and,
- Encourage environmental learning opportunities.

5.2.2 Foundation B: Creek Health & Stormwater Management

- Reduce erosion;
- Increase flood capacity thereby reducing flow velocities by widening the creek and stabilizing banks;
- Protect infrastructure and trails from flooding;
- Allow for natural channel processes through restoration works (soft engineering techniques);
- Improve water quality and potential for fish passage i.e., removal of impediments; and,

- Employ Low Impact Development (L.I.D.) techniques (i.e., permeable pavement) when replacing/ upgrading parking areas.

5.2.3 Foundation C: Trails, Recreation and Cultural Heritage

- Limit/reduce unofficial trail creation and use;
- Close unofficial trails where safety and environmental impacts outweigh recreational use;
- Improve safety and circulation on official trails by addressing drainage issues;
- Develop wayfinding, educational and interpretive signage strategies in accordance with City Parks and Trails Way-finding Strategy;
- Seek opportunities for parking lot configuration and L.I.D. design improvements; and,
- Ensure current and potential permitted uses do not negatively impact sensitive environments.

5.3 Anchor Projects and Coordinated Improvement Areas

The individual short-listed park improvement projects were, where possible, grouped together into Coordinated Improvement Areas (CIAs) in order to take advantage of efficiency and to limit redundancy in effort. CIAs represent geographic areas where a multitude of issues can be addressed simultaneously or sequentially. The successful implementation of projects within CIAs are proposed to include:

- Coordination with planned infrastructure or capital projects;
- Interdivisional/agency coordination and funding; and,
- Prioritization which is tied to the timing of the infrastructure or capital investment.

The project groupings were identified based on their proximity and priority in relation to an 'Anchor', a major infrastructure project that would involve a larger footprint of disturbance where a coordinated approach to restoration could save cost, improve implementation efficiency and enable other enhancement opportunities. Six CIAs were identified from the spectrum of projects identified. The six CIAs and the relationship to Anchor Projects are illustrated in Figure 24. It is important to note the relationship of the Anchor Projects within or in close proximity to the ESA as these are the most ecologically-sensitive areas within the park vulnerable to impacts associated from this work.

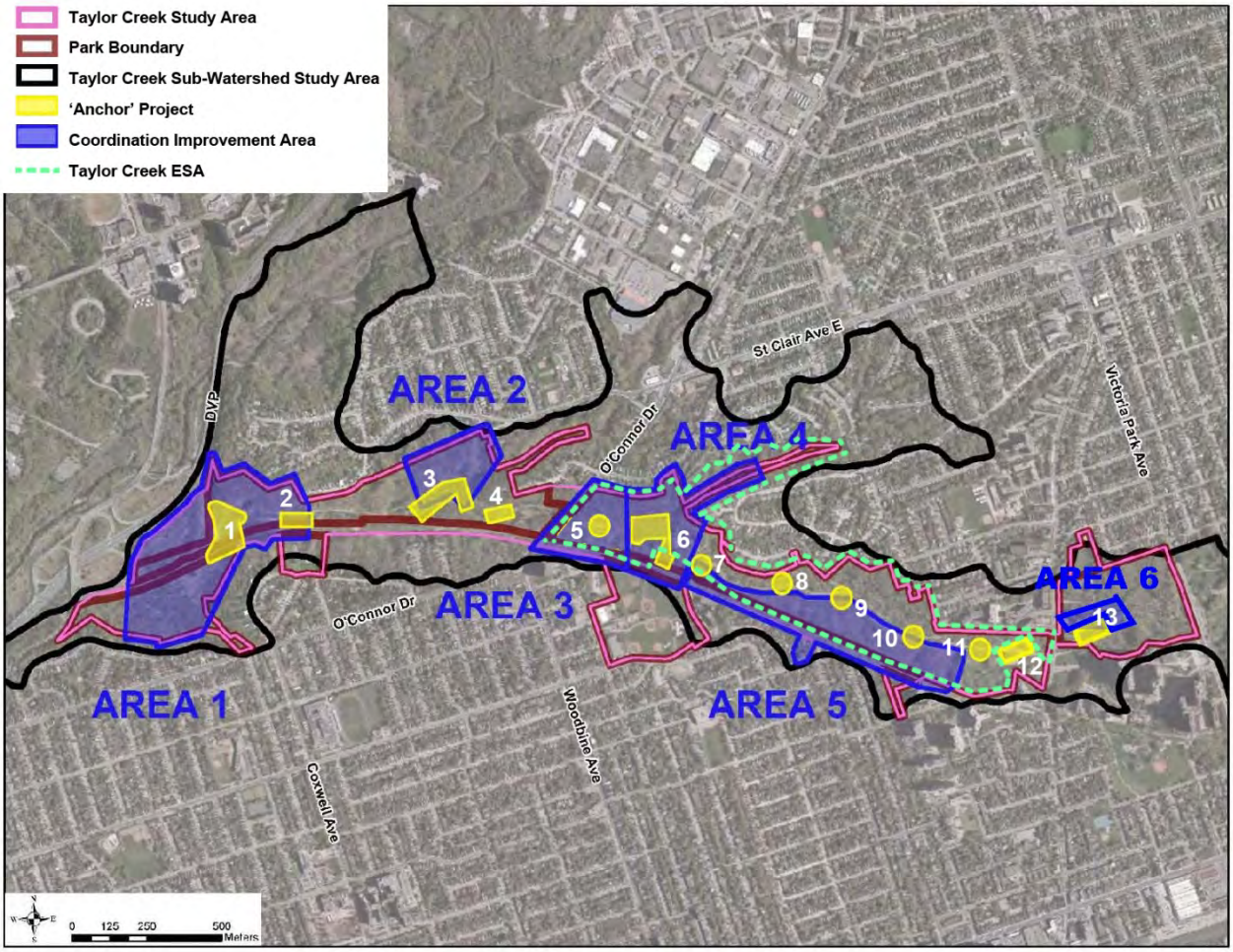


Figure 24: CIAs and Anchor Projects

The smaller projects within the CIA's are recommended to be implemented in conjunction or coordination with the Anchor Project. Recognizing that most projects require inter-divisional or agency coordination, solutions have been proposed that benefit most when planned, and implemented together. The Anchor Projects in each CIA/Area of the Park are as follows:

AREA 1
1. Don River Bypass Tunnel shaft construction and staging area
2. Gabion-basket removal and bank re-stabilization project

AREA 2
3. Repair of creek banks and widening of channel
4. Bank erosion repair project

AREA 3
5. Bank stabilization project

AREA 4
6. Don River Bypass Tunnel shaft construction and staging area

AREA 5
7-8. Gabion-basket wall replacement and creek bank stabilization projects
9. Implement stream riffle and enhanced protection of sewer
10. Replace outfall and gabion-basket wall
11. Realign section of stream away from sanitary sewer, while widening the channel

12. Stabilize banks to protect sanitary sewer, potentially replacing gabion wall

AREA 6

13. Improve drainage and flood capacity in this area

The following sections describe the projects that are proposed within each CIA in more detail and the potential directions for implementation. The Figures and Tables included in each section below list the management initiatives as well as the City divisions that will be responsible for coordination.

5.3.1 Coordinated Improvement Area 1

Existing Conditions:

This CIA encompasses the naturalized area in Coxwell Ravine and the former parking area south of the Don Valley Parkway, which is currently a dogs-off-leash area. The sewer bypass tunnel works associated with the Don River and Central Waterfront Project present an opportunity to 'Anchor' this site. Tunnel shafts and associated staging and access roads are anticipated to have major impacts on the park and implications to other park improvement projects.

As with many other parts of the ravine, sections of the forested slopes of this area are colonized by invasive species.

Official access points exist with stairs that lead from Cullen Bryant Park and Alder Road. The main asphalt path connects northward to the East Don Trail and southward to the Lower Don trail system.

Address erosion adjacent Bryant Park stairway.

Future staging area for WWF works; potential gateway.

Potential restoration area; looped trail and wetland creation.

Potential to remove weir, replace bridge and reduce redundant trails.

Potential restoration planting site.

Anchor Project:
The sewer bypass tunnel works associated with the Don River and Central Waterfront Project present an opportunity to 'Anchor' this site. This work is to be led by Toronto Water. Tunnel shafts and associated staging and access roads are anticipated to have major impacts on the park and implications to other park improvement projects. The restoration of this site will be a major undertaking. Due to the length of time that the bypass tunnel construction project is anticipated to take, the restoration work is identified as a lower priority amongst other opportunities in this CIA, and would likely not happen until beyond 2030.

Opportunities:
As the footprint of this major infrastructure project is expected to take up a significant area, there will be an opportunity to create a hub to implement access and recreation projects including; a new washroom, information kiosk, new signage and formalized loop-trail through Coxwell Ravine.

The redundant creek crossings and asphalt paths are proposed to be removed (one bridge removed and the path either on the north or the south side of the creek removed). Associated with the infrastructure project, the in-water crossing/weir is proposed to be removed. Stabilization and restoration of the areas that are disturbed with native plants is recommended.

Natural surface trails on the steep valley slopes should be assessed in detail and should either be closed or formalized, depending on the degree of impact that occurs on the natural environment. Ongoing management is anticipated to be required to eradicate the invasive species and restore the native tree canopy and understorey in this area.

Coordinated Improvement Area Plan:

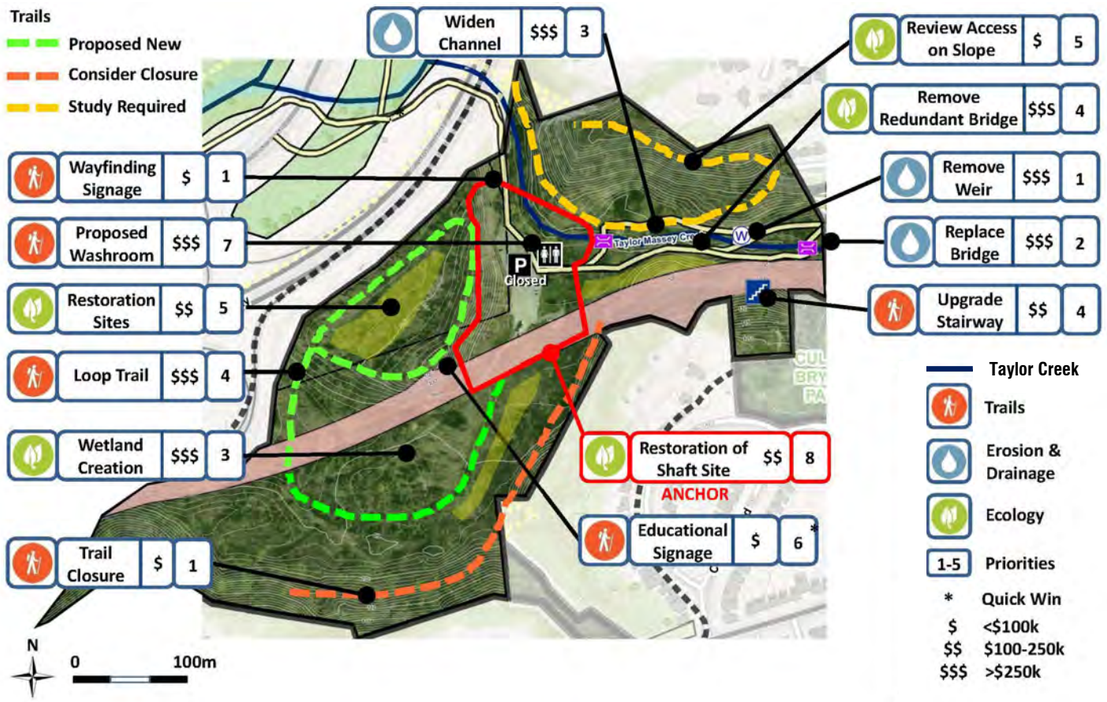


Figure 25: CIA 1 – Prioritized Projects

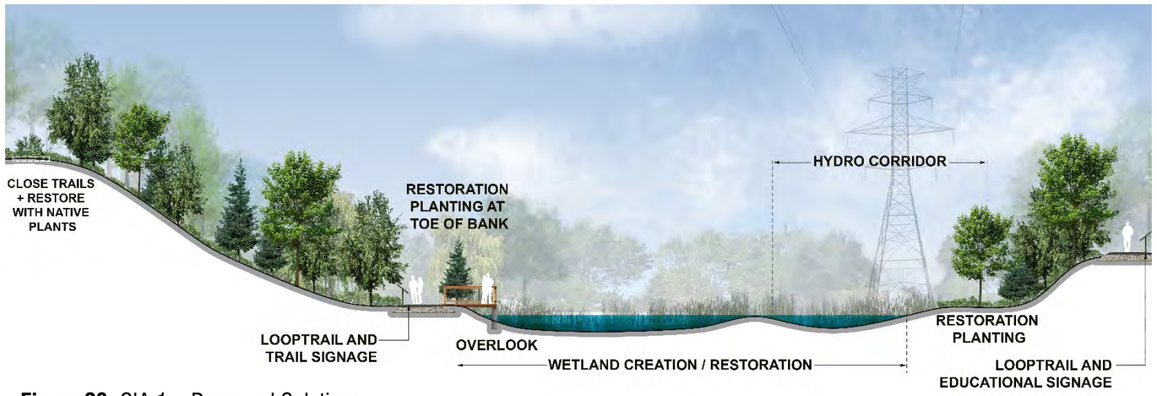


Figure 26: CIA 1 – Proposed Solutions

Table 6: CIA 1 - Management Project Summarization

Project Name and Category	Project Lead	Project Partner(s)	Project Description	Photo/ Location	Priority
ANCHOR PROJECT Restoration of Coxwell Bypass Tunnel Shaft Site	TW	PFR, TRCA	Staging for this Toronto Water infrastructure work is underway. A large area is required for equipment and material storage, resulting in opportunities for new amenities when the site is restored after construction. For more information on this project please see: www.toronto.ca/drcw-project		8
Trail Closure in Coxwell Ravine	PFR (UFR)	PFR, TRCA	Closure of the informal trail on the south slope is encouraged due to its location on a steep and erodible slope.		1
Review Access on Slope	PFR (UFR)	PFR, TRCA	The informal ridge line trail high on the slope will be investigated for potential impacts to the natural environment and consider trail improvements or closure.		1
Trail Closure and Slope Restoration	PFR (UFR)	PFR, TRCA	Opportunity exists to restore sites impacted through informal trail use, relying on plantings of native vegetation.		1
Remove Weir Crossing	TW	TRCA	Once other water quality improvements are implemented, this in-water crossing is proposed to be removed and replaced with rock riffles to aerate the water and promote fish passage.		1
Wayfinding Signage	PFR		Signage will assist users in navigating the trail system especially at branches in the trail, such as the "Forks of the Don" leading to the Lower Don, West Don and (soon to be) East Don Trails.		1
Replace Wooden Bridge	PFR (PDCP)	TW	This narrow wooden bridge should be replaced, to improve pedestrian, cycling and maintenance vehicle access.		2
Remove Redundant Bridge	PFR (PDCP)	TW	There are two wooden bridges in need of replacement and span widening. As there are two crossings in such close proximity, it is proposed to remove one of the two bridges		3
Widen Channel	TW	TRCA	Existing erosion on the outer banks of the creek at the bend requires stabilization. There is space in this location to widen the banks to enable the creek to contain more water in heavier storms.		3
Wetland Creation in Coxwell Ravine	PFR (UFR) / TRCA	PFR, TW	Opportunity exists in the clearing within the low lying area of the floodplain to create a wetland. The site currently receives an abundance of groundwater seepage and a new wetland would contribute habitat.		3
New Looped Trail	PFR (UFR)	PFR, TRCA	Development of a demarcated natural surface or gravel trail will help reduce the creation of new trails.		4
Upgrade Stairway to Cullen Bryant Park	PFR (PDCP)	PFR, CI	The existing bike trough on the stairway is ineffective and should be replaced. Erosion and short-cutting of the stairway by cyclists should be addressed.		4
Educational Signage in Coxwell Ravine	PFR		Interpretive signage could highlight the successional landscape within the Coxwell Ravine and the importance that grasslands play for the ground nesting bird population.		6
Proposed Washroom	PFR (PDCP)	PFR	A new washroom at this location in the clearing would be ideally situated as part of a future gateway to Taylor Creek Park from the East Don and Lower Don trail systems.		7

CATEGORIES ECOLOGY EROSION & DRAINAGE TRAILS

CITY OF TORONTO PFR - PARKS FORESTRY + RECREATION (VARIOUS) / PDCP - PARKS DEVELOPMENT + CAPITAL PROJECTS / UFR- URBAN FOREST RENEWAL / TW - TORONTO WATER / CI- CYCLING INFRASTRUCTURE

EXTERNAL PARTNERS TRCA - TORONTO AND REGION CONSERVATION AUTHORITY / HONI - HYDRO ONE NETWORKS INC. / TH - TORONTO HYDRO

5.3.2 Coordinated Improvement Area 2

Existing Conditions:

This section of the creek is located on a tight bend and is exhibiting erosion and bank instability in sections. Existing retaining walls have become weakened by intense storm events in recent years and require replacement. Erosion has also impacted sections of the existing main asphalt path, necessitating repair. Compounding this is discharge from the seepage area which crosses the trail, contributing to icy conditions in late fall and winter. This condition is due to a seepage area which has infilled, enabling invasive species to thrive. Many other parts of the CIA are also colonized with invasive species, particularly on the forested slopes.

St. Clair access – address erosion and upgrade stairs or close access.

Address seepage/drainage issues over pathway. Remove manna grass.

Potential to replace weir with stone riffles.

Potential pilot remediation planting site.

Explore restoration or recreation potential in small lawn sites.

Nearby successful wetland creation.

Anchor Project:

Planned creek stability works represent the 'Anchor' project for this area and design is currently underway. The projects include gabion-basket retaining wall replacement, with bio-engineered solutions where possible, which will contribute to a reduction in soil deposition downstream. Where space permits, opportunities to widen the channel to increase flood capacity will be investigated. This work should be led by Toronto Water.

Opportunities:
The stabilization projects in this CIA represent a higher priority than other sites. While bank stabilization is top priority to protect the public and stabilize the creek, there is an opportunity to relocate the existing trail which is too close to the bank of the creek. Drainage issues should be addressed with the new trail alignment. In conjunction with slope stabilization works there is an opportunity for restoration planting and invasive species removal in the area of the new trail, returning this site to a natural wetland.

Improvements to the official trail system are also proposed. The existing wooden pedestrian bridge is in need of replacement and there is an in-water crossing that is redundant and poses safety concerns. The removal of the in-water crossing can be coordinated with the replacement of the bridge. There are also opportunities for invasive species removal and the restoration of riparian habitat.

As this CIA encompasses an area of the valley where there are steep slopes with a number of unofficial trails, in response, a trail assessment should be conducted to determine the degree of impacts to the natural environment that are occurring and to determine if trails should be closed or if enhancements should be made to improve safety, and to protect the natural heritage features. Wayfinding signage is warranted to assist in orientating users.

There is one access point off of St. Clair Avenue East with a steep unofficial trail. It is recommended that this trail be assessed to determine the potential to formalize this trail in order to improve safety and protect sensitive slopes.

Continual management is anticipated to be required to control invasive species and to restore the native tree canopy and understorey.

Coordinated Improvement Area Plan:

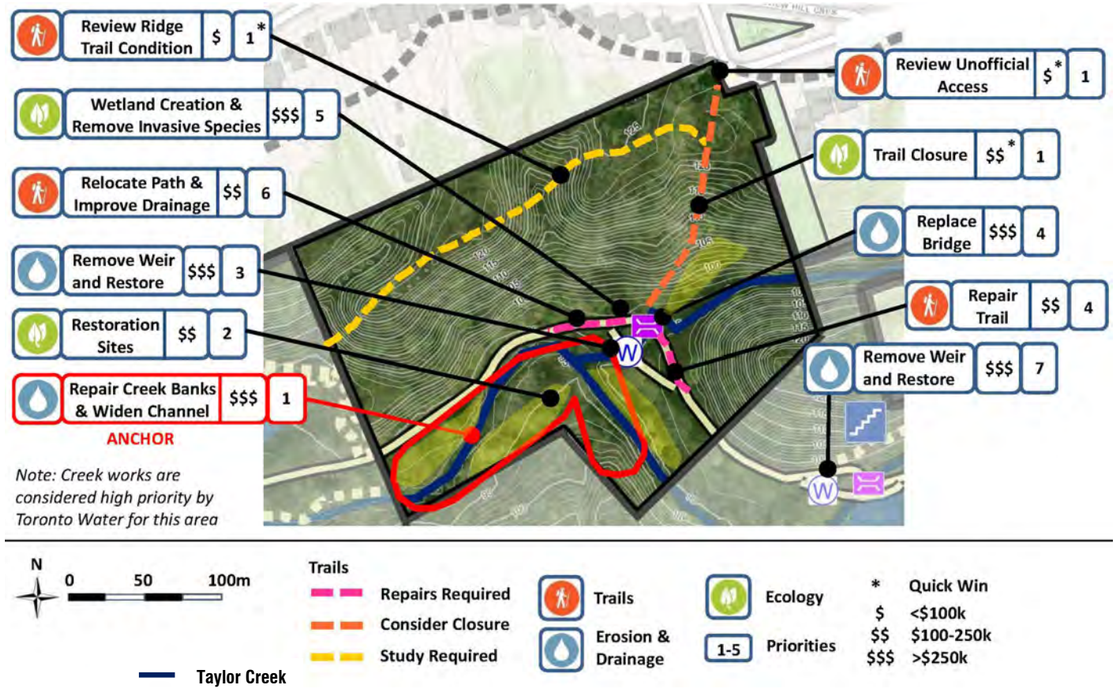


Figure 27: CIA 2 – Prioritized Projects

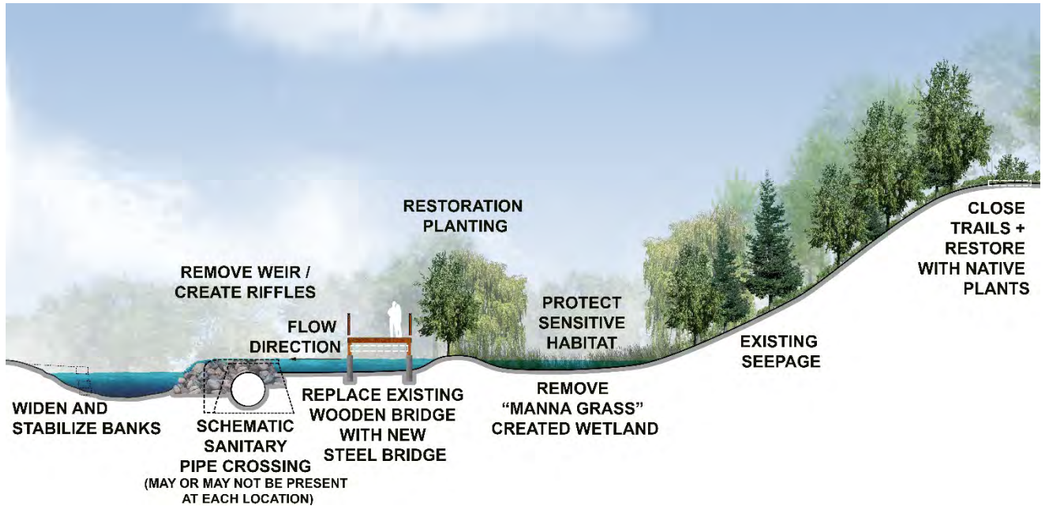


Figure 28: CIA 2 – Proposed Solution

Table 7: CIA 2 - Management Project Summarizatio

Project Name and Category	Project Lead	Project Partner(s)	Project Description	Photo/ Location	Priority
ANCHOR PROJECT Repair Banks and Widen Channel	TW	TRCA	Existing erosion on the outer banks of the creek at the bend requires stabilization. Minor relocation of the trail may be required in this location. This would enable the banks of the creek to widen and contain more water in heavier storms.		1
Trail Closure and Slope Restoration	PFR (UFR)	TRCA, PFR	Native forest canopy and understorey plants are proposed to restore the fall-line trail that is to be closed.		1
Review Ridge Trail Condition	PFR (UFR)	TRCA, PFR	Review impacts and consider trail improvements or closure. The informal ridge line trail high on the slope will be investigated for potential impacts to the natural environment.		1
Review Unofficial Access Point	PFR (PDCP)	CI, PFR	Users access informally from the bend in the road. Safety, sight-lines and erosion are concerns that need to be addressed. Depending on results of adjacent informal trail investigations, this access point may be closed or formalized.		1
Remove Weir and Restore	TW	TRCA	Associated with other works recommended in the area, this in-water crossing is proposed to be removed and replaced with rock riffles to aerate the water and promote fish passage.		3
Repair Trail	PFR (PDCP)	CI, TRCA, TW	This section of trail needs to be repaired to improve drainage or redesigned and replaced. Further investigation is required.		4
Replace Bridge	PFR (PDCP)	CI, TW	This narrow wooden bridge should be replaced, to improve pedestrian, cycling and maintenance vehicle access.		4
Restoration Sites	PFR (UFR)	TW, TRCA	There is an opportunity to restore with native plants, areas disturbed by the anchor project.		5
Wetland Creation and Remove Invasive Species	PFR (UFR) / TRCA	PFR, TW	There is an opportunity to remove invasive species and to excavate to create a pocket wetland in an area north of the trail which receives groundwater seepage.		5
Relocate Path & Improve Drainage	PFR (PDCP)	TW, PFR, CI	Repair of this section of path will require realignment, culverts and new ditches, as they have been infilled over time.		6
Remove Weir and Restore	TW	TRCA	Once other water quality improvements are implemented, this in-water crossing is proposed to be removed and replaced with rock riffles to aerate the water and promote fish passage.		7

CATEGORIES ECOLOGY EROSION & DRAINAGE TRAILS

CITY OF TORONTO PFR - PARKS FORESTRY + RECREATION (VARIOUS) / PDCP - PARKS DEVELOPMENT + CAPITAL PROJECTS / UFR- URBAN FOREST RENEWAL / TW - TORONTO WATER / CI- CYCLING INFRASTRUCTURE

EXTERNAL PARTNERS TRCA - TORONTO AND REGION CONSERVATION AUTHORITY / HONI - HYDRO ONE NETWORKS INC. / TH - TORONTO HYDRO

5.3.3 Coordinated Improvement Area 3

Existing Conditions:
CIA 3 encompasses a wider section of floodplain. Many parts of the CIA are inundated with invasive species. In particular, the open area on the south side of the creek that surrounds the closed washroom and the area within the Hydro corridor have been overcome by Dog-strangling vine. Natural seepage that discharges from the entire length of the steep south slopes of the valley contributes to a particularly wet area that surrounds the site of the existing closed washroom. A trail and stairway provide a connection to Stan Wadlow-Park, south of the ravine. The stairway is in disrepair and the trail is prone to drainage issues.

North of the creek, steep valley slopes provide good quality habitat. There are several unofficial trails in this area.

Maintained hydro lands; manage invasive species.

Stair replacement required.

Deter access to steep slopes. Bike-use resulting in denuded slopes.

Improvements to convey drainage beneath trails in seepage areas.

A plan for the selective removal of Norway Maple and replacement with native canopy is recommended.

Restoration planting opportunities at the WWF shaft site.

Remove washroom building and create wetland.

Anchor Project:
The creek stabilization project is the 'Anchor' for this area. The project may include bio-engineered solutions as well as traditional 'armouring' of the creek banks to reduce erosion and scour from high velocity storm events. This work should be led by Toronto Water.

Opportunities:
The removal of the existing washroom and creation of a wetland in this area is proposed. The wetland will provide opportunities to improve temporary flood storage. This project will also provide opportunity to remove invasive species. The removal of the washroom and the restoration of the floodplain with a wetland is a major undertaking in this area which will provide opportunities to create good quality habitat. It is proposed that this work will involve coordination with the TRCA. This work should be coordinated with stabilization work that is identified in the *Massey Creek Channel Rehabilitations Study*.

Another opportunity within this CIA is the creation of a new official multi-use access path that would connect the south side of the O'Connor Drive bridge to the main asphalt path in the park, enabling a better connection to the cycling network. Improvements to the access path and stairs from Stan Wadlow Park are proposed to resolve drainage and erosion issues. The unofficial creek-side trail (on the north side of the creek) will require additional assessment to determine whether the path should be closed due to its proximity to the creek and impact on the natural environment.

Continual management is anticipated to be required to remove invasive species and restore the native tree canopy and understorey in this area. It is recommended that this work be led by City of Toronto Parks, Forestry & Recreation.

Coordinated Improvement Area Plan:

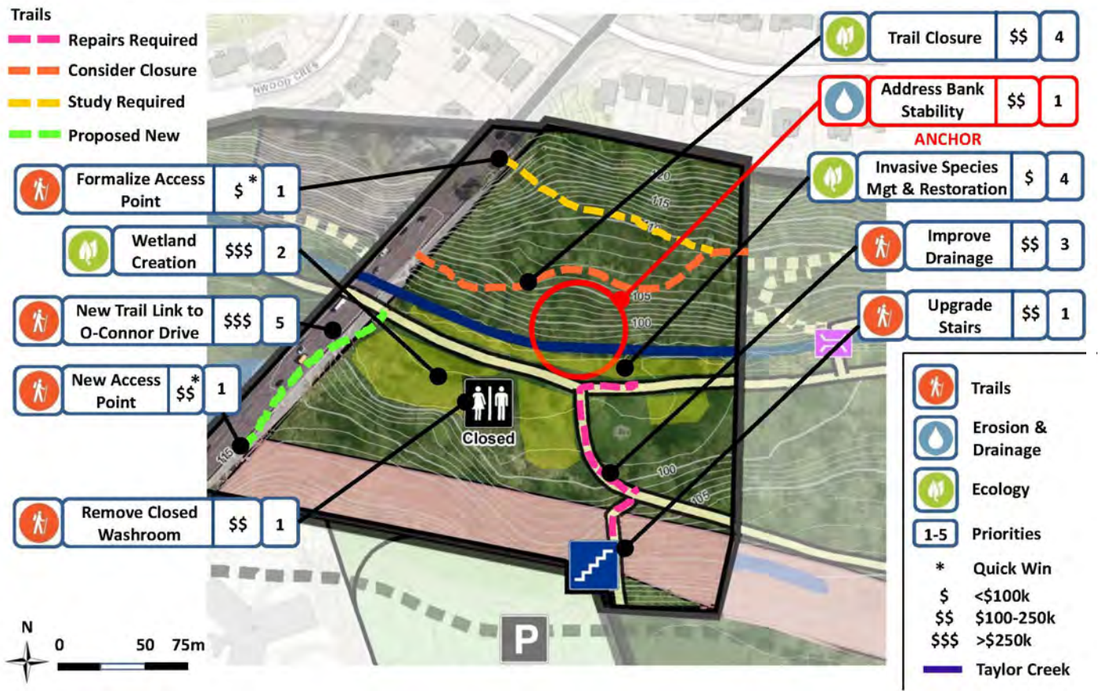


Figure 29: CIA 3 – Prioritized Projects

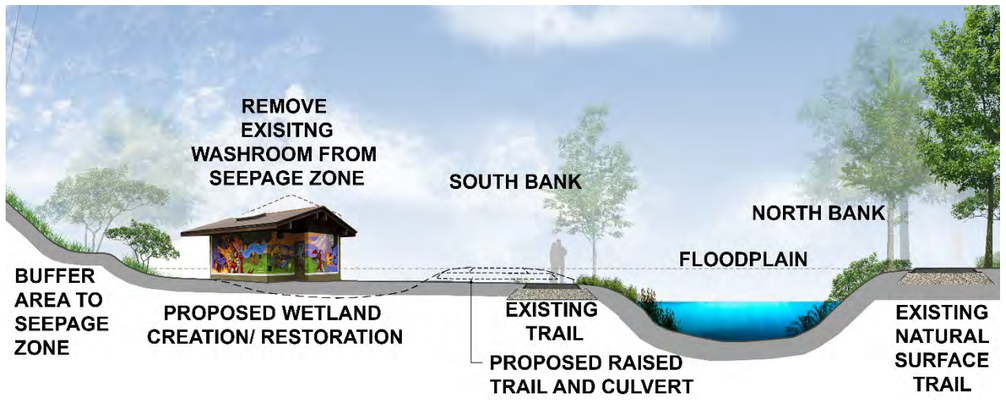


Figure 30: CIA 3 – Proposed Solution

Table 8: CIA 3 - Management Project Summarization

Project Name and Category	Project Lead	Project Partner(s)	Project Description	Photo/ Location	Priority
ANCHOR PROJECT Bank Stabilization and Erosion Control	TW	PFR, PFR (PDCP, UFR), TRCA	Instabilities in existing retaining structures must be addressed. There are opportunities for restoration and a review of the existing creek-side trail in terms of its proximity to the creek bank and potential erosion.		1
New Access Point	PFR (PDCP)	CI	This is a good opportunity for a new connection point from the City's Cycling Network to the trail in the valley at O'Connor Drive.		1
Formalize Access Point	PFR (PDCP)	CI	Improved sight-lines, signage and access are required to navigate to the nearby trail into the valley.		1
Update Stairs to Stan Wadlow Park	PFR (PDCP)	PFR, CI	The stairs should be replaced to improve access and cycling requirements. Wayfinding signage would be beneficial, noting the washroom located at Stan Wadlow Park.		1
Remove Closed Washroom	PFR (PDCP)	PFR	Decommission and remove closed washroom		1
Wetland Creation	PFR (UFR) / TRCA	PFR, TW	Create a wetland to improve flood storage capacity and habitat potential.		2
Improve Drainage at Trail	PFR (PDCP)	CI, TRCA, TW	This trail requires a new design, potential relocation and/or elevation change to enable culverts and ditches to be implemented as the trail crosses a groundwater seepage zone.		3
Invasives Species Management	PFR (UFR)	PFR	Management of invasive species through the area should be conducted in a manner that prioritizes protection of higher quality habitat from degradation.		4
Trail Closure and Slope Restoration	PFR (UFR)	TRCA, PFR	This trail is redundant with a nearby trail and is proposed to be closed and restored with native plants.		4
New Trail from O'Connor Drive	PFR (PDCP)	CI, PFR	The gradual slope and informal trail leading to the valley trail, provides an opportunity for a multi-use trail connection to the City Cycling Network.		5

CATEGORIES: ECOLOGY, EROSION & DRAINAGE, TRAILS

CITY OF TORONTO: PFR - PARKS FORESTRY + RECREATION (VARIOUS) / PDCP - PARKS DEVELOPMENT + CAPITAL PROJECTS / UFR- URBAN FOREST RENEWAL / TW - TORONTO WATER / CI- CYCLING INFRASTRUCTURE

EXTERNAL PARTNERS: TRCA - TORONTO AND REGION CONSERVATION AUTHORITY / HONI - HYDRO ONE NETWORKS INC. / TH - TORONTO HYDRO

5.3.4 Coordinated Improvement Area 4

Existing Conditions:
CIA 4 encompasses steep slopes, manicured lawns and a portion of the Ferris Creek gully. The large-scale sewer by-pass infrastructure work that is to be implemented as part of the Don River and Central Waterfront Project represents the "Anchor" project for this area. Banks are eroded in this section of the creek, and an unofficial trail on the north side of the creek has been impacted by storm damage . There are a number of unofficial trails on the valley slopes which are sandy and eroded. Trail use by mountain bikers and hikers is generating erosion. Wayfinding and user safety is a concern at the Glenwood Road access point.

Within the Ferris Creek gully, unofficial trails and structures, such as wooden staircases and retaining walls, encroach on the valley floor. Pipes have been installed to drain private rear yard swimming pools directly to the creek.

Outer creek bank failure; stabilize bank and relocate trail.

Erosion due to dog/ human access to water.

Remove/discourage private access from rear lots.

Discourage practice of draining pool water to the creek

Remove redundant bridge at base of gully.

Close redundant trail at base of gully.

Anchor Project:
Construction of one of the sewer bypass tunnel shafts associated with the Don River and Central Waterfront Project will be required in Taylor Creek Park at the parking lot off Haldon Avenue. Toronto Water is leading this project. Tunnel shafts and associated staging and access roads are anticipated to have major impacts on the park and implications to other park improvement projects. The footprint of the project is sizeable and will require restoration. The restoration of this site will be a major undertaking and is the 'Anchor' project for this CIA. Due to the length of time that the bypass tunnel construction

project is anticipated to take, the restoration work is identified as a lower priority amongst other opportunities in this CIA, likely beyond 2030.

Opportunities:
Maintenance work on trails is required to address drainage problems and remediate safety issues related to uneven surfaces. Although bank stabilization work is included in the list of projects in this area, storm damage to the trail on the north side of the creek should be addressed in the short term through the implementation of an 'interim' solution to address public safety, until stabilization works on the banks of the creek can be carried out (anticipated 20-year timeframe). The trail should be relocated to a more suitable and permanent location at the same time that the creek banks are stabilized. Bank stabilization should utilize biotechnical stabilization techniques, enabling widening of the channel to enhance flood storage.

An existing timber bridge is proposed to be removed and the unofficial trail that leads to this bridge is proposed to be closed permanently.

A clearing within the flood plain on the north side of the creek near the Halsey Avenue trailhead provides an opportunity in which to trial different restoration planting options, with a focus on managing invasive species, specifically, dog strangling vine.

There are pockets that are heavily colonized by invasive species. Ongoing efforts are anticipated to be required to eradicate the invasive species and restore the native tree canopy and understorey in this area. This work should be coordinated with the various projects that are recommended to be carried out in this area.

Enhancements are recommended to improve access, wayfinding and safety from the entry point at Glenwood Road to the official trail in the valley. Measures to keep users on the trail and out of sensitive habitats should be implemented.

Coordinated Improvement Area Plan:

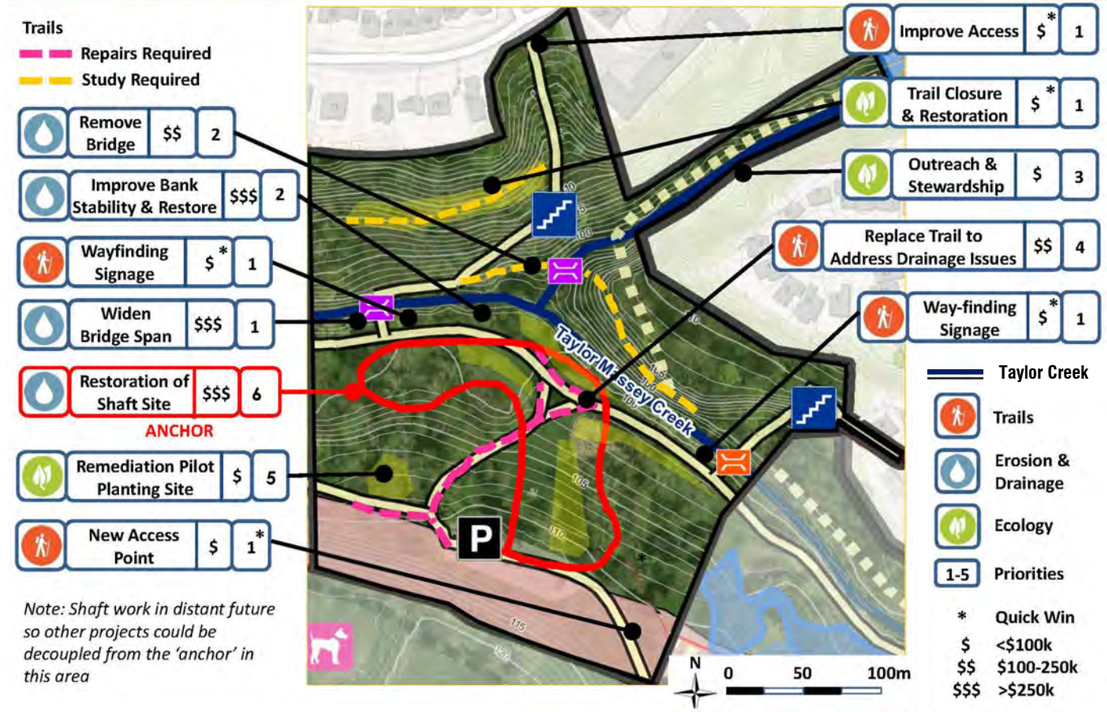


Figure 31: CIA 4 – Prioritized Projects

Figure 32: CIA 4 – Proposed Solution

Table 9: CIA 4 - Management Project Summarization

Project Name and Category	Project Lead	Project Partner(s)	Project Description	Photo/ Location	Priority
ANCHOR PROJECT Restoration of Coxwell Bypass Tunnel Shaft Site	TW	PFR (UFR), PFR, TRCA	Infrastructure work to build a sewage bypass tunnel will be completed in the next 10-15 years. A large area will be required for equipment and material storage, resulting in opportunities for new amenities, trail work and re-vegetation when the site is restored after construction. For more information on this project please see: www.toronto.ca/drcw-project		6
Trail Closure and Slope Restoration	PFR (UFR)	PFR	This trail is redundant with a nearby trail and is proposed to be closed and restored with native plants.		1
Wayfinding Signage - Hydro Trail Access	PFR		Wayfinding signage is required with the new access point to inform trail users of the tail's length and other access points to the trail.		1
New Access Point	PFR (PDCP)	PFR, HONI, TH	There is an opportunity to create a formal access point to the Hydro Corridor Trail.		1
Replace Bridge (Wider Span)	PFR (PDCP)	TW, CI	This narrow wooden bridge should be replaced, to improve pedestrian, cycling and maintenance vehicle access.		1
Wayfinding Signage - Bridge	PFR		Wayfinding signage is required to orient users to branching trails at bridges leading to access points.		1
Improve Access	PFR (PDCP)	CI	The access point is on a T-intersection and hidden away. Sight-lines, safety and accessibility should all be taken into consideration when improving access down the slope to the trail system.		1
Bank Stabilization and Erosion Control	TW	PFR, TRCA	The bank on the north side of the creek requires stabilization. Using 'soft engineering' techniques, such as slope stabilizing plants and stones of various sizes, will create improved habitat opportunities.		2
Remove Bridge	PFR (PDCP)	TW, PFR (UFR), TRCA	This wooden bridge at the base of the gully is too narrow to convey heavy flows and over ices in winter. It should be removed as there are other routes and crossings nearby. Restore the site.		2
Community Outreach and Stewardship Opportunities	PFR (UFR)	PFR, TRCA	Homeowner education an outreach is required in order to address private access, structures and pool drainage to the creek		3
Replace Trail to Address Drainage Issues	PFR (PDCP)	CI, TRCA, TW (WIM)	This trail requires a new design, potential relocation and/or elevation change to enable culverts and ditches to be implemented as the trail crosses a groundwater seepage zone.		4
Remediation Pilot Site	PFR (UFR) / TRCA	PFR	There is an opportunity to run a remediation pilot project on this former closed landfill site. The area is secluded from other recreational park uses and is a cleared site.		5

CATEGORIES ECOLOGY EROSION & DRAINAGE TRAILS

CITY OF TORONTO PFR - PARKS FORESTRY + RECREATION (VARIOUS) / PDCP - PARKS DEVELOPMENT + CAPITAL PROJECTS / UFR- URBAN FOREST RENEWAL / TW - TORONTO WATER / CI- CYCLING INFRASTRUCTURE

EXTERNAL PARTNERS TRCA - TORONTO AND REGION CONSERVATION AUTHORITY / HONI - HYDRO ONE NETWORKS INC. / TH - TORONTO HYDRO

5.3.5 Coordinated Improvement Area 5

Existing Conditions:
CIA 5 encompasses large areas that are prone to seasonal inundation of water. Two highly-sensitive seepage areas have been identified within CIA 5 as part of this study. There are a number of unofficial trails that surround and traverse these sensitive areas. Sensitive vegetation has been trampled and soft organic soils have been compacted. Informal log boardwalks have been constructed through seepage sites.

There is an existing well-worn path through the hydro corridor on the south side of the CIA. A community garden is situated within the hydro corridor on the east side of Haldon Avenue. A stairway from Chisholm Avenue that connects to this path is in disrepair. Several informal encampments and random fitness equipment exist throughout the area.

Upgrade stairways.

Remove debris and encampments.

Integration of existing uses in hydro corridor (community gardens).

Recreational open space enhancements.

Proposed formalization of hydro corridor trail.

Protect sensitive seepage sites.

Remove old structures and address erosion from ad-hoc trails on slopes.

Anchor Project:
Four sections of the creek have eroded banks that are proposed to be repaired as part of this CIA. The rehabilitation work is the 'Anchor' project within CIA 5. The project will be led by Toronto Water and is currently in the planning stage.

Opportunities:
In conjunction with the 'Anchor' project, there are opportunities to stabilize the banks with 'soft' engineering solutions, relocate adjacent trails that are currently too close to the edge of the creek and enhance the riparian corridor through the installation of native restoration plants.

Efforts to address the erosion and safety issues along this part of the official trail system should be coordinated with this work. Improvements to the drainage system associated with the existing official trail system should also be coordinated. Ditches and clogged culverts require replacement to convey water along and across the trail. The improvements of these culverts and ditches will improve the surface condition and long-term durability of the trail.

Protecting the sensitive seepage areas of the valley from use is an important objective. In order to mitigate impacts on the two sensitive seepage areas, the seepage areas are proposed to be fenced off. This will protect these features and will enhance further studies to determine the degree of potential impact. Educational signage and the establishment of a 10 m buffer zone is recommended to protect these sensitive features. The installation of post and paddle fencing is recommended to demarcate the edge of the buffer zone.

The formalization of the HONI service access route from Haldon Avenue to Lumsden Avenue is another recommended project in this area. There is an opportunity to formalize the unofficial trail along the corridor and improve connectivity from the surrounding streets. The formalization of the trail is recommended as a key mitigation tool to reduce the creation and use of unofficial trails that traverse sensitive features. Successful implementation will require a cooperative working relationship with Infrastructure Ontario (landowner) as well as HONI which owns the infrastructure within the corridor.

Enhancements to the trailheads and local connections to the street network present the opportunity to improve access to the proposed trail in the Hydro corridor. A degraded stairway at Chisholm Avenue should be replaced to provide safe access.

The Hydro corridor and pockets of the forested portions of this CIA are colonized by invasive species. Initiatives to remove invasive species and restore the native tree canopy and understorey should be integrated with the implementation of the CIA. Ongoing efforts will be required to manage invasive species within the corridor, prevent their spread into neighbouring natural forest cover and restore the native tree canopy and understorey.

Coordinated Improvement Area Plan:

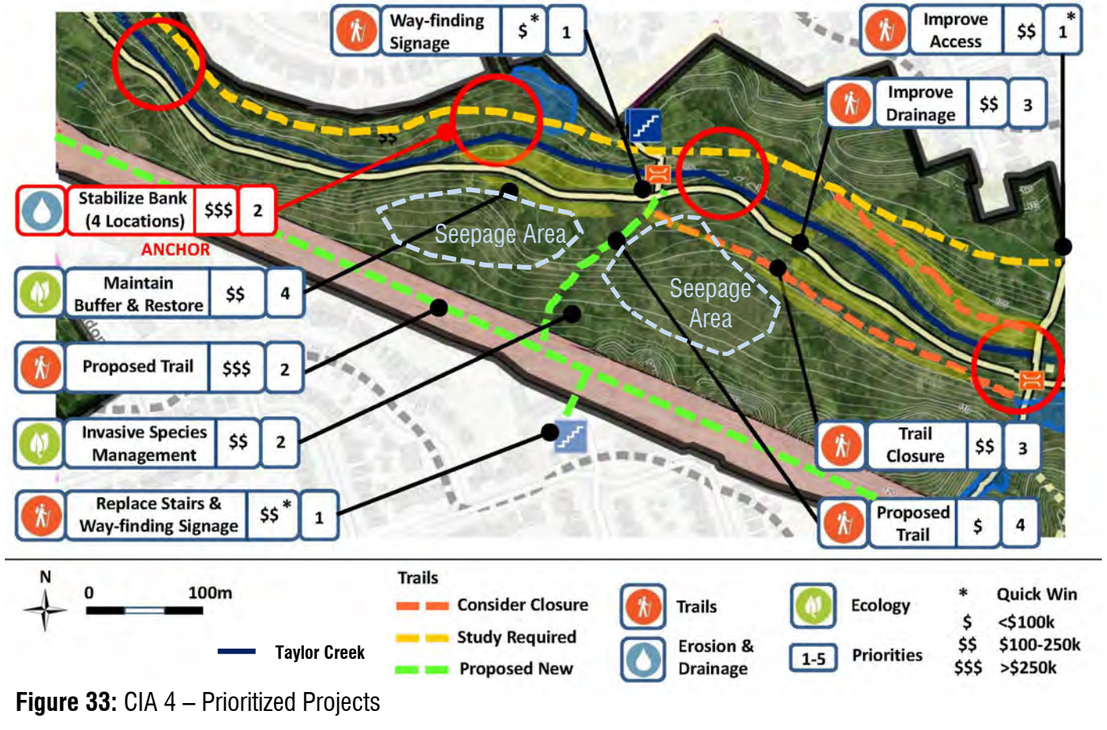


Figure 33: CIA 4 – Prioritized Projects

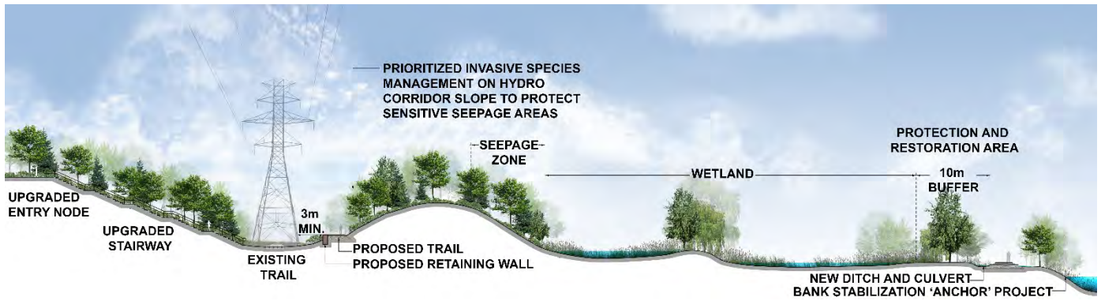


Figure 34: CIA 4 – Proposed Solution

Table 10: CIA 5 - Management Project Summarization

Project Name and Category	Project Lead	Project Partner(s)	Project Description	Photo/ Location	Priority
ANCHOR PROJECT Bank Stabilization	TW	PFR, TRCA, PFR (PDCP)	The condition of the north creek bank will be investigated in relation to the creek-side trail. Improvements to the trail and bank or trail closure may be required depending on the outcome of the investigation.		2
Improve Access	PFR (PDCP)	CI, PFR (UFR)	Due to an opportunity to relocate the creek side trail the new trail alignment would provide a more direct connection to Halsey Ave.		1
Replace Stairs & Wayfinding Signage	PFR (PDCP)	CI, PFR (UFR)	Replace wooden and rotted stairs connecting to Chisholm Avenue. Update wayfinding signage to orient users to the new hydro trail at the access point off Chisholm Avenue.		1
Wayfinding Signage	PFR		Wayfinding signage is required to orient users to branching trails at bridges leading to access points.		1
Invasive Species Management	PFR (UFR)	TRCA, PFR	Management of invasive species shall be conducted in a manner that protects higher quality habitat from degradation first. Therefore, addressing management at the tops of the slopes and working down to the hydro trail is proposed.		2
Proposed Hydro Corridor Trail	PFR (PDCP)	HONI, PFR (UFR)	The informal hydro trail is proposed to be formalized providing an alternative route around environmentally sensitive wetland features.		2
Trail Closure and Restoration	PFR (UFR)	PFR, TRCA, PFR (PDCP)	The informal trail through sensitive wetland habitat is to be closed. Cedar post and paddle fencing may be used to prevent future access to this environment.		3
Improve Trail Drainage	PFR (PDCP)	TW, CI	Ditches adjacent to the existing asphalt trail are to be re-dug and new culverts added to improve drainage across the trail.		3
Maintain Buffer Around Sensitive Habitats	PFR (UFR)	PFR, TRCA	A 10m 'no-go' zone is proposed from surrounding trails to reduce foot traffic into sensitive environments.		4
Proposed Nature Trail	PFR (UFR)	TRCA, PFR	This is an existing informal trail that traverses a less sensitive environment between two sensitive wetland features. The trail makes a key connection from Chisholm Ave to the main path system.		4

CATEGORIES: ECOLOGY, EROSION & DRAINAGE, TRAILS

CITY OF TORONTO: PFR - PARKS FORESTRY + RECREATION (VARIOUS) / PDCP - PARKS DEVELOPMENT + CAPITAL PROJECTS / UFR- URBAN FOREST RENEWAL / TW - TORONTO WATER / CI- CYCLING INFRASTRUCTURE

EXTERNAL PARTNERS: TRCA - TORONTO AND REGION CONSERVATION AUTHORITY / HONI - HYDRO ONE NETWORKS INC. / TH - TORONTO HYDRO

5.3.6 Coordinated Improvement Area 6

Existing Conditions:
This CIA encompasses a section of trail that is in disrepair as a result of regular flooding. The natural areas on either side of the trail are colonized by invasive species. The area includes the grounds utilized by the Children's Peace Theatre.

Flood-prone pathway requires replacement.

Restore Children's Peace Theatre.

Reforestation opportunity.

Encroachment issues need to be addressed.

Anchor Project:
A section of trail in this CIA is proposed to be replaced with a boardwalk to enable flood water to flow beneath the trail. This project is the "Anchor" for this site and is anticipated to be led by PFR.

Opportunities:
The removal of invasive species and the restoration of the naturalized area with native species is recommended in conjunction with the removal of the trail and the construction of the boardwalk.

Small-scale creek stabilization works are required. Additional stabilization work along creek banks may be required in coordination with the implementation of the proposed boardwalk. Opportunities to bioengineer the banks of the creek and to widen the channel, where possible, would be advantageous to increase flood storage and reduce erosion down stream.

Interpretive signage is proposed to be installed to communicate the contributions of the Goulding Family and the importance of the heritage of the Goulding Estate. The grounds surrounding the Goulding Estate are in disrepair and there is an opportunity for enhancement.

Black alder that was inadvertently planted prior to the year 2000 in this area should be removed. Continual management and the removal of invasive species and restoration of the native tree canopy is proposed.

Coordinated Improvement Area Plan:

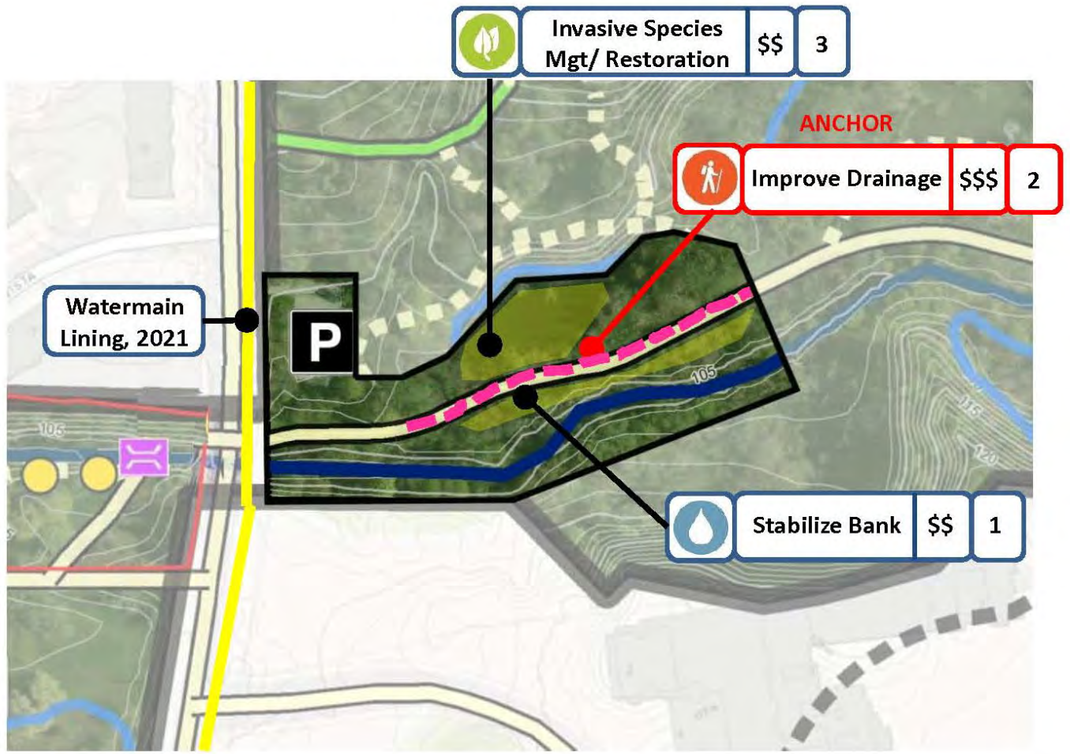


Figure 35: CIA 6 – Prioritized Projects

Table 11: CIA 6 - Management Project Summaization

Project Name and Category	Project Lead	Project Partner(s)	Project Description	Photo/ Location	Priority
ANCHOR PROJECT Improve Trail Drainage	PFR (PDCP)	TW, CI, PFR (UFR)	Consider new culverts or elevating as a boardwalk, to enable the creek to flow beneath, but will need to consider impacts to pedestrian, cycling and vehicle access.		1
Bank Stabilization	TW	PFR (PDCP), TRCA	North bank requires stabilization to protect the sanitary sewer. Opportunities exist for natural restoration.		2
Invasive Species Management	PFR (UFR)	PFR, TRCA	Ongoing vegetation management to control invasive species and restore the native tree canopy.		3

CATEGORIES ECOLOGY EROSION & DRAINAGE TRAILS

CITY OF TORONTO PFR - PARKS FORESTRY + RECREATION (VARIOUS) / PDCP - PARKS DEVELOPMENT + CAPITAL PROJECTS / UFR- URBAN FOREST RENEWAL / TW - TORONTO WATER / CI- CYCLING INFRASTRUCTURE

EXTERNAL PARTNERS TRCA - TORONTO AND REGION CONSERVATION AUTHORITY / HONI - HYDRO ONE NETWORKS INC.

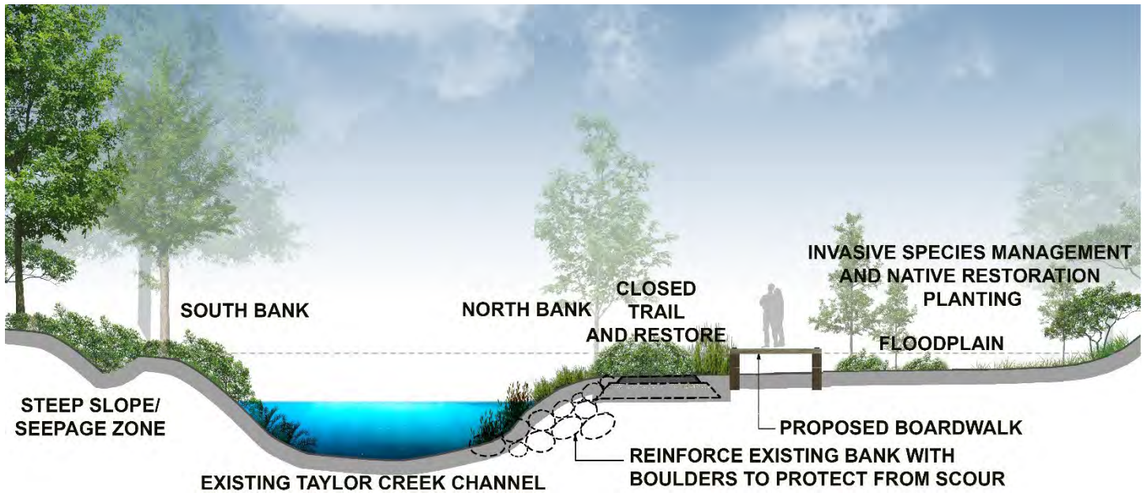


Figure 36: CIA 6 – Proposed Solution

5.4 'Quick Win' Projects

Quick Win

There are numerous 'Quick Win' projects outside of the CIAs that are proposed to be implemented separately. The projects address issues that occur throughout the park in many locations and require detailed investigation to identify specific concerns that will need to be addressed. The general categories of issues pertaining to these projects include:

- Stairways – investigate the condition of existing stairs and improve safety, sightlines and accessibility, where feasible;
- Access points – assess safety and accessibility considerations of trailheads and include/upgrade signage;
- Debris removal – address litter and illegal dumping;
- Encampments – assess and address encampments and ad-hoc structures;
- Encroachments – address private property encroachment through education;
- Repair trails – maintain the trail system in a state of good repair; and,
- Improve drainage – investigate and improve ditches and cross-conveyance of drainage at trails.

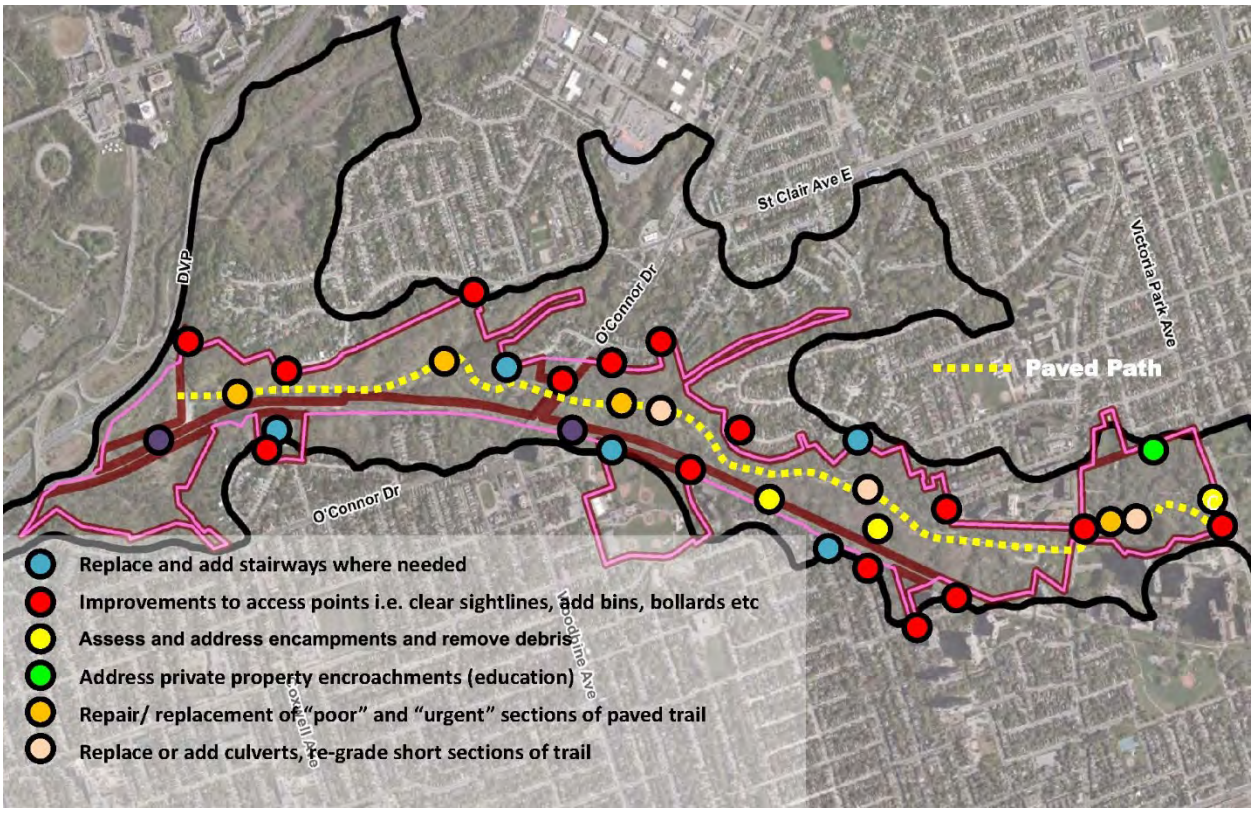


Figure 37: 'Quick Win' Projects

These projects are generally, small-scale and can be implemented efficiently and cost effectively as individual 'stand-alone' projects. Quick-Win projects are intended to address public safety or environmental protection and enhancement objectives. Since the implementation timeline for each project is not tied to that of the CIAs, these projects can be addressed in the short-term. Figure 37 identifies the various types of locations of 'Quick Win' projects. Each project location requires site evaluation to determine the level of improvement required as well as to determine the budget for implementing the work.

The targeted removal of European black alder (Alnus glutinosa) is a 'Quick Win' that is difficult to map, therefore it is not illustrated on Figure 37. However, the removal of the species should be considered to be a project of its own accord.

6.0 Implementation Recommendations

The Taylor Creek Park Management Plan is a multi-faceted, multi-layered approach to management that is aimed at achieving the objectives and aspirations of multiple stakeholders, both internal and external to the City. The successful implementation of the recommendations set out in this Management Plan will require the cooperative and coordinated effort of the various stakeholders to ensure that objectives are achieved in a logical sequence with a minimum of conflict.

In order to achieve this goal, the Implementation Plan sets out a suite of recommendations to ensure the timely coordination, communication and execution of recommendations that are consistent with policy and reflect and adjust to the operational and monitoring framework over time as needed to adapt to changing site and climatic conditions. This framework will rely on a Collaborative Management Model in order to exchange and manage management plans, projects, and priorities with the greatest degree of cooperation and efficiency.

The overall goal of the CIAs was to identify areas where the coordinated implementation of multiple projects will achieve the optimal benefit with the highest efficiency. For example, the implementation of planned improvements to infrastructure by Toronto Water or TRCA may present the opportunity to improve or realign a segment of trail that has exhibited repeated erosion or drainage damage, thereby making space available to widen the creek channel to improve flood storage and enable restoration of the riparian vegetation.

It is anticipated that, through the implementation process, additional detailed assessment of site conditions and evaluation of needs from all stakeholders will be required. Inter-divisional communication and cooperation amongst the City, and with external stakeholders, such as HONI and the TRCA, will be critical to the successful implementation of the Management Plan.

In order to drive the successful implementation of projects and ensure consistency with the *Taylor-Massey Creek Subwatershed Study* and the *Toronto Ravine Strategy*, the following recommendations are set out.

6.1 Coordination

In order to realize a successful implementation of the recommendations set out in the Management Plan, activities should be coordinated across various divisions and jurisdictions with flexibility for partnership building. A Collaborative Management Model is proposed to ensure on-going coordination and collaboration between agencies and divisions with diverse responsibilities, functioning through a collaborative Inter-divisional Taylor Creek Working Group made up of representatives as required from the various stakeholders and land managers as illustrated in the figure below.

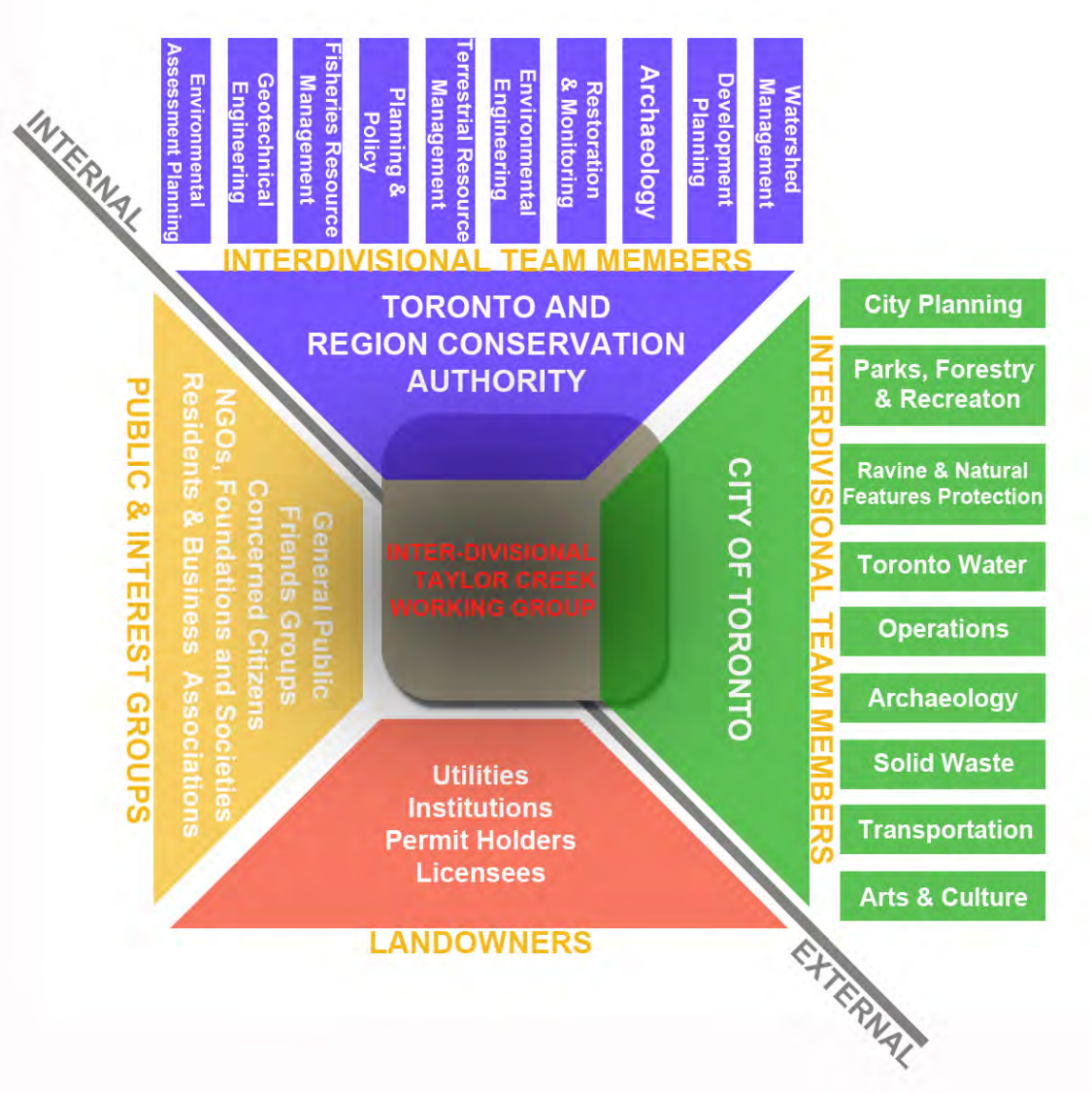


Figure 38: Collaborative Management Model

The Inter-divisional Taylor Creek Working Group should:

- Meet at designated times to discuss ongoing prioritization and coordination of all inter-divisional work and planning in Taylor Creek Park, and assess how to find collaborative opportunities and efficiencies within that work;
- Choose a Chair from among the Working Group, responsible for calling the Working Group together;
- Assess the inclusion of relevant appointees from both TRCA and the City of Toronto to coordinate activities and administer the implementation of CIAs. Required members of the Working Group should be adaptive and responsive to the relevant projects at hand;
- Coordinate implementation actions, with life-cycle estimates, including 'Anchor' projects forecasted by all stakeholders and City divisions;
- Establish a schedule for the implementation of various Management Plan projects based upon the timing of Anchor projects. The schedule should be integrated with the 5, 10 and 20-year Capital Works forecasts of the various divisions;
- Create and maintain a system that tracks the implementation status of Management Plan projects;
- Confirm lease arrangements and administrative authority for the Hydro-owned lands within which specific projects are proposed;
- Identify opportunities for land acquisition to achieve Management Plan objectives through the planning/development approvals process; and,
- Ensuring consistent alignment with the Toronto Ravine Strategy.

The team leads from the City and the TRCA representatives would meet regularly with inter-divisional representatives providing regular updates to the Working Group and ensure that the full integration of project work is achieved.

6.2 Communication

Communication will be more effective if a variety of platforms and tools are employed to enable the sharing of information and the building of potential partnerships. To this end, the following actions are recommended:

- Establish a routine meeting and/or reporting protocol team leads with the Working Group and individual project representatives. The protocol should be coordinated with key milestone dates in the City's budget allocation and capital project forecasting processes;
- Undertake outreach to engage NGOs and community groups to foster and maintain partnerships and enable community-based implementation activities; and,
- Explore the feasibility of creating a web-page as a portal for communication and information exchange. The Working Group should appoint a representative or individual department to oversee this portal and to be responsible for data management.

6.3 Execution

Through the Management Plan process, interdivisional collaboration and cooperative decision-making between the City, Toronto Water and the TRCA has resulted in the successful sharing and assessment of information. To ensure the successful implementation of projects, this approach should be continued through to execution, to this end, the following recommendations are made:

- Assess the potential to allocate a consistent and appropriate source of funding for projects with a 5-year horizon;
- Leverage potential dual-purpose funding opportunities and/or support from the Ravine Strategy should funding become available;
- Explore opportunities for partnerships, both internal and external, to drive the implementation of specific projects;
- Review policies to ensure that potential limitations to implement projects are identified and addressed;
- Identify regulatory approval and permit requirements, and allocate sufficient lead time in the design process to address approval or permit acquisition to ensure timing within the overall CIA work schedule;
- Undertake detailed inventories of site-specific conditions (natural heritage, cultural heritage, archaeological, geotechnical, land ownership and infrastructure) in advance of and throughout the detailed design process for projects in order to identify issues of concern and inform budget allocation; and,
- Ensure that there is adequate time allocated in the design process to accommodate interdivisional coordination and to optimize potential synergies.

6.4 Policy

In implementing the various recommendations of the Management Plan, the following policies should be considered:

- Timing window under the *Migratory Birds Convention Act* (federal);
- *Species at Risk Act* (federal);
- Timing window for near or in-water works (provincial and federal);
- Compliance with the *Accessibility for Ontarians Disabilities Act,* that guides the design of recreational trails;
- Ontario Regulation 166/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (TRCA);
- *Living City Policies Planning and Development in Watersheds* (TRCA)*;*
- *City of Toronto Tree Protection Policy* and *Specifications for Construction Near Trees;*
- Park By-law (City of Toronto Municipal Code Ch. 608);
- OPA Policy (OPA 262 Environmental Policies and Designation of ESA Areas BL No. 1158-2015);
- Ravine and Natural Feature Protection By-law (City of Toronto Municipal Code Ch. 658);
- Ensure compliance with *City of Toronto Multi-Use Trail Guidelines*, 2014; and,

- Apply *Crime Prevention Through Environmental Design* (CTED) principles to ensure public safety.

In addition, the following should be considered:

- Permitting and licensing agreements with/through City of Toronto Parks division; and,
- Licence and management agreements with HONI and Infrastructure Ontario.

6.5 Operation

To ensure the ongoing success of the implemented projects, adaptations to the current operational regime(s) may be required. To this end, it is recommended that:

- The City develop an appropriate operation and maintenance plan for each initiative, and identify appropriate operative funding requirements; and,
- The City create and maintain a system that is designed to track the life-cycle status of each implemented initiative.

6.6 Monitoring

The City and the TRCA have the responsibility to maintain, monitor and restore landscapes that are affected by management issues. For example, the City has the responsibility to keep existing official trails in good repair in order to ensure a high level of safety, and provide a quality experience to trail users. Under the terms of the management agreement, while the City is the primary lead on management of TRCA lands within City boundaries, it works extensively with TRCA to leverage their expertise and capacity on TRCA regulated lands, as well as to access their extensive monitoring information.

Therefore, monitoring of the success of projects will be a valuable tool in order to adapt techniques over time. Data gathering, storage and sharing will be an important part of interdivisional and inter-agency cooperation. To this end, it is recommended that the Working Group move to:

- Adopt a standardized monitoring protocol in order to share and update data amongst agencies and divisions in the City of Toronto, track the performance and determine the success of implemented initiatives;
- Institute separate monitoring initiatives for in-stream and terrestrial flora and fauna; and,
- Establish and maintain a database to track and evaluate the findings of the monitoring program, in coordination/collaboration with monitoring and data collection programs that are already implemented by others (i.e. TRCA).

7.0 Implementation and Design Guidelines

7.1 Implementation Guidelines

The various biophysical and regulatory constraints inherent in the Study Area provided a foundation for the identification of the projects within each CIA. Avoidance of the areas with highest sensitivity is generally recommended when determining how the design, logistics of implementation and restoration should be developed for any 'Anchor' project.

Arranged in categories that are consistent with the Management Plan recommendations the following guidelines should be considered in developing conceptual and detailed designs.

7.1.1 Protection and Enhancement of Water Features

The following ecological mitigation recommendations as provided by the TRCA should be considered when developing plans to implement projects within the regulatory flood plain. They are supported by the City's own best management practices for natural areas:

- Avoid wetland areas and provide buffers (10m+) between the outer extent of the wetland and the furthest extent of grading/vegetation removal;
- Consider boardwalks to reduce off-trail use and soil compaction in seasonally wet or seepage areas;
- Provide a setback (10m+) from the top of bank of a watercourse, especially in areas at outer meander bends which are the most erosion-prone, and consider the addition of dense vegetation between the trail and the water's edge, and/or focused viewpoints to provide access while minimizing trampling and vegetation removal;
- Reduce the number of watercourse crossings wherever possible;
- Ensure watercourse crossings span the full width of the watercourse and avoid the need for abutments at or below the top of bank. Bridge abutments should be set back from the top of bank of the watercourse;
- Trail enhancements should be designed in such a way as to reduce the number of bridge crossings required within Taylor Creek Park and where bridge replacements are required, they should be designed to be oriented perpendicular to the watercourse;
- Fisheries timing restrictions should apply to all work in and near water;
- Trail (and adjacent graded/manicured strips) should be located a minimum of 10 m from any wetland;
- The Ministry of Environment and Conservation and Parks should be consulted regarding requirements associated with any Species at Risk; and,
- Fluvial geomorphological assessments may be required where abutments are proposed within the watercourse.

7.1.2 Protection and Enhancement of Terrestrial Ecological Resources

The following ecological impact mitigation recommendations should be implemented in the process of developing conceptual and detailed designs, in order to reduce potential environmental impacts and increase ecological benefits:

- Utilize existing infrastructure such as access roads, existing trails, manicured grassed areas, parking lots, non-treed/cleared areas, and road-rights-of-way wherever feasible for new projects, construction access and staging. From an ecological perspective, the use of existing access paths is almost always preferable to the establishment of a new trail in a natural area. This greatly reduces the potential for environmental impact.
- Avoid treed slopes wherever possible;
- Avoid heavily treed or mature treed areas;
- Vegetation removals should be avoided to the greatest extent possible, and minimized where necessary. Where this is unavoidable, aim to direct the removals at areas of high concentration of non-native trees, shrubs and herbaceous plants, restoring these sites afterwards with native vegetation;
- Vegetation removals will require permits and compensation according to City RNFP and/or TRCA guidelines;
- Migratory Bird Act timing windows should apply to any vegetation removals;
- A restoration opportunity benefit package will be required to offset loss of habitat where a Species-at-Risk is involved. If space for compensation planting is not afforded within the park, provide off-site compensation as may be required;
- Hardening of surfaces within or adjacent to the watercourse is discouraged;
- The use of permeable surfaces is encouraged wherever possible;
- The areas maintained along the edges of trails are encouraged to be planted with low-lying native species, which are pollinator-friendly, as opposed to lawn grass; and,
- Erosion and sediment control measures and detailed construction staging for all construction projects, must be done so in accordance with RNFP/TRCA guidelines.

7.1.3 Partnership-Building

The implementation of some projects will rely in part upon successful partnership-building to mitigate planning obstacles and/or acquire lands to facilitate construction. The following recommendations provide some context surrounding potential land acquisition, easements and/or agreements to facilitate the implementation of projects.

- In some locations, projects will require coordination and approval from private and public stakeholders. Discussions with stakeholders are encouraged to occur as early as possible;
- Multiple benefits should be realized from collaboration between multiple City divisions, landowners and agencies to deliver coordinated improvements in areas where trail development may occur. For example, if there are opportunities for restoration or slope stabilization;

- Opportunities for long term lease arrangements should be sought in lieu of land acquisition, where private land ownership poses an obstacle to project development;
- Leverage opportunities through new developments, cash contributions, or funding; and,
- Promote projects through various provincial and local government programs by seeking available funding sources and reaching out to local City Councillors and community leaders to establish local champions.

7.1.4 Flood Management

The following recommendations are made to address flood management objectives.

- Consider the geomorphological impacts of river meander on the positioning of proposed facilities (flood hazards are defined by the 'bankfull' width of the river plus an erosion setback of approximately 10m as dictated by the TRCA);
- Steep slopes, bluffs and outside bends of the river are to be avoided due to their susceptibility to erosion and scour (erosion of soils from high velocity flows);
- Flood zones are to be avoided where possible especially below the 2-year flood level;
- Implement properly designed 'resilience' into proposed facilities and protect public safety in situations where the proposed facilities encroach within the 5-year flood level or below; and,
- Address additional maintenance and monitoring protocols where improvements to existing or proposed facilities are planned within the 5-year flood zone or below.

7.1.5 Geotechnical Slope Stability

Steep slopes represent a constraint to proposed facility development and should be avoided where possible. However, in order to make key trail connections, especially local connections to existing neighbourhoods, traversing slopes may be necessary. The following considerations should be addressed when planning trail improvements, stairways or restoration on slopes:

- The stability of the slope should be confirmed prior to making the final decision to implement a project on a slope;
- The design of the proposed improvement or facility should ensure soil erosion is not exacerbated;
- The proposed improvement or facility is designed to accommodate the underlying soils and convey drainage;
- Where possible, the gradient of a proposed trail should not exceed 6.7% in order to meet Provincial accessibility requirements;
- If the gradient exceeds 6.7% a handrail and/or landing at regular intervals is required; and, if the gradient exceeds 8% the surface of the trail is required to be hardened.

7.1.6 Natural Hazards

To ensure public safety, proposed improvements or facilities should be located and designed to avoid known hazards and, to the extent possible, appropriate yet generous buffers and setbacks should be applied to avoid natural and geological hazard sites. Consideration for avoidance of natural hazards will enhance public safety, protect infrastructure and reduce life-cycle costs. This can be achieved by planning proposed facilities to:

- Avoid high environmental constraint areas wherever possible;
- Locate them above the 5-year storm level where possible;
- Avoid traversing steep slopes;
- Provide a setback of a minimum of 10 m from the top of bank of the watercourse in order to maintain safe distance from potential bank erosion/instability and enable riparian vegetation establishment; and,
- Avoid outside bends of watercourses where possible.

7.1.7 Natural and Cultural Heritage Features

In order to protect sensitive high-quality habitat from the impacts of human use, proposed improvements and facilities should incorporate the following:

- Implement robust environmental mitigation techniques including restoration with native species, and follow up monitoring to ensure the success of the restoration efforts;
- Avoid removal of native vegetation, especially of trees, within the Natural Heritage System;
- If necessary, vegetation removal should be conducted outside of the migratory bird window, generally April 1 – September 15, and conform to RNFP/TRCA permits and compensation requirements);
- Avoid marshes, swamps and wetland areas; and,
- Use species native to the local area and reflect the vegetation structure in the surrounding habitat in restoration projects, especially in significant wildlife habitat as described in this report.

7.1.8 Land Ownership and Lease Agreements

In order to streamline implementation, reduce cost, and simplify the maintenance regime proposed improvements and facilities should:

- Be located within public lands where possible;
- Minimize the need for land acquisition unless essential (i.e., to make key trail connections, complete a segment of trail through a pinch-point constrained by private property and for which other constraints preclude another alignments); and,
- Where necessary and public land acquisition potential is limited, lease agreements should be pursued over public land acquisition.

7.1.9 Management and Operations

Ensure the planning of improvements and proposed facilities is complemented by a suite of enforceable rules reinforced through signage and by-law enforcement to promote public safety and maximize user enjoyment, including:

- Requiring dogs to be on a leash;
- Enabling facilities and sections of the trail system to be accessible;
- Providing trail loops and avoid dead ends;
- Ensuring that an evacuation route exists; and,
- Prohibiting uses on trails and in areas which are not compatible with the natural environment.

7.1.10 Design Guidelines for Facility Development

Overall, improvements and proposed facilities should be designed to avoid natural features, low-lying areas and crossings to the greatest extent possible. Avoidance of hazards, sensitive natural features and important habitats should continue to be the main focus of future repair, trail re-alignment and improvement initiatives.

The following experiential qualities should be considered in the process of planning and designing improvements and facilities:

- Consider provincial and municipal regulations, standards and guideline documents, including building and accessibility codes;
- Capitalize on opportunities to incorporate interpretive and educational amenities to celebrate the natural and cultural heritage attributes that are unique to Taylor Creek Park; and,
- Develop a signage plan that works with the City's Wayfinding Strategy to direct users through the park system.

7.1.11 Design Guidelines for Trails

The following suite of recommended trail types and structures were developed in response to the specific site constraints evaluated throughout the Management Plan process. Since much of the Study Area is situated within the floodplain and is prone to flooding, a range of trail types, and enhancements to the existing trail system are recommended to extend the service life of the trail network. For example, trails situated within the zone above the 5-year flood level will be less prone to damage than trails situated within the 2-year and 5-year flood zone. Trails within this 2-5-year zone can be anticipated to experience regular inundation by flood waters in spring and summer, and should be designed to a standard that will ensure durability. Trails in these environments could be elevated and/or built to withstand flooding conditions (i.e., incorporate geogrid, integrate drainage best management practices) or the choice to avoid these areas can be considered if other alignment options are available. Trails proposed in areas below the 2-year flood condition should be elevated to the 2-year flood line using structures such as a boardwalk or pedestrian bridge.

Design Guidelines - Boardwalks

Boardwalks should be considered where trails are proposed to traverse a low-lying area that is repeatedly inundated by floodwaters. The installation of a boardwalk limits impacts to sensitive soils and vegetation, and avoids impacting the hydrology of wetland features. Boardwalks should be constructed with a 'fall height' of less than 0.6 m, which is an Ontario Building Code requirement, to avoid handrails.

Since boardwalks are relatively expensive compared to constructing an at-grade trail, the extent of boardwalks should be limited to shorter lengths where possible. If the decision has been made to construct a boardwalk, it should be designed with suitable width and a robust superstructure (i.e., steel construction) that is capable of accepting the loading for necessary small maintenance and/or emergency vehicles (as determined for each case).

Figure 39: Typical Boardwalk Cross-Section

Design Guidelines - Granular Trails

A raised granular trail, supported upon a clear stone aggregate sub-base (free from fines), is a relatively low-cost solution that will convey drainage beneath the trail surface. This design can be effective in low-lying environments where a boardwalk may not be the best solution. This type of trail construction applies where natural heritage feature constraints allow, and the existing subgrade is relatively "capable" to take the loading of compacted granular material. Should the sub-soils be determined through geotechnical engineering to be "soft", a geogrid product can be installed over the subgrade prior to installing the clear stone to provide the necessary support and reduce the amount of excavation required.

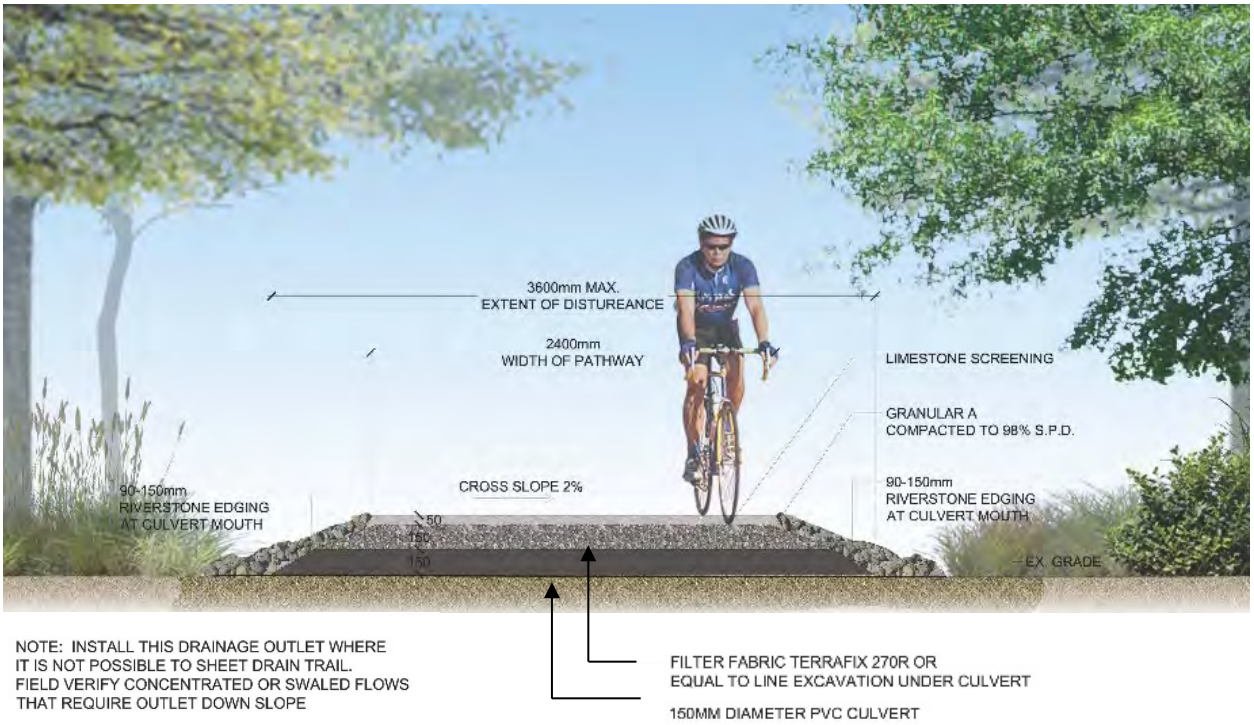


Figure 40: Raised Trail Cross-Section

Figure 41: Typical Granular Trail Cross-Section

Design Guidelines – Natural Surface Trails

Trails that are proposed to be located between the 5-100-year flood lines will not be impacted by flooding as often and therefore can be constructed using more traditional on-grade design options with minimal enhancement to the substructure. However, soft soils may be encountered more often within Taylor Creek Park than would be expected in areas above the 100-year flood elevation, and drainage/water movement must be addressed to reduce erosion. Natural surface trails are proposed to comprise an earth surface with limited drainage enhancements (required only in areas where existing drainage patterns direct runoff towards the trail). Trails of this type can be pursued where appropriate conditions exist, where user numbers are not excessively high, and there is a benefit to user experience that would be satisfied by a more natural type of trail.

Figure 42: Natural Surface Trail Cross-Section

Design Guidelines - Asphalt Trails

The existing official trails will remain as asphalt multi-use trails that conform to the City's Trail Design Guidelines. Proposed asphalt trails should be constructed on competent subsoils with the required depth and composition of granular base. Drainage infrastructure should be installed to convey runoff beneath proposed asphalt trails. In some cases, existing unofficial trails within the Study Area that are chosen to become formalized will remain as earthen or granular trails, but these trails may require short sections of asphalt surfacing where slopes of 8% or greater are unavoidable.

Figure 43: Typical Asphalt Multi-Use Trail Cross-Section

Design Guidelines - Bridges

New bridges are to be clear span structures that are constructed using primarily a metal frame, wood or concrete deck and concrete abutments. Bridge positioning and spans are required to be determined through the completion of a geomorphological assessment, and/or appropriate structural and geotechnical engineering reviews. For general guidance, span lengths are to be determined based upon the width of the channel plus an erosion setback to achieve the 25-year stable slope line. Additional constraints specific to each location must also be accounted for when determining the optimal span and placement for a proposed bridge. Channel scour potential as well as navigability beneath the bridge are also considerations. Cast-in-place concrete abutments anchored by helical piles is often the construction technique that results in the most compact footprint of disturbance.

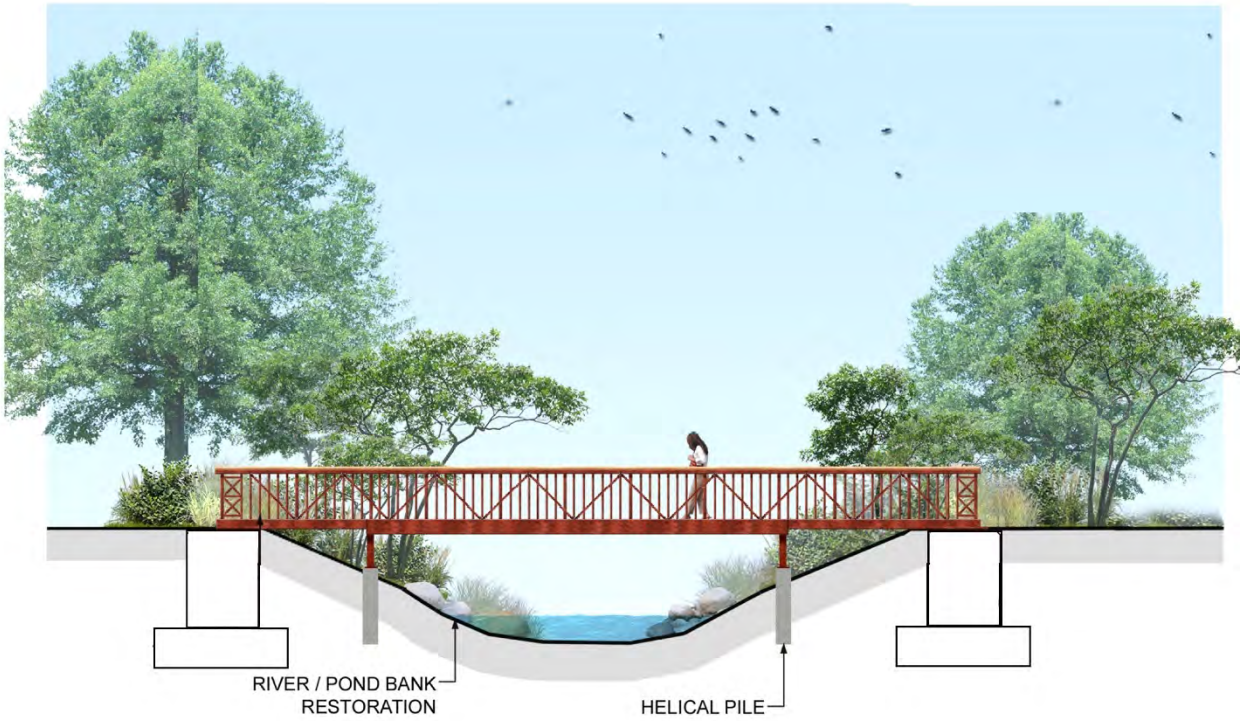


Figure 44: Typical Pedestrian Bridge Cross-Section

7.1.12 General Life-Cycle Guidance for Facilities

The following regimen is proposed to optimize the service life of proposed improvements and facilities:

Monitoring:

- Inspect once every 3 years to document typical and non-typical deterioration in facilities, drainage infrastructure, structures and trails, including:
  - Deterioration of structural elements or technical trail features.
  - Deterioration of finishes and surface materials.
  - Blockage of drainage infrastructure.
  - Erosion or excessive soil loss around abutments/footings due to large storm events.
  - Damage resulting from fallen trees/limbs and requirements for the removal of hazard trees.
- Record locations of concern, extent of issue and management actions required.

Maintenance:

- Replacement of individual boards within boardwalks or entire surface re-finishing.
- Substructure reinforcement or substructure replacement as required.
- Replacement of retaining walls or drainage features.
- Repair of handrails, fencing and other elements to ensure user safety.

Operations and maintenance recommendations for Taylor Creek Park exclude the following:

- Sidewalks and walkways located within road rights-of-way.
- Infrastructure located within road rights-of-way.
- Utilities and service infrastructure within Taylor Creek Park.

Private lands within which new trails may be constructed under lease or management agreements may require operations and maintenance agreements that ensure conformity of the plan with terms of the lease or management.

7.2 Level of Monitoring and Maintenance

A level of monitoring and maintenance should be assigned to each type of management project. An 'Operations and Maintenance Task Plan' should be developed based upon each jurisdiction's operational and maintenance standards and best practices that provides a detailed description of specific monitoring and maintenance tasks that are undertaken. The program for Taylor Creek Park should ideally work in tandem with the City's current Operation and Maintenance program. The description provided below sets out specific recommendations related to each type of management project.

Natural Heritage Restoration Areas

Maintenance and monitoring responsibilities fall primarily under the jurisdiction of City of Toronto Urban Forestry - Forest and Natural Area Management/Urban Forest Renewal sections and should follow the existing best management practices, procedures, and policies of that regime.

Creek Channel Enhancements

Maintenance and monitoring responsibilities fall under the jurisdiction of Toronto Water and should follow the existing best management practices, procedures and policies of that regime.

Asphalt, Granular and Official Natural Surface Trails

The maintenance and monitoring of trails responsibilities fall under the City of Toronto's Cycling Infrastructure, Parks Operations, and Urban Forestry Renewal (NECP)- Natural Surface Trails sections, dependant on the trail in question, and should adhere to existing best management practices, procedures and policies but specifically also consider the following:

Monitoring:

- Inspect two times per year (April/October) and after major storm events throughout the year. Inspections are to include a review of trails for overall safety. Including degradation of trail surface (rutting/rilling), formation of pot holes, presence of overhanging limbs within the clearway, presence of hazard trees and/or debris, areas of poor drainage and damage due to vandalism of site furnishings, signage and other trail features.
- Inspection reports to be prepared and follow up actions to be documented.

Maintenance:

- Trails will not be maintained during the winter months (November to April).
- During months of operation, maintenance activities will include the following:
  - Repair/maintenance of asphalt or limestone surface.
  - Periodic monitoring and maintenance of vegetation within the clearway.
  - Periodic pruning of tree limbs that encroach within the clearway.
  - Removal of accumulated litter/debris.
- Repair of vandalized signs/amenities.

Bridges, Boardwalks and Stairway Structures:

The maintenance and monitoring responsibilities for structures fall under the Parks, Forestry and Recreation/ Engineering & Construction Services divisions and should adhere to existing best management practices, procedures and policies but specifically also consider the following:

Monitoring:

- Inspect once per year at the beginning or end of use season (May or October) as well as after storm event. The Inspection should include a review of structure for overall condition and safety and a review of foundation elements.
- Record locations of concerns, extent of issue, management actions required.
- Site reports to be filed and follow up actions to be documented.

Maintenance:

- Bridges and boardwalks are not anticipated to be maintained during the winter months (November to April).
- Routine removal of debris from bridge/boardwalk deck.
- Removal of graffiti or other forms of vandalism.
- Eventual replacement of bridge deck surface.

Additional Maintenance:

Trails and related structures such as bridges, boardwalks, stairways, underpasses and switchback trails may require additional maintenance if one or more of the following occurs:

- Deterioration of structural elements or technical trail features.
- Erosion or excessive soil loss around abutments/footings due to large storm events.
- Damage from downed trees/limbs.
- Deterioration as a result of wear.
- Damage resulting from vandalism.

Repair of damage to trails, bridges, boardwalks, stairways, entry nodes and signage caused by vandalism is to be carried out immediately in order to convey a sense of pride, to minimize recurrence and to ensure public safety. Repair of damage caused by vandalism is required to be undertaken on a year-round basis.

The following table summarizes a number of recommended management and monitoring activities for the various proposed management projects.

Table 12: Key Management Monitoring Activities

NATURAL HERITAGE RESTORATION MANAGEMENT & MONITORING				
Management Activity/Type	**Frequency**	**Reporting/ Data Storage**	**Management Recommendations**	**Monitoring Requirements**
• Off-leash dog use and fencing	• Periodically	• Report infractions and how incidents were handled (i.e., warnings, fines)	• Consider education program, signage, outreach, by-law enforcement	• Monitor state of fencing • Monitor for erosion from off-leash dog use

• Woodland edges • Seepage areas • Buffer planting	• Every month in growing season • after planting until established • Twice a year in spring and summer up to 5th year	• Report on dead tree and shrub planting along woodland edges	• Maintenance until establishment including: • Watering • Remove invasive species and pests • Replace dead plant material • Remove weeds	• Monitor beyond establishment period for plant success or dieback • Monitor for invasive species colonization
• Residential encroachment	• Annually	• Report and map encroachment locations	• Maintenance of fencing and removal of yard waste, dumped materials and garbage along residential edges	• Arborist inspection of edge trees • Inspect for other encroachments • Inspect edges for garbage and dumping
• Restore hazard sites (including potential future sites resulting from increased use)	• Twice a year in spring and summer up to 5th year after restoration	• Report on dieback/ plant replacement	• Maintain the health of restoration plantings in degraded/ eroded riparian areas, forest sites and steep slopes.	• Monitor for plant establishment and stabilization • Monitor for erosion
• Rehabilitation of disturbed areas (encampment sites, fire pits, gathering sites)	• Annually	• Report extent of garbage/ structures	• Removal of currently existing debris and built structures, and rehabilitation of vegetation where structures are removed.	• Monitor for success of prevention (e.g. ensure there is no return of debris)
• Stewardship program	• On-going	• School outreach programs • Community outreach & education • PINE Project lease agreement	• Continue to administer educational/steward ship outreach programming • Encourage • participation by community and school groups	• Monitor for potential impacts to natural features

			• Manage use by licenced groups e.g. PINE Project	

CREEK CHANNEL MANAGEMENT & MONITORING				
Management Activity/Type	**Frequency**	**Reporting/ Data Storage**	**Management Recommendations**	**Monitoring Requirements**
• Hydrogeological investigations	• Annually and after major storm events	• Report erosion areas and public safety issues	• Conduct studies to characterize local geomorphic conditions to help inform mitigative strategies to ensure creek stability (prevent erosion)	• Monitor flood-prone areas for washout and erosion
• Drainage/ conveyance systems	• Annually and after major storm events	• Report clogged or damaged infrastructure after storms	• Clean out or replace clogged pipes, • Culverts and catch basins	• Monitor outfall locations and all other • Monitor for plant vigor and scour resistance • Drainage/ conveyance systems
• Creek bank restoration/ riparian areas	• Inspect after major storm events. Inspect yearly after establishment period	• Report on plant establishment and bank stability	• Maintenance/ repair of creek bank stabilization works after storm events. • Maintenance of riparian habitat and ensure plant establishment and succession.	• Monitor for plant vigor and scour resistance

• Rehabilitation planting of riparian areas associated with gabion-basket wall	• Seasonally first two years (until establishment) then once annually in Spring until 5th year	• Report on any increase in erosion or deterioration in walls	• Addition of riverstone and fieldstone to stabilize slopes and watercourse at proposed footbridge locations. • Establishment of bio-retention plantings to create habitat 5m either side of affected watercourses.	• Monitor gabion wall conditions and bank erosion sites
• Channel Rehabilitation • Planting After Footbridge Construction	• Seasonally first two years (until establishment) then once annually in Spring until 5th year	• Report plant dieback and displacement of rockwork	• Repair displacement and replace dead plants	• Monitor for dieback in stabilization planting • Monitor stabilization treatment

TRAILS & STRUCTURES MANAGEMENT & MONITORING				
Management Activity/Type	**Frequency**	**Reporting/ Data Storage**	**Response**	**Monitoring Requirements**
• Hazard tree management near private property and trails	• Annually	• Report risks to municipality	• Manage according to recommend-ations provided through risk assessment report	• Monitor edges near private property and along trails • Record condition of hazard trees noting defects and management action required (pruning, removal), record location (GPS)

• Monitor integrity of asphalt trail edges and surfacing	• Seasonally; after major storm events	• Report risks to municipality	• Promptly repair damage to reduce risk	• Monitor full extent of trail system for potential issues • Record issue type, location (GPS), required management action, potential source of disturbance
• Monitor slope stability of trails located on slopes	• During implementation; once annually in spring	• Report risks to municipality	• Implement measures identified in report	• Monitor steep slopes in spring for stability • Record issue type, location (GPS), source of issue, extent, possible management action
• Inspect granular and natural surface trails for rutting and erosion	• Seasonally; after major storm events	• Report to municipal operations staff	• Promptly repair damage to reduce risk	• Monitor full extent of trail surface • Record issue type, location (GPS), cause of issue, management recommendation • Summarize findings in report
• Remove litter from trails and trail heads	• Bi-weekly	• None	• Evaluate need for additional refuse bins	• Monitor operations protocol and amend over time as may be needed
• Evaluate for unofficial trail use	• annually	• Report to City Natural Surface • Trails Division	• Closure of branching or side • Trails, desire lines, erosion areas and formation of unofficial trails	• Monitor for erosion, soil compaction and impacts to sensitive flora • Monitor for invasive species proliferation

			though sensitive vegetation	
• Erect and maintain trail closure barriers and fencing	• Monthly for first year	• Through municipality	• Repair/add temporary fencing and other barriers to discourage access to closed trails as required	• Repair/add temporary fencing and other barriers to discourage access to closed trails as required
• Monitor status of trail closure and restoration plantings	• Monthly during growing season for first year	• Through advisory committee	• Adjust/add temporary fencing and other barriers to discourage access to restoration sites, replace failed plantings	• Monitor on an on-going basis • Identify problem areas
• Site-lines along trails at trail intersection points and road crossings	• Annually	• None	• Prune vegetation to maintain heights of 3.0 m above trails and where sight-lines are required for safe use	• Monitor trails, trail intersection points and road crossings • Record locations of concern, extent of issue, management action required
• Legibility and content of signage	• Annually	• None	• Update signage as part of on-going operations	• Monitor on an on-going basis while undertaking other maintenance/ monitoring • Record locations of concentrated use, common access points

• Structures	• Annually in spring	• Report to City Engineering Division	• Maintenance/ repair work for: – Stairways – Footbridges – Guardrails – Boardwalks – Retaining Walls	• Monitor connections, wear on bridge and boardwalk support members, decking and handrails • Monitor for movement in retaining walls
• Recreational amenities	• Annually in spring	• Report to PFR Division Maintenance Staff	• Maintain benches, directional and instructional signage, garbage bins and bollards. Replacement or repair if damaged	• Monitor state of good repair • Summarize findings in report

Taylor Creek Park is a well-loved and well-used amenity within the City's ravine system. People come to the park in all seasons to take in and appreciate the outdoors. There is great pride in the community for the upkeep and protection of the park's beautiful natural areas.

The park comprises a more biodiverse collection of plant species than many other parks within the City and boasts an Environmentally Significant Area that is sensitive yet enduring. The park is accessible from many surrounding roads and provides a well laid out path system connecting to surrounding on-road bike routes and trails. With open spaces and even a fire pit the park affords opportunities for larger groups to gather and recreate. There are opportunities for a multitude of passive recreational pursuits.

However, the sensitive vegetation and ravine physiology is not conducive to every form of recreation. If left unchecked some activities such as the creation of ad-hoc trails in sensitive environments, can lead to potential impacts on the natural resources within the park. Therefore, the City decided to engage a consultant to work with internal departments who have jurisdiction in the operations and maintenance of the park to develop a plan for its long-term management. The City also reached out to stakeholders and the local community to provide feedback on and shape the plan.

The City of Toronto in collaboration with the TRCA and other stakeholders, has the responsibility to ensure park assets remain in good repair, to ensure a high level of safety, and to provide a quality experience to the public as well as to protect the Natural Heritage System. The Management Plan is intended to serve as a blueprint for making future management and investment decisions with respect to the protection of the ravine system and the sustainable use of Taylor Creek Park.

Although a great deal of information already exists for Taylor Creek Park, implementation planning for projects identified as a product of the Management Plan will require detailed site assessments, relevant permits, review, and approvals, and possibly additional consultation to ensure the needs of all stakeholders are addressed. The delivery of projects utilizing a Collaborative Management Model will ensure that information is gathered and shared between City divisions, the TRCA and other external stakeholders and that detailed plans are developed collaboratively, ensuring efficient implementation and appropriate funding in order to respond to the issues.

The adaptation of the Management Plan over time is an important consideration. The ravine system should be re-evaluated on a 5-year basis, each time a Coordinated Improvement Area or major infrastructure project is completed, or after storms occur, utilizing the assessment criteria developed as a product of this Study. Project priorities may need to be re-evaluated over time, as they may need to be modified to respond to higher priority issues in response to shifting requirements, project priorities, or future storm events. A balanced approach to achieving objectives that recognizes the finite nature of yearly capital budget allocations must also be considered.

The maintenance, monitoring and restoration of landscapes affected by management initiatives will require ongoing investment over time. Monitoring of the success of projects will also be a valuable tool in order to adapt techniques over time. Data gathering, storage and sharing will be an important part of interdivisional and inter-agency cooperation. In the short-term the use of a standardized monitoring protocol by City divisions that is integrated with the databases of the TRCA will be an important task in order to track the performance and determine the success of implemented initiatives. Equally as important will be cooperation to establish and maintain a system to track and evaluate the completion of projects, monitoring priorities, and management initiatives.

In closing, the Taylor Creek Management Plan provides an important roadmap for the protection, restoration and enhancement of the ravine's Natural Heritage System and the repair and improvement of the park's recreation infrastructure to ensure the safe use and enjoyment of the park over time. The Plan recognizes how well-loved the park is to the surrounding community and will ensure the sustainable use of the park and the protection of its natural areas so that they continue to flourish for future generations.

8.0 References

Aquafor Beech Ltd. (2021) Taylor Massey Creek Concept Design Report (TMCDR)" Report for City of Toronto (Under review).

Aquafor Beech Ltd. (2020). Taylor Massey Creek Geomorphic Risk Assessment & Implementation Plan Study Report (TMC GRAIP). Report for City of Toronto.

City of Toronto, April 17, 2018. 'City of Toronto Announces 10 Major Projects To Reduce Greenhouse Gas Emissions, Deliver Community Benefits'. Retrieved 06 30 2020, from https://wx.toronto.ca/inter/it/newsrel.nsf/7017df2f20edbe2885256619004e428e/5ddb87fcad15d83d852582720060a84a?OpenDocument

City of Toronto. 2014. Coordinated Watercourse Management Plan. Retrieved 06 28, 2020, from https://www.toronto.ca/legdocs/mmis/2014/pw/bgrd/backgroundfile-68981.pdf

City of Toronto. (2016a). East Don Trail Environmental Assessment. Retrieved 01 04, 2016, from https://yoursay.ca/4278/documents/8213

City of Toronto. 1958. Planning Study for Metropolitan Toronto. Retrieved 06 28, 2020, from https://maps.library.utoronto.ca/datapub/digital/metro_1958/metro_toronto_1958.pdf

City of Toronto. (2015f). Toronto Cycling Network Plan. Retrieved 12 12, 2015, from https://www.toronto.ca/wp-content/uploads/2017/10/9593-Cycling-PRINT_Map_District_Toronto-East-York_11x17_20160810.pdf

City of Toronto. (2015g). Warden Woods Community Secondary Plan. (C. o. Toronto, Ed.) Retrieved 12 12, 2015, from https://www.toronto.ca/wp-content/uploads/2017/11/97c6-cp-official-plan-SP-30-WardenWoods.pdf

CoT. (2016e). What the City is doing: Basement Flooding Protection Program. Retrieved 01 20, 2016, from City of Toronto: https://www.toronto.ca/services-payments/water-environment/managing-rain-melted-snow/basement-flooding/basement-flooding-protection-program/basement-flooding-protection-program-map/

City of Toronto Water. 2007. Toronto Water Outfall Monitoring Program 2007 Progress Report. Unpublished Internal Document. City of Toronto.

City of Toronto Water. 2014. Sewers and Water Supply By-laws 2013 Compliance and Enforcement Annual Report. Unpublished Internal Document. City of Toronto.

D'Andrea M., W J Snodgrass, and P. D. Chessie (2004). Receiving Water Response to a Master Plan for Wet Weather Flow Management Developed in the City of Toronto. Wat Qual. Res. J. Can, Vol 39, Pg 319 to 378

Dillon. (1998). Toronto Management Plan for Wet Weather Flow Management - Step 1 Report. Toronto: Dillon Consulting for City of Toronto.

Gartner Lee. (2002). Taylor Creek Park Restoration Priorities. Toronto: Gartner Lee Limited for City of Toronto.

Lees. (2013). City of Toronto Natural Environment Trail Strategy. Toronto: Lees + Associates for City of Toronto.

Metropolitan Toronto and Region Conservation Authority (MTRCA). 1994. Forty Steps to a New Don. The Report of the Don Watershed Task Force.

MMM Group Ltd (2012) Don River and Central Waterfront Project – Municipal Class EA Environmental Study Report. Report available through City of Toronto Reference Library, 789 Yonge Street, Toronto, Ont, M4W 2G8.

North-South Environmental Inc. (2015). Taylor Creek ESA Management Plan. Toronto: North-South Environmental Inc. for City of Toronto.

Parish Geomorphic (2013) Massey Creek Channel Rehabilitations Study.

Parish Geomorphic (2015) Taylor-Massey Creek Geomorphic Systems Management Plan Municipal Class Environmental Assessment.

Rosgen, D. L. (2001). A Stream Channel Stability Assessment Methodology. Proceedings of the Seventh Federal Interagency Sedimentation Conference, Vol. 2, pp. II – 18 – 26, Reno, NV.

Schollen & Company Inc. (2018) Taylor Massey Creek Sub Watershed Master Plan Update.

Toronto and Region Conservation Authority (TRCA). 2014. Archaeological Assessment (Stage 1) in the City of Toronto, Taylor-Massey Creek EA, Lot 1 to 5 and 10 Concession II FTB and Lots 1 and 6 Concession III FTB in the Historic Township of York (East) Lots 32 to 35 Concession B FTL, Lots 29 to 33 Concession C FTL, Lots 30 to 32 Concession D FTL, Lots 32 and 33 Concession I and Lots 33 and 34Concession II in the Historic Township of Scarborough, York County (DRW-14-002)(PIF P303-0297-2014).

Toronto and Region Conservation Authority (TRCA). 2009b. Aquatic System – Report on Current Conditions and Refinement of a Target System. Don River Watershed Plan.

Toronto and Region Conservation Authority (TRCA). 2009f. Surface Water Quality – Report on Current Conditions. Don River Watershed Plan.

Trailforks, Taylor Creek Trail Mountain Bike Trails https://www.trailforks.com/trails/taylor-creek-trail-58180/

Appendices

Appendix A – Consultation Reports
Appendix B – Project Ranking Chart
Appendix C – Species Habitat Requirements
Appendix D – Data Layers
Appendix E – Background Mapping