



Waterdown-Sassafras Woods Heritage Lands MANAGEMENT PLAN

Final Report

Prepared for Cootes to Escarpment EcoPark System

August 2016
(Amended January 2017)



Cootes to Escarpment EcoPark System Partners



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EXECUTIVE SUMMARY

The purpose of this Management Plan for the Waterdown-Sassafras Woods Heritage Lands is to develop a set of management directions for the Current EcoPark System Lands owned by Conservation Halton, City of Burlington, Halton Region and the Bruce Trail Conservancy. This Management Plan will inform the protection, enhancement and communication of the important natural and cultural features within the Waterdown-Sassafras Woods Heritage Lands, one of the six core natural areas within the Cootes to Escarpment EcoPark System. This Management Plan is a compilation of detailed information about the Waterdown-Sassafras Woods Heritage Lands and the articulation of the partner agencies' joint vision for the holistic management of their lands. It provides a framework for future planning and implementation actions at the individual site level.

Development of this Management Plan involved community consultation to identify priorities and concerns as well as compilation of information on the recreational, natural and cultural resources of the Heritage Lands (detailed in the Inventory, Opportunities and Issues report prepared for the Waterdown-Sassafras Woods Heritage Lands, under separate cover). This Management Plan was also developed using the Niagara Escarpment Parks and Open Space System planning framework to identify classifications and zones (detailed in the Classification and Zoning report prepared for the Waterdown-Sassafras Woods Heritage Lands, Appendix 1 of this Management Plan).

This Management Plan contains a summary of the background and context of the Waterdown-Sassafras Woods Heritage Lands area followed by a summary of significance. Further detailed information can be found in the Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016). Section 3.0 discusses issues and opportunities. Section 4.0 summarizes the management recommendations for the Heritage Lands, including the classification and zoning of the Heritage Lands, followed by implementation recommendations in Section 5.0 and monitoring recommendations in Section 6.0.

This Management Plan recommends several actions for consideration for future management of the Waterdown-Sassafras Woods Heritage Lands. The recommendations are organized in three categories:

- Approach to Management Recommendations;
- Overarching Management Recommendations; and
- Waterdown-Sassafras Woods Heritage Lands Management Recommendations.

Implementation of the recommended management actions is organized under high priority management tasks; recommended EcoPark System Guidelines for trails, education and signage, vegetation management, and edge management; and site-specific management tasks. Following the outline for implementation of the recommended management actions, monitoring and evaluation of Management Plan implementation is reviewed.

1.0 Introduction

1.1 Study Background

Between 2007 and 2009, a group of public agencies and organizations consisting of the Royal Botanical Gardens, Hamilton Conservation Authority, Conservation Halton, City of Hamilton, City of Burlington, Halton Region, Bruce Trail Conservancy, Hamilton Naturalists' Club, and Hamilton Harbour Remedial Action Plan, undertook to develop a strategy to protect, connect and restore natural lands and open space between the Niagara Escarpment and Cootes Paradise in Hamilton Harbour. The initiative resulted in the "Cootes to Escarpment Park System Conservation and Land Management Strategy Phase II Report" (October 2009). The Phase II report divides the Cootes to Escarpment EcoPark System into six core natural areas referred to as "Heritage Lands" (Figure 1):

1. Borers-Rock Chapel Heritage Lands;
2. Burlington Heights Heritage Lands;
3. Clappison-Grindstone Heritage Lands;
4. Cootes Paradise Heritage Lands;
5. Lower Grindstone Heritage Lands; and
6. Waterdown-Sassafras Woods Heritage Lands.

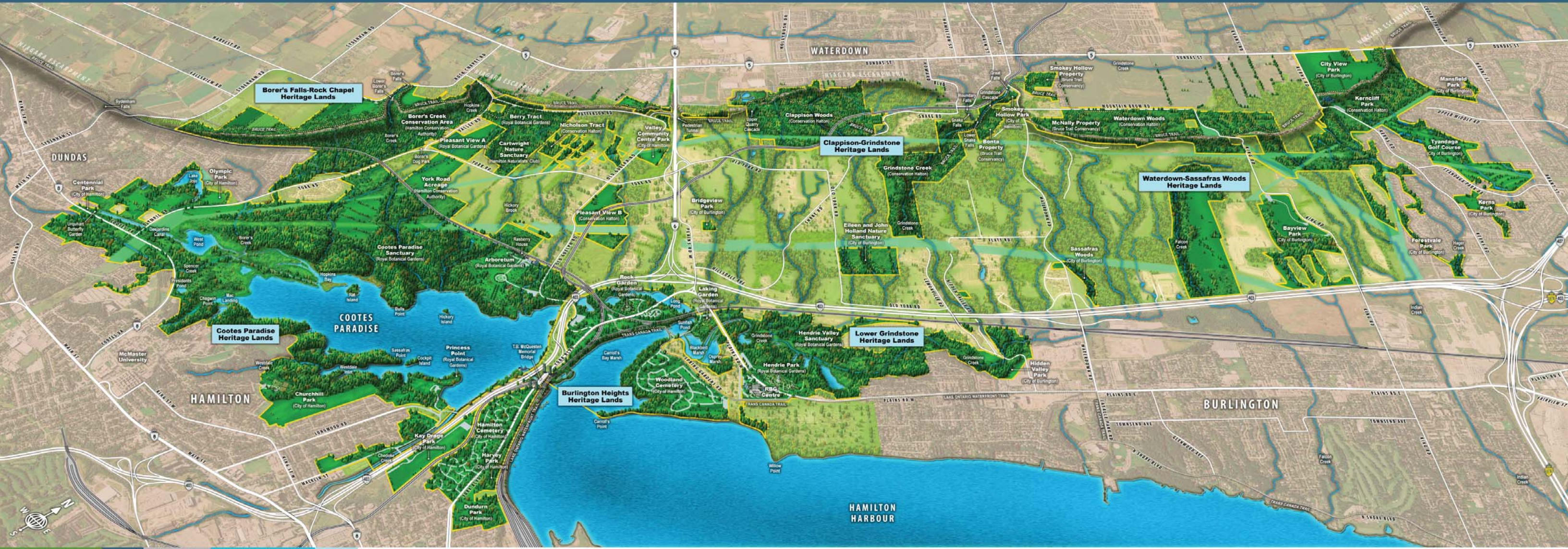
The Cootes to Escarpment EcoPark System faces intense pressures from the surrounding urbanized portions of Hamilton and Burlington, including major transportation arteries such as Highways 403 and 6. The effects of urban growth include stressors such as increased use, additional infrastructure, demand for recreation and educational programs, and unauthorized use and access. These stressors often result in damage to sensitive habitats and will jeopardize the long-term health of natural features and their functions. In response to this, the Phase II (October 2009) report recommended that a Management Plan be prepared for each of the Heritage Lands. Each Management Plan is to:

- contribute to achieving the vision of the Cootes to Escarpment EcoPark System as a "protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario's Greenbelt";
- provide guidance for the protection and conservation of valuable natural and cultural heritage resources located within the Heritage Lands, and direct future development and management efforts; and
- provide guidance to the partner agencies such that they can implement their respective mandates while providing consistency throughout the EcoPark System.

This report is the Management Plan for the Waterdown-Sassafras Woods Heritage Lands. The Current EcoPark System Lands in the Waterdown-Sassafras Woods Heritage Lands are owned and managed by four partner agencies: Bruce Trail Conservancy, City of Burlington, Conservation Halton, and Halton Region (Figure 2).

The Heritage Lands include both publicly- and privately-owned lands. The Management Plan focuses on the publicly-owned lands which are referred to as Current EcoPark System Lands. Privately-owned lands located within the Heritage Lands are referred to as Stewardship Lands, and lands outside the Heritage Lands but within the Cootes to Escarpment EcoPark System are referred to as Adjacent Lands (Figure 1).

Cootes to Escarpment EcoPark System Vision Map



Produced by Michael Karpavage of Mapformation.com, July, 2015

- Legend:**
- EcoPark Land Boundaries
 - Stewardship Lands
 - Hydro Corridors
 - Water Bodies
 - Roads
 - Rail Lines
 - Hiking Trails

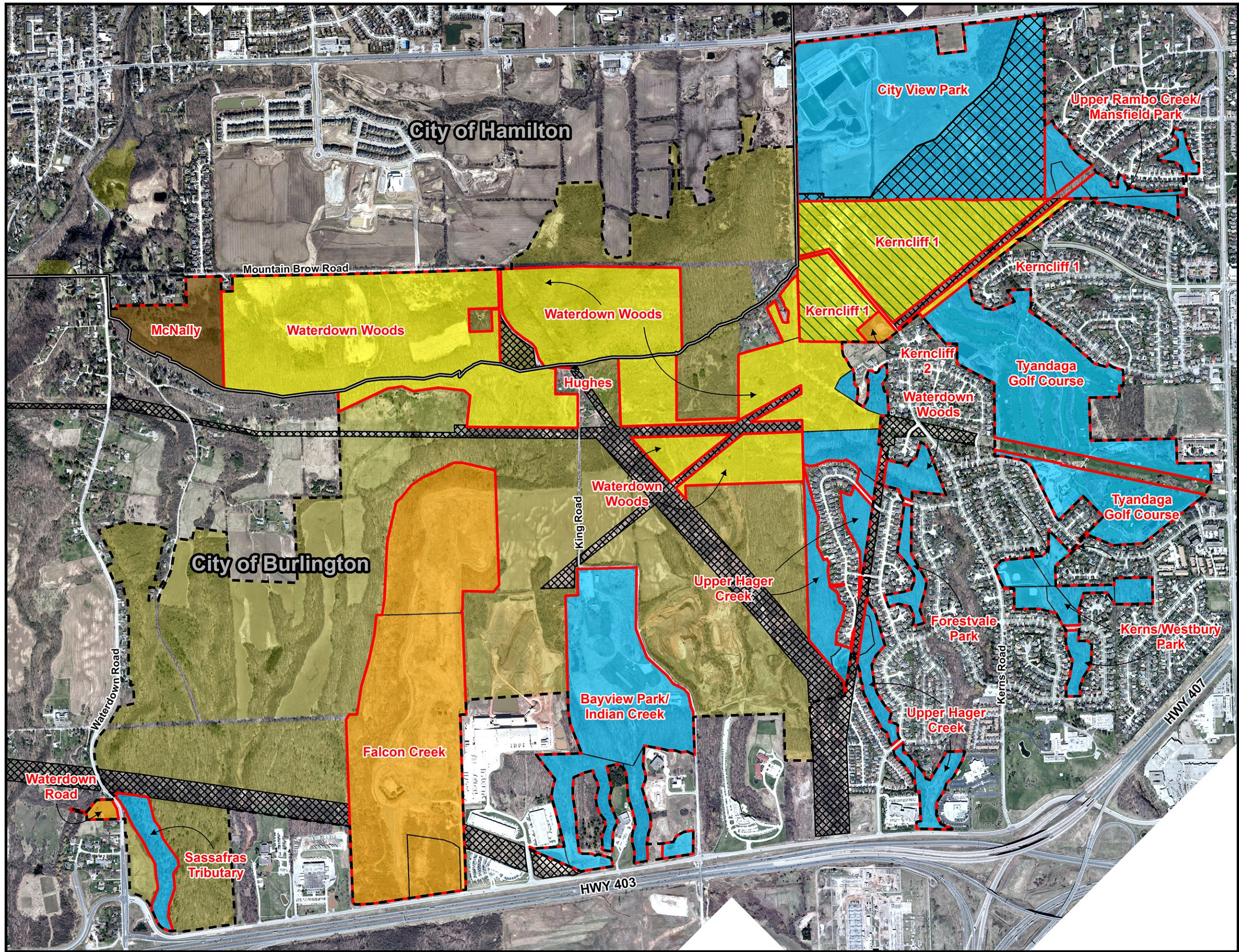


Vision

Our vision for the Cootes to Escarpment EcoPark System is that it will be known internationally as a protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario's Greenbelt.



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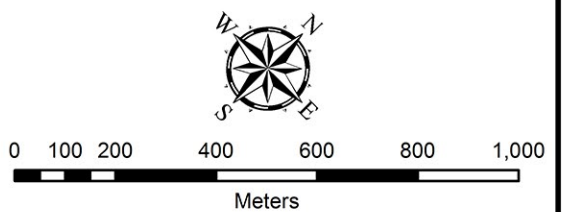
Cootes to Escarpment EcoPark System

Waterdown - Sassafras Woods Heritage Lands

Figure 2: Current EcoPark Lands Legend

- Partner Land Holdings**
- Bruce Trail Conservancy
 - City of Burlington
 - Conservation Halton
 - Halton Region
 - City of Burlington Managed Lands
 - Bruce Trail Conservancy Managed Lands
 - Privately Owned Outreach Area
 - Utility Corridors
 - Municipal Boundary
 - Study Area
 - Waterdown - Sassafras Woods Heritage Lands

Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy
 Ministry of Natural Resources and Forestry



1.2 Management Plan Purpose and Process

The purpose of this Management Plan is to enhance protection of important natural and cultural features, and improve sustainable recreation, research and education opportunities through addressing the following elements:

- protection and sustainable use of natural heritage resources;
- protection and sustainable use of cultural heritage resources;
- pressures and issues of concern identified by the four land-owning agencies, other Cootes to Escarpment EcoPark System partners, stakeholders and the public;
- wildlife corridors, eco-passages and pedestrian linkages;
- infrastructure maintenance, creation and decommissioning;
- recreation, education and research opportunities that are compatible with preserving the natural and cultural heritage of the area; and
- criteria and indicators for evaluation of the implementation and effectiveness of the Management Plan and an ongoing monitoring program to consistently collect supporting information.

The preparation of this Management Plan occurred in several phases. The first phase involved development of a Project Charter to establish the purpose, context and rationale for the project, to provide necessary background information, and to introduce the planning process and team that would be formed to generate the Management Plan. During this phase, a Steering Committee and Stakeholder Advisory Committee for the project were formed, and North-South Environmental Inc. (NSE) was retained to develop the Management Plan.

The second phase of the project culminated in the preparation of the Waterdown-Sassafras Woods Heritage Lands Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016) that identifies the significant natural and cultural heritage resources in the Heritage Lands, and discusses the opportunities and issues to be addressed in the Management Plan. The Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016) was subject to review by the Steering Committee, Stakeholder Advisory Committee and the community through public consultation.

During the third phase of the project, land classifications and zones for the Waterdown-Sassafras Woods Heritage Lands were established in the Land Classification and Zoning Report (March 2016, Appendix 1), based on the Niagara Escarpment Parks and Open Space System (NEPOSS) Planning Manual (MNR 2012). Not all of the Waterdown-Sassafras Woods Heritage Lands are located within the Niagara Escarpment Plan (NEP) area, therefore approval under NEPOSS is not required for these lands, but the intent is to use the NEPOSS planning approach as a planning tool as most of the Cootes to Escarpment EcoPark System is within the NEP area. The application of NEPOSS provides a framework for identifying appropriate uses that coincide with the natural and cultural heritage resources in various parks and open spaces of the Waterdown-Sassafras Woods Heritage Lands. The identification of classifications and zones was subject to review by the Steering Committee and Stakeholder Advisory Committee.

This Management Plan is the culmination of information and input generation in the preceding phases of the project. The Management Plan summarizes key information from the Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016), and strives to balance the challenges identified for the Heritage Lands. The land classifications and zones identified in the Land Classification

and Zoning Report (March 2016, Appendix 1) provide defined areas through which management goals and policies can be directed and achieved, including directions for permitted uses.

1.3 Project Governance and Project Team

In terms of governance of the Cootes to Escarpment EcoPark System, each agency and organization that is a Party to the *Memorandum of Understanding Regarding the Cootes to Escarpment EcoPark System* appoints one regular member to a Management Committee. The Management Committee provides tactical leadership for implementing the Cootes to Escarpment EcoPark System and related initiatives. It has authority for decisions concerning specific projects and initiatives and provides direction to Cootes to Escarpment EcoPark System staff.

The Management Committee provides leadership and decision-making to, *inter alia*:

- protect natural and cultural heritage features within the Cootes to Escarpment EcoPark System;
- support the growth of the Cootes to Escarpment EcoPark System through land securement initiatives;
- develop a centralized strategic marketing and communication process;
- develop, promote and implement stewardship programs appropriate to all land owners within the region to provide additional protection for Cootes to Escarpment EcoPark System lands;
- build strong relationships with key stakeholders and communities to address common park and open space issues and interests; and
- work together to provide an interconnected system of trails and educational, research and recreational opportunities.

The Waterdown-Sassafras Woods Heritage Lands Management Plan project is directed by a Steering Committee consisting of representatives from Conservation Halton, City of Burlington, City of Hamilton, Halton Region, and the Bruce Trail Conservancy, as well as the Cootes to Escarpment EcoPark System Coordinator. Input and comment has also been received from a Stakeholder Advisory Committee comprised of thirteen representatives from key stakeholder organizations with a broad geographic interest in the area (Appendix 2). Community meetings were held to gather input from the public.

The Project Team is led by North-South Environmental Inc. (project management and natural heritage expertise), and consists of LURA (public engagement expertise), Schollen & Company Inc. (recreation expertise), Unterman, McPhail & Associates (cultural expertise), and Andlyn Ltd (planning expertise).

2.0 Characterization of the Waterdown-Sassafras Woods Heritage Lands

A more detailed characterization of the Waterdown-Sassafras Woods Heritage Lands is provided in the Inventory, Opportunities and Issues report provided under separate cover (North-South Environmental et al. 2016).

2.1 General Overview

The Waterdown-Sassafras Woods Heritage Lands comprise 800 ha of land located in an area extending generally from Waterdown Road to Brant Street in the City of Burlington and from Highway 403 north to Mountain Brow Road and Dundas Street in the City of Hamilton. Of the 800 ha, 446 ha (or 56%) are currently owned and managed by Partner organizations (Figure 2). The majority of the Current EcoPark System Lands are owned by the City of Burlington (247 ha), with smaller areas owned by Conservation Halton (158 ha), Halton Region (30 ha) and Bruce Trail Conservancy (11 ha). The Heritage Lands are situated along the escarpment brow in Halton Region, and include lands along several escarpment tributaries (i.e., Bridgeview Tributaries, Falcon Creek, Indian Creek, Upper Hager Creek and Upper Rambo Creek). Within the Heritage Lands, the Bruce Trail traverses lands owned by the Bruce Trail Conservancy, other partner lands by agreement, etc.

Existing land uses within and adjacent to the Heritage Lands include agriculture, industrial (including active and inactive clay and shale quarries), two closed landfill sites (the former Regional landfill east of Falcon Creek, and Bayview Park/Indian Creek on Figure 2), a golf course, city parks, rural residential, and suburban developments. Waterdown extends to the north of the Heritage Lands, with additional approved development occurring just north of the Heritage Lands. The Tyandaga and Brant Hills suburban residential areas are located amongst the southeast portion of the Heritage Lands. A number of utilities and infrastructure bisect the Waterdown-Sassafras Woods Heritage Lands including three hydro rights-of-way, King Road and Kerns Road (Figure 2).

2.2 Planning Policy and Regulatory Framework

The existing planning policy and regulatory framework in the Waterdown-Sassafras Woods Heritage Lands is complex due to multiple jurisdictions at the provincial and municipal levels. Relevant policy documents and regulations include:

- Greenbelt Plan, 2006;
- Parkway Belt West Plan, 1978;
- Niagara Escarpment Plan, 2005;
- Region of Halton Official Plan, 2009;
- City of Burlington Official Plan, 2006;
- City of Hamilton Official Plan, Rural March 2012, Urban August 2013;
- Niagara Escarpment Development Control;
- Parkway Belt Land Use Regulation 482/73 (Minister's Zoning Order);
- City of Burlington Zoning Bylaw 2020; and
- Conservation Halton Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (O. Reg. 162/06).

The Official Plans of Halton Region, City of Burlington and City of Hamilton have been brought into conformity with Provincial Plans and policy. There is a high level of consistency between the Official Plans in terms of policies and permitted uses as applied to the Heritage Lands. Permitted uses on the Heritage Lands are typically limited to non-intensive recreation uses, trail uses and ancillary facilities like parking and access. Generally, these ancillary facilities are intended to be small in scale with the least impact on the environment and the landscape. Individual permitted uses may require Environmental Impact Assessments or other environmental evaluations depending on the location, conditions and

applicable policy and regulation. Development in proximity to natural heritage features may be subject to greater separation distances to maintain the integrity of features and functions. Well in advance of any development, site alteration or activity on the Heritage Lands, it is important to review the applicable policy and regulation in order to determine conformity of any application, and approval requirements or exemptions.

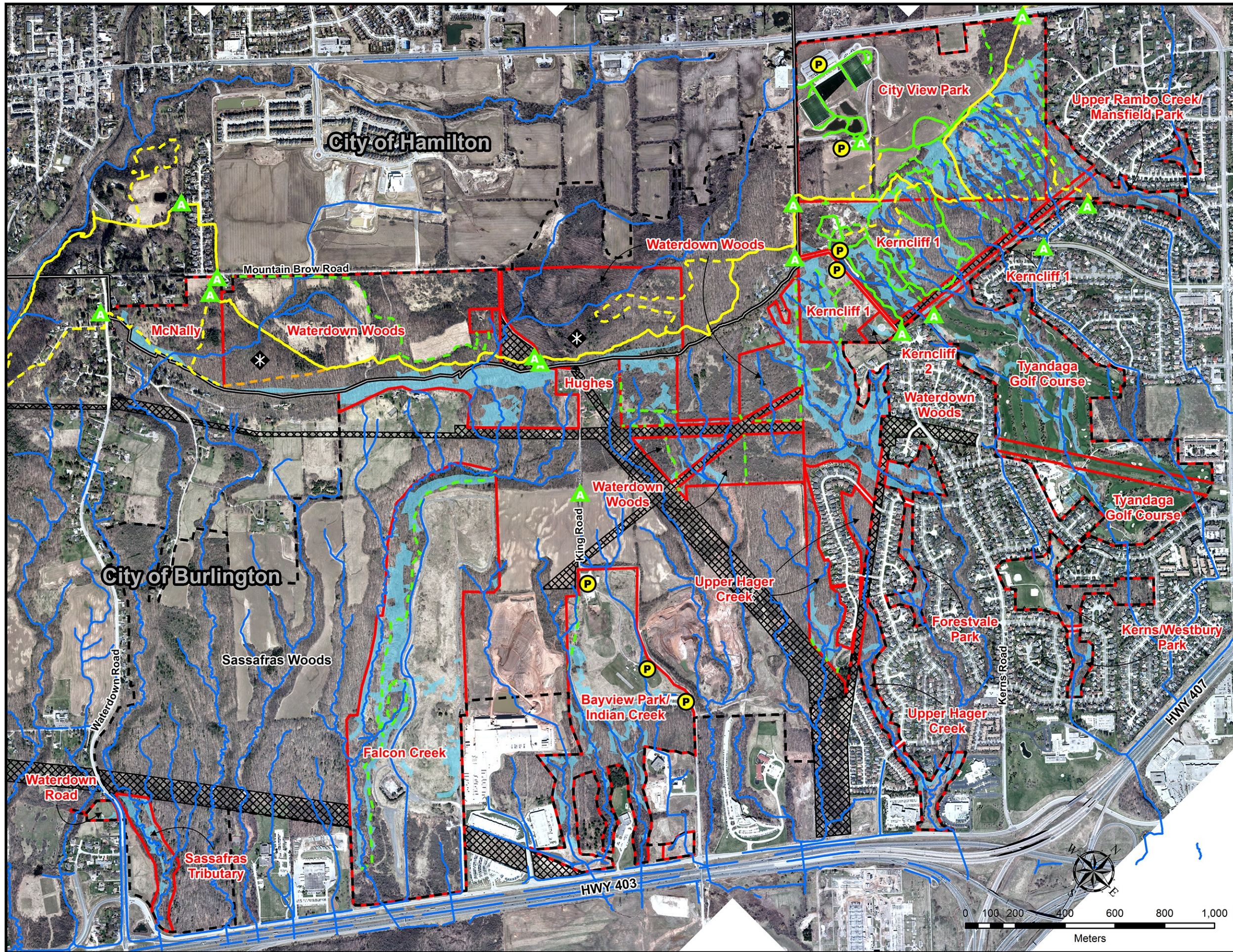
2.3 Recreation

The Waterdown-Sassafras Woods Heritage Lands are highly aesthetic and scenic, and are valued by cyclists, hikers, birdwatchers, photographers and the surrounding community, and are thus primarily used for conservation and passive recreation. The area provides spectacular views of west Burlington, escarpment features to the south, and the Hamilton Harbour.

Figure 3 illustrates the existing trail network, parking and access locations in the Current EcoPark System Lands of the Waterdown-Sassafras Woods Heritage Lands. The existing trail network consists of the Main Bruce Trail, Bruce Trail Side Trails, City of Burlington trails and unsanctioned trails. The Main Bruce Trail and Bruce Trail Side Trails traverse the Heritage Lands in a predominantly east-west direction from Waterdown Road to Kerns Road, and then northeast to Dundas Street. Approximately 3.8 km of the Main Bruce Trail and 3.6 km of Bruce Trail Side Trails are present within the Heritage Lands. Within the Waterdown-Sassafras Woods Heritage Lands, the Main Bruce Trail follows the Optimum Route in all but one location. A small segment of trail within Waterdown Woods does not follow the Optimum Route (Figure 3). The City of Burlington manages approximately 4.6 km of trails in City View Park and Kerncliff Park, which does not include the Bruce Trail. Monitoring and maintenance of the Bruce Trail is done by the Iroquoia Bruce Trail Club throughout the Heritage Lands. There are an additional 8.2 km of unsanctioned trails within the Heritage Lands (Figure 3). A number of unsanctioned trails extend beyond Current EcoPark System Lands and connect to adjacent private properties and farms.

There are a number of access points to the current trail system (Figure 3). Four access points currently provide parking to sanctioned trails: two parking lots at City View Park, and two parking lots at Kerncliff Park (Figure 3). There are three parking lots at Bayview Park, one which provides access to the off-leash dog park, one which provides access to the model airplane flying facility, and one which provides access to the rifle club. Other access points do not formally provide parking. At these locations, parking occurs on roadside edges, which is potentially unsafe and dangerous. In a few locations, portions of the unsanctioned trail system rely on accessing public lands through private lands (e.g., Falcon Creek). These access points are not shown on Figure 3 due to safety and trespassing concerns.

Trail use within the Heritage Lands primarily consists of hiking (ranging from casual outings by local residents to more serious hikers on the Bruce Trail), cycling and dog walking. In addition, a few trails are used by ATVs and although not confirmed, winter snowmobiling may occur in an unorganized manner along portions of the utility corridors. These same trails are used by cyclists and other recreationalists. There are unsanctioned “party spots” scattered throughout the Heritage Lands, all of which are accessed through the existing trail system. The Burlington Radio Control Modelers and Range Burlington is located at Bayview Park. Other recreational uses known to occur in the Heritage Lands include geocaching, rock climbing, and more.



Cootes to Escarpment EcoPark System Waterdown - Sassafras Woods Heritage Lands

Figure 3: Trails, Parking
and Access Locations

Legend

- Main Bruce Trail
- Bruce Trail Side Trails
- Bruce Trail Optimum Route
- City of Burlington Trails
- Unsanctioned Trails
- Parking and Access Locations
- Access Locations
- Higher Density of Trails
- Slopes >25%
- Utility Corridors
- Municipal Boundary
- Watercourse
- Study Area
- Waterdown - Sassafras Woods Heritage Lands

Note:
Trails have been mapped in the study area.
Additional trails may exist.

Sources of Information:
Conservation Halton
Hamilton Conservation Authority
City of Burlington
City of Hamilton
Bruce Trail Conservancy
Ministry of Natural Resources and Forestry

All boundaries on this map should be considered approximate. No responsibility or liability is assumed by the C2E EcoPark System partners or their employees, officers and agents for any errors, omissions or inaccuracies, whether due to their negligence or otherwise. Some data on this map is used under license from the Ministry of Natural Resources. © Queen's Printer for Ontario, 2016. © Teranet Enterprises Inc. and its suppliers. All rights reserved. NOT A PLAN OF SURVEY

There are limited resources available for the partner agencies to oversee the use of their lands and enforce the rules that apply to their lands. In this regard, unsanctioned structures and trails have been built and maintained by users and have been largely left unmanaged by agencies. Over time, this has the potential to perpetuate the perception that permissions to develop trails and structures are not needed by park visitors. It is important to note that unsanctioned trail and structure development is prohibited within the Heritage Lands. Moreover, many of the trails extend beyond the Current EcoPark System Lands onto neighbouring private property, which amounts to trespassing.

The increasing use of trails by a variety of users is expected to increase pressure on the natural and existing recreational resources. An increased commitment to management to prevent and/or mitigate recreational impacts will be necessary. In addition, current access to the Heritage Lands is inadequate and parking at unsanctioned access points is undesirable. Issues related to access and parking will be exacerbated by the continued increase in use of the Heritage Lands.

In addition, students of an adjacent school may access the Bayview Park/Indian Creek parcel on occasion through unsanctioned access. A tire rope swing, a network of ropes tied into a web, and an area of compacted soils was noted next to Indian Creek west of the school (Figure 5). The Tyandaga Golf Course, owned by the City of Burlington, is also located in the Heritage Lands. The Tyandaga Golf Course is an 18-hole golf course that opened in 1973.

2.4 Natural Heritage

2.4.1 Physiography and Surface Geology

The Waterdown-Sassafras Woods Heritage Lands contain an extensive escarpment plain and a 3 km stretch of south-facing escarpment slopes, dominated by vertical bedrock exposures of the Niagara Escarpment. The elevation of the rim ranges from 230 to 240 m above sea level and the low end of the escarpment slope at highway 403 is at 115 m above sea level. The toe of the escarpment is not distinct; the south-facing escarpment slope transitions with the broad south slope of the Trafalgar Moraine to the northeast (part of the South Slope physiographic region) (Chapman and Putnam 1984). Overburden both above and below the escarpment consists of the clayey Halton Till. Above the escarpment, this till has been deposited as a group of small moraines known as the Waterdown Moraines that parallel the escarpment brow and form a hummocky surface. Falcon, Indian, Hager, and Rambo Creeks and tributaries of Grindstone Creek arise along the escarpment face in the Heritage Lands. These watercourses have, since the last glaciation, eroded narrow ravines into the lower slopes. The natural physiography of the Heritage Lands has been altered by landfills, shale quarries, and roads. Ordovician red shales of the Queenston Formation are locally exposed along the lower ravines. The dolostone bedrock layer is at or close to the surface on the plateau above the escarpment. Locally it forms an exposed "limestone pavement", an unusual landform created where karstic weathering processes have widened the steep joints and fractures in the exposed bedrock surface (Dwyer 2006). There are significant karst formations at Waterdown Woods, McNally and City View Park. Karst is a landscape where soluble bedrock (e.g., dolostone) has been eroded by dissolution, producing ridges, towers, fissures, sinkholes, and other characteristic landforms. It is a unique feature that requires unique management.

2.4.2 Surface Water

The Heritage Lands are located in three watersheds. The tributaries at Sassafras Woods and the western half of Waterdown Woods are within the Grindstone Creek watershed. Falcon Creek originates just above the escarpment in Waterdown Woods. Through a diversion of the upper portions of Hager and Rambo Creeks, they form part of the Indian Creek watershed. Grindstone Creek, Falcon Creek and Indian Creek watersheds drain into Hamilton Harbour in Lake Ontario. Surface water features in the Heritage Lands include several small tributaries of Grindstone Creek (Sassafras Tributaries), and Falcon Creek, Indian Creek, Hager Creek and Rambo Creek. Portions of these watercourses are intermittent. Due to the highly erodible nature of the soils in this area, these creek systems flow through deeply incised valleys, which provide a unique landscape characteristic. Other surface water features include stormwater management ponds located at City View Park. Online ponds located along Hager Creek occur within the Tyandaga Golf Course, which are used as irrigation reservoirs. The golf course has a surface water permit to take water up to a maximum amount of 2,730,000 litres per day for the purpose of golf course irrigation.

2.4.3 Vegetation Communities


Approximately 48% (214 ha) of the Waterdown-Sassafras Woods Heritage Lands are characterized by natural vegetation communities, including deciduous forest, mixed forest, coniferous forest, open bluff, treed talus, deciduous swamp, thicket swamp, meadow marsh, shallow marsh and open aquatic (Table 1 and Figure 4). These are the most ecologically sensitive areas and they provide important habitat for many of the plant and animal species within the Waterdown-Sassafras Woods Heritage Lands. Approximately 33% (147 ha) of the Heritage Lands consist of anthropogenic and cultural vegetation communities, including cultural meadow, cultural thicket, cultural savannah, cultural woodland and cultural plantation (Table 1 and Figure 4). These areas reflect a relatively high degree of change as a result of human use and activity. Land classified as anthropogenic consists of mowed lands, parking lots, roads, etc.

Forested communities dominate the Niagara Escarpment and creek ravines. The escarpment slopes support deciduous forest dominated by Sugar Maple (*Acer saccharum*), White Oak (*Quercus alba*) and Red Oak (*Q. rubra*). Below the escarpment, the complex series of uplands and ravines support drier forests of Red Oak and White Oak. Scattered upland seeps sustain Shagbark Hickory (*Carya ovata*) and White Ash (*Fraxinus americana*) wet mesic forests. Bottomlands have rich Sugar Maple and White Ash forests. The Niagara Escarpment, Falcon Creek valley, Indian Creek valleys, Upper Hager Creek valleys and Upper Rambo Creek valleys are covered in older forests of Red Oak, White Oak and Sugar Maple, with trees in excess of 100 years old in some locations. By some definitions, these forests would qualify as old growth. Stunted White Cedar (*Thuja occidentalis*) along the cliff-rim ecotone in Waterdown Woods may be old growth stands, with trees in excess of several hundred years old.

Cootes to Escarpment EcoPark System Waterdown - Sassafras Woods Heritage Lands

Figure 4: Vegetation Communities

Legend

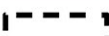
 Ecological Land Classification

- ANT - Anthropogenic
- BLO - Open Bluff
- CUM1 - Mineral Cultural Meadow Ecosite
- CUM1-1 - Dry-Moist Old Field Meadow Type
- CUM2 - Bedrock Cultural Meadow Ecosite
- CUP - Cultural Plantation
- CUP1 - Deciduous Plantation
- CUP3 - Coniferous Plantation
- CUS1-1 - Hawthorn Cultural Savannah Type
- CUT1 - Mineral Cultural Thicket Ecosite
- CUT1-4 - Gray Dogwood Cultural Thicket Type
- CUT1-5 - Raspberry Cultural Thicket Type
- CUM1 - Mineral Cultural Woodland Ecosite
- FOD3 - Fresh-Moist Hemlock Coniferous Forest Ecosite
- FOD - Deciduous Forest
- FOD1-1 - Dry-Fresh Red Oak Deciduous Forest Type
- FOD1-4 - Dry-Fresh Mixed Oak Deciduous Forest Type
- FOD2-2 - Dry-Fresh Oak-Hickory Deciduous Forest Type
- FOD2-3 - Dry-Fresh Hickory Deciduous Forest Type
- FOD2-4 - Dry-Fresh Oak-Hardwood Deciduous Forest Type
- FOD3-1 - Dry-Fresh Poplar Deciduous Forest Type
- FOD4-2 - Dry-Fresh White Ash Deciduous Forest Type
- FOD4-11 - Dry-Fresh Black Locust Deciduous Forest Type
- FOD5-1 - Dry-Fresh Sugar Maple Deciduous Forest Type
- FOD5-3 - Dry-Fresh Sugar Maple-Oak Deciduous Forest Type
- FOD5-5 - Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type
- FOD7-2 - Fresh-Moist Ash Lowland Deciduous Forest Type
- FOD7-4 - Dry-Fresh Black Walnut Lowland Deciduous Forest Type
- FOD9-4 - Fresh-Moist Shagbark Hickory Deciduous Forest Type
- FOM2-2 - Dry-Fresh White Pine-Sugar Maple Mixed Forest Type
- FOM7-1 - Fresh-Moist White Cedar-Sugar Maple Mixed Forest Type
- MAM1-3 - Forb Bedrock Meadow Marsh Type
- MAM2-5 - Narrow-leaved Sedge Mineral Meadow Marsh Type
- MAS2-1 - Cattail Mineral Shallow Marsh Type
- OAO - Open Aquatic
- SWD2-1 - Black Ash Mineral Deciduous Swamp Type
- SWD2-2 - Green Ash Mineral Deciduous Swamp Type
- SWD3-2 - Silver Maple Mineral Deciduous Swamp Type
- SWT2-5 - Red-osier Mineral Thicket Swamp Type
- TAT1-4 - Fresh-Moist Sugar Maple Carbonate Tread Talus Type
- TAT1-5 - Fresh-Moist Basswood - White Ash Carbonate Tread Talus Type
- UNC - Unclassified

 Utility Corridors

 Municipal Boundary

 Study Area

 Waterdown - Sassafras Woods
Heritage Lands

Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy
 Ministry of Natural Resources and Forestry

All boundaries on this map should be considered approximate. No responsibility or liability is assumed by the C2E EcoPark System partners or their employees, officers and agents for any errors, omissions or inaccuracies, whether due to their negligence or otherwise. Some data on this map is used under license from the Ministry of Natural Resources. Queen's Printer for Ontario, 2016. Teranet Enterprises Inc. and its suppliers. All rights reserved. NOT A PLAN OF SURVEY

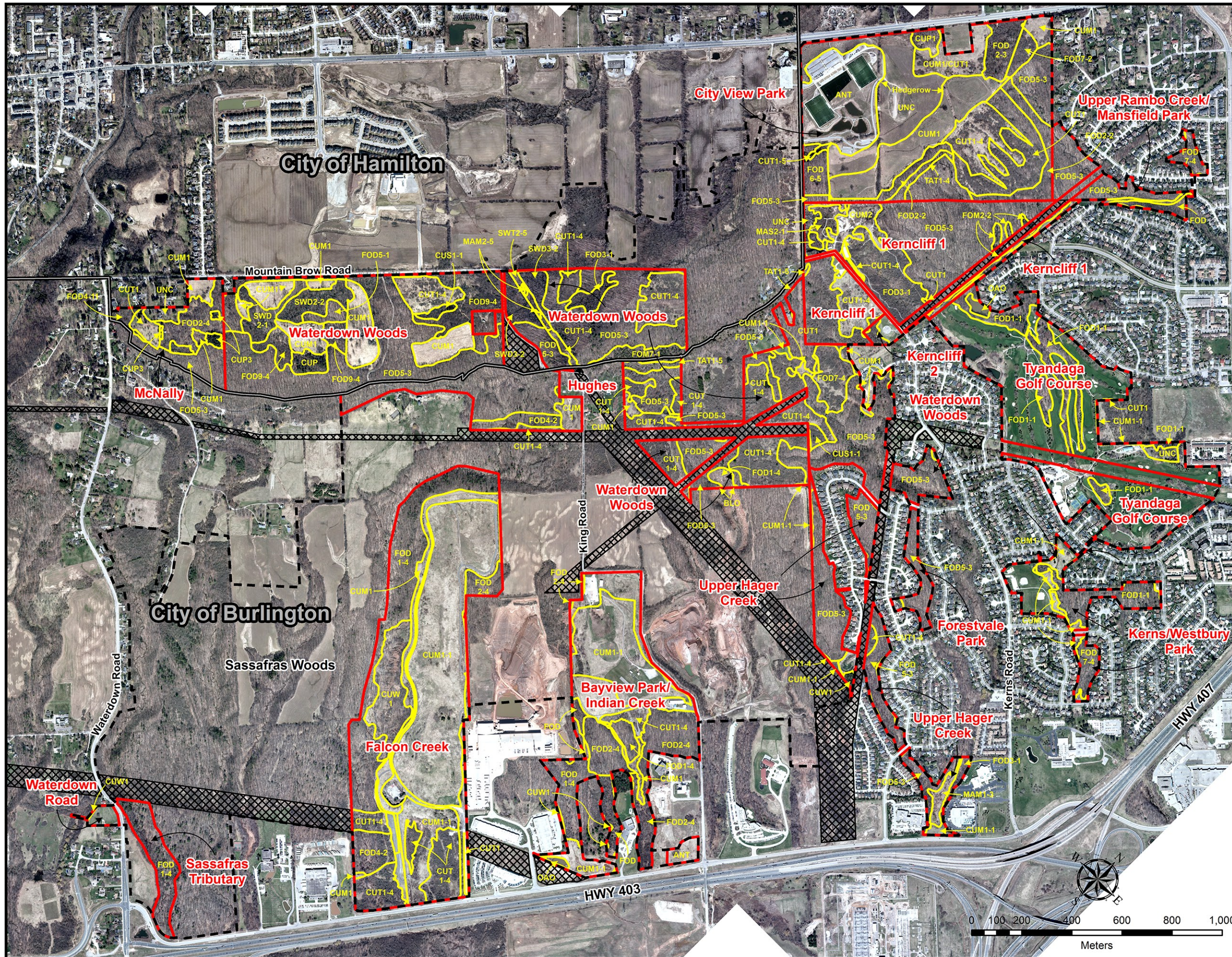


Table 1. Vegetation Communities of Current EcoPark System Lands in the Waterdown-Sassafras Woods Heritage Lands

Vegetation Community	% Current EcoPark System Lands	Area (ha) Current EcoPark System Lands
Natural Vegetation Communities		
Forest	44.9%	200.2
Bluff	0.0%*	0.0
Talus	0.4%	1.8
Wetland	2.4%	10.7
Aquatic	0.2%	0.9
Cultural Vegetation Communities		
Meadow	17.5%	78.0
Thicket	13.7%	61.1
Savannah	0.2%	0.9
Woodland	1.3%	5.8
Plantation	0.6%	2.7
Other		
Anthropogenic	2.8%	12.5
Unclassified	16.0%	71.4

* this % rounds to zero

There are two provincially significant vegetation communities within the Waterdown-Sassafras Woods Heritage Lands (Figure 4):

- Fresh-Moist Sugar Maple Carbonate Treed Talus Type (TAT1-4) – S3; and
- Fresh-Moist Basswood-White Ash Carbonate Treed Talus Type (TAT1-5) – S3.

In addition, oak woodlands and tiny prairie-savannah remnants are some of the most significant ecosystems present within the Heritage Lands. Many of the rare and uncommon species present within the Heritage Lands are located within these open oak woodland communities and prairie-savannah remnants. Due to the small size of these areas (i.e., <0.5 ha), these form inclusions not shown in the vegetation community mapping. A small portion of Provincially Significant Wetland (i.e. Falcon Creek Provincially Significant Wetland Complex) occurs within Waterdown Woods.

2.4.4 Flora

A total of 720 floral species have been documented in the Waterdown-Sassafras Woods Heritage Lands. Of these 720 species, 509 (71%) are native species. The Native Floristic Quality Index (FQI) of the Waterdown-Sassafras Woods Heritage Lands is 118.38, an extremely high value. The FQI is a measure of both habitat conservatism and species richness and thus an indicator of vegetation quality. In southern Ontario, most natural areas within urban or urbanizing landscapes have FQI values of around 70-80.

The southerly exposure of the Heritage Lands results in a relatively warm, dry microclimate that supports many Carolinian and southern plants, including rare and uncommon species, endangered species and threatened species (i.e., species at risk). A total of 87 significant floral species have been identified within the study area, including four nationally and provincially endangered species, 12 provincially rare species (S1-S3 provincially ranked), 65 regionally rare species in Halton Region (Dwyer 2006), and 60 regionally rare species in the City of Hamilton (Schwetz 2014). Invasive species have been identified as one of the greatest threats to the integrity of the ecosystems of the Waterdown-Sassafras Woods Heritage Lands. Major invasive plant species found within the Waterdown-Sassafras Woods heritage Lands include: Garlic Mustard (*Alliaria petiolata*), Dog-strangling Vine (*Cynanchum rossicum*), Common Buckthorn (*Rhamnus cathartica*), non-native honeysuckles (e.g., *Lonicera tatarica*), Multiflora Rose (*Rosa multiflora*) and Manitoba Maple (*Acer negundo*).

2.4.5 Fauna

The Waterdown-Sassafras Woods Heritage Lands provide important habitat for many wildlife species including:

- 51 species of butterfly or moth;
- 34 species of dragonfly or damselfly;
- 4 species of fish;
- 19 species of amphibian or reptile;
- 117 species of bird (96 considered to possibly breed within Current EcoPark System Lands); and
- 20 species of mammal.

A total of 16 provincially significant faunal species have been identified within the Current EcoPark System Lands: 2 butterfly, 2 dragonfly, 3 amphibian, 1 reptile, 7 bird and 1 mammal species.

2.4.6 Natural Heritage Corridors

The Waterdown-Sassafras Woods Heritage Lands are part of the provincial-scale Niagara Escarpment corridor, which provides an important linkage for wildlife movement. The Heritage Lands are connected to other forested lands along the Niagara Escarpment, extending with few breaks between Spencer Gorge and Mount Nemo. The Heritage Lands are also connected via valley corridors to Hamilton Harbour and thus links Lake Ontario with the Niagara Escarpment. In terms of inter-Heritage Land connections, the Heritage Lands are connected to adjacent escarpment natural areas (e.g., Grindstone Creek/Bonta Property). The Heritage Lands provide natural corridors for species moving between natural areas through the highly urbanized City of Burlington from Lake Ontario to the Niagara Escarpment. Thus, inter-Heritage Land connections are achieved between the Waterdown-Sassafras Woods Heritage Lands and Clappison-Grindstone Heritage Lands, and Clappison-Grindstone Heritage Lands and Lower Grindstone Heritage Lands. For example, there is a strong connection for deer and other wildlife movements from Grindstone Creek to Sassafras Woods across Waterdown Road. Within the Waterdown-Sassafras Woods Heritage Lands, Current EcoPark System Lands are relatively well-connected through Waterdown Woods, Falcon Creek, Kerncliff Park, City View Park and urban ravines. Connections between Bayview Park/Indian Creek and the rest of the Heritage Lands are limited.

2.4.7 Natural Heritage Summary

The following table summarizes the natural heritage features and designations of the Waterdown-Sassafras Woods Heritage Lands (Table 2). It is also important to note that much of the Heritage Lands are designated as Natural Heritage System by Halton Region and/or the City of Hamilton.

Table 2. Natural Heritage Summary of the Waterdown-Sassafras Woods Heritage Lands

Features	Designation	Description
Environmentally Sensitive/Significant Area (ESA)	<ul style="list-style-type: none"> • Halton Region Environmentally Sensitive Area • City of Hamilton Environmentally Significant Area 	<ul style="list-style-type: none"> • Halton Region ESA: Sassafras Woods (NAI-4) • Halton Region ESA: Waterdown Escarpment Woods and Extension (NAI-5 and NAI-5A) • City of Hamilton ESA: Waterdown Escarpment Woods (FLAM-51)
Area of Natural and Scientific Interest (ANSI)	As designated and mapped by MNRF: <ul style="list-style-type: none"> • Provincially Significant Life Science ANSI • Provincially Significant Earth Science ANSI • Regionally Significant Earth Science ANSI 	<ul style="list-style-type: none"> • Sassafras-Waterdown Woods Provincial Life Science ANSI • Old Nelson Quarry Provincial Earth Science ANSI • Waterdown Moraines Regionally Significant Earth Science ANSI
Provincially Significant Wetland (PSW)	Evaluated as a PSW as defined and mapped by MNRF	<ul style="list-style-type: none"> • Small portion of Falcon Creek Provincially Significant Wetland Complex located in Waterdown Woods
Significant Woodland	<ul style="list-style-type: none"> • Significant Woodlands as identified by criteria in Halton Region's Official Plan and City of Hamilton's Official Plan 	<ul style="list-style-type: none"> • Deciduous, mixed and coniferous forests and cultural woodlands in Waterdown-Sassafras Woods Heritage Lands
Significant Valleyland	<ul style="list-style-type: none"> • Based on guidance in Natural Heritage Reference Manual (MNR 2010) 	<ul style="list-style-type: none"> • Valleylands associated with Grindstone Creek, Falcon Creek, Indian Creek, Upper Hager Creek, and Upper Rambo Creek systems
Species at Risk	<ul style="list-style-type: none"> • Habitat for Endangered Species and Threatened Species • Provincially designated in Ontario's Endangered Species Act • Records considered historical (i.e., more than 20 years old) have not been included in the analysis 	<ul style="list-style-type: none"> • 4 endangered floral species • 10 endangered or threatened bird species • 3 endangered or threatened amphibian species • 1 endangered butterfly species
Significant Wildlife Habitat	<ul style="list-style-type: none"> • Significant Wildlife Habitat Technical Guide (MNR 2000) • Significant Wildlife Habitat Ecoregion Criteria 	<p><i>Examples of Significant Wildlife Habitat within the study area include:</i></p> <ul style="list-style-type: none"> • Waterdown-Sassafras Woods Heritage Lands are an important

Features	Designation	Description
	<p>Schedules (MNR 2015) <i>For example:</i></p> <ul style="list-style-type: none"> • Provincially significant vegetation types; ELC vegetation types ranked as S1, S2, S3 or S3S4 by NHIC • Habitat for globally, nationally and provincially significant species; includes species designated as Endangered or Threatened by COSEWIC, Special Concern by COSEWIC or COSSARO, or identified as S1, S2, S3, or S3S4 by NHIC • Seeps and Springs • Amphibian woodland breeding ponds • Woodland raptor nesting habitat • Woodland area-sensitive bird breeding habitat • Migratory stopover area • Site potentially linked to an animal movement corridor • etc. 	<p>breeding area for 104 species of birds, including 29 area-sensitive species.</p> <ul style="list-style-type: none"> • The area supports 4 species of special concern, rarely found elsewhere in Ontario and Canada (per the ESA). • The area supports several areas of woodland breeding habitat for amphibians. • The area supports seeps and springs, a form of specialized habitat for wildlife.
Surface Water and Fisheries Resources	<ul style="list-style-type: none"> • Permanent and intermittent streams (including ponds) • Cold-water fish habitat 	<ul style="list-style-type: none"> • Grindstone Creek tributaries within the Heritage Lands are intermittent.
Flora	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 • Schwetz 2014 	<ul style="list-style-type: none"> • 720 flora species; 509 native flora species • 21 Carolinian indicators • 25 Prairie-Savannah indicators • 118.38 FQI; 5.25 Native Mean C • 4 END species • 22 S1-S3 species • 65 regionally rare species in Halton Region • 60 regionally rare species in Hamilton
Butterflies and	<ul style="list-style-type: none"> • COSEWIC and COSSARO 	<ul style="list-style-type: none"> • 51 species; 50 native species

Features	Designation	Description
Moths	<ul style="list-style-type: none"> • NHIC • Dwyer 2006 • Schwetz 2014 	<ul style="list-style-type: none"> • 1 END species; 1 SC species • 1 S1-S3 species • 3 regionally rare species
Dragonflies and Damselflies	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 34 native species • 2 S1-S3 species • 8 regionally rare species
Fish	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 4 species; 3 native species
Amphibians and Reptiles	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 19 native species • 2 END species; 1 THR species; 1 SC species • 3 S1-S3 species • 2 regionally rare species
Birds	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 • SWTGH (MNR 2000) 	<ul style="list-style-type: none"> • 117 species (96 breeding); 113 native species • Current EcoPark System Lands: 1 END species; 5 THR species; 1 SC species • Stewardship Lands: 3 THR species • 2 S1-S3 species • 22 regionally rare species • 29 area-sensitive species
Mammals	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 20 native species • 1 END species

2.5 Cultural Heritage

Within the Waterdown-Sassafras Woods Heritage Lands, cultural heritage resources relate to quarrying activities. The escarpment geological formation plays a significant role in the location of quarrying activities, which influenced the local settlement pattern thereby contributing to the historical, social and industrial development of this part of East Flamborough Township, County of Wentworth and Nelson Township in the County of Halton (present day City of Hamilton and City of Burlington). Review of topographic maps and the historical atlas shows the early agricultural context of the area. Nelson Township was the first area to be settled in the County of Halton, around 1800.

The cultural heritage resource survey identified three principal sites:

1. The former quarrying extraction site located in the Old Nelson Quarry in Kerncliff 1 (Figure 2). Dolomite was the primary resource for extraction.
2. Kerncliff 1 also contains the site of a remnant concrete structure assumed to relate to the operation of the Old Nelson Quarry business (Photograph 1).
3. Clay extraction and red brick manufacturing occurred within the Heritage Lands. A number of brick yards had electricity supplied from DeCew Falls in Niagara (one of the first hydro-electric power plants in Ontario), which greatly improved production. Four and one-half million brick units were produced from the clay formation by 1904.



Photograph 1. Remnant concrete quarry structure located in Kerncliff 1 (Photograph by Richard Unterman)

3.0 Management Issues

This section summarizes the management issues identified for the Waterdown-Sassafras Woods Heritage Lands. Some of the current types and intensity of uses are most likely degrading the natural features and functions of the Current EcoPark System Lands. Impacts have been noted within the existing extent of use, and considerably greater use of the Heritage Lands is anticipated in the future, with the expectation of increased stresses to natural features. Many of the issues are inter-related and in many cases cannot be addressed in isolation. For example, over-use of trails can result in erosion issues, which can lead to ecological management issues such as soil degradation, impacts to ground flora, susceptibility to invasion by non-native species, degraded water quality, etc.

3.1 Overarching Issues and Opportunities

Several management issues are not constrained just to the Waterdown-Sassafras Woods Heritage Lands and span the entire Cootes to Escarpment EcoPark System. These issues are generally related to the recognition and identification of the EcoPark System, both in terms of boundary identification and the public perception or knowledge of the EcoPark System. The numbers listed in paragraph headings provide a cross-reference to the management recommendations listed in Sections 4.2 and 4.3.

Consistent Delineation of Cootes to Escarpment EcoPark System (3)

The Cootes to Escarpment EcoPark System is a relatively recent initiative. Some signage has been posted along roadways to identify the boundaries of the system and more signage is planned for installation in the future; however, at present the signage is scattered and it is very difficult to determine when a user is in the EcoPark System or leaving it. The lack of signage and poor general public knowledge of where and what the EcoPark System is, hinders opportunities to engage the public in stewardship, educate EcoPark System users about the importance of managing use, and garner support for management. It is important to note that awareness is continuing to increase through Cootes to Escarpment EcoPark System stewardship programming and community events.

Delineation of Current EcoPark System Boundaries to Reduce Trespass and Encroachment Issues (4)

Except for limited signage at some access points, there is no way of knowing when one is within Current EcoPark System Lands (Figure 1). The natural areas (woodlands, open lands, etc.) that compose the majority of the Heritage Lands extend well beyond individual property boundaries, and the Current EcoPark System Lands are owned by multiple agencies. This makes it impossible to enforce policies regarding use and encroachment in areas around the periphery of Current EcoPark System Lands. This creates issues for both adjacent landowners (e.g., trespassing and privacy issues) and Current EcoPark System Lands (e.g., encroachment of manicured areas and structures from adjoining lands).

Lack of Uniform Set of Rules for EcoPark System (5)

Each partner agency has their own set of policies and rules, and thus there is a lack of a uniform set of rules governing the use and management of the EcoPark System. For example, the Bruce Trail Conservancy allows only pedestrian traffic on the Bruce Trail; however, bicycle use is permitted by other partner agencies on their lands. Not only is this confusing to EcoPark System users, but users are generally not aware of the relevant rules and regulations of use. Different rules and permitted uses may continue to apply to different properties, depending on who owns the land and the sensitivity of the property. However, communication of partner agency rules and policies needs to be improved. Also, to

the extent that it is possible, the partner agencies for each of the Current EcoPark System Lands should attempt to resolve any differences in their use policies to minimize conflicting direction to EcoPark System users.

Accommodating Stresses from Future Development (6)

A major management issue is the anticipated increase in use that will result from future development adjacent to the Heritage Lands and the associated population growth. Future development on lands adjacent to the Heritage Lands has the potential to degrade the natural, recreational and cultural resources unless mitigation in the way of increased management initiatives is implemented. These developments will be desirable communities to live in partly because of the proximity of the aesthetic beauty and recreational opportunities provided by the Heritage Lands. It is thus fitting that the population-induced negative impacts on nearby Heritage Lands resulting from development and the increased cost of management needs should be mitigated by the development proponents, where appropriate. However, some development approvals adjacent to the Heritage Lands have already progressed beyond the point at which additional funds to put toward mitigation/management could be requested.

At present, there are no policies that would directly facilitate the implementation of relevant management recommendations in the Management Plan through development approvals. However, where geographic-specific park or public land Management Plans exist, the Greenbelt Plan 2005 indicates that municipalities, agencies, and other levels of government must consider them when making decisions on land use or infrastructure proposals. As the Cootes to Escarpment EcoPark System represents such a park, it would be incumbent on planning authorities to consider increased use pressures and likely environmental impacts in their assessment of development applications.

Several planning policies require proponents of development applications to consider impacts on adjacent natural features and areas resulting from their development proposals, and to mitigate them accordingly. It is especially important that the impacts associated with future developments adjacent to the Heritage Lands be clearly identified and assessed in Environmental Impact Assessments (or similar studies) in the context of the role that the Heritage Lands play in the overall Cootes to Escarpment EcoPark System. In other words, the value and significance of the natural features captured in the Heritage Lands is greater because they are part of the EcoPark System, and because they have an ecological function that goes beyond the feature itself. In determining impact mitigation for future development, this higher value should be considered when determining the limits of the developable area, buffer widths, management needs such as design and provision of trails within the Heritage Lands. The management issues and recommendations identified for the Waterdown-Sassafras Woods Heritage Lands provide information on current impacts that could be exacerbated by future adjacent development. Management recommendations may assist in the determination of appropriate mitigation that could be implemented through the development process.

Owing to the multi-agency agreement to implement the EcoPark System and the public resources that have already been spent on the acquisition and management of the Heritage Lands, potential population-induced negative impacts from development should be mitigated through conditions of the approval process wherever possible. More generally, the partner agencies that are directly involved in the development approval process (in the case of the Waterdown-Sassafras Woods Heritage Lands these are the City of Hamilton, City of Burlington, Halton Region and Conservation Halton), should continue to consider and incorporate the significance of the Heritage Lands in their reviews and the

subsequent conditions they impose on development applications. This is viewed as part of their commitment to implementing the Vision of the Cootes to Escarpment EcoPark System. Partner agencies that are not directly involved in the development approval process should be encouraged to comment as landowners on development applications that may impact their lands. Where a public or private development proposal may exacerbate existing management issues and/or create new ones, adjacent landowners should make such concerns known so they may be addressed accordingly through the development approval process.

Funding (8)

There are differences in approach to management by the partner agencies. These differences should not be at the expense of the asset that the designation of the Cootes to Escarpment EcoPark System brings. Individual partners manage lands in a variety of models, from pay to use to free to use. Future operating and capital costs associated with the Cootes to Escarpment EcoPark System will be high and no clear and uniform model for allocating these and financing them is yet proposed. Funding estimates are not included within this Management Plan; however, funding as a broad management issue is included as the Cootes to Escarpment EcoPark System creates both challenges and opportunities in this regard.

3.2 Access and Infrastructure

Parking and access is limited in some areas of the Waterdown-Sassafras Woods Heritage Lands (Figure 3). Some parking and access points are sanctioned and some are not. In terms of parking, there are a few parking areas available (e.g., City View Park, Kerncliff Park, King Road access to Waterdown Woods, Bayview Park parking area). Utility corridors are also used as unauthorized access points to the Heritage Lands.

Lack of Adequate/Appropriate Parking and Access (12)

There is a lack of adequate and appropriate parking to provide access to some areas of the Heritage Lands. In particular, the informal roadside parking areas, especially the shoulder pull-off on King Road, which is located at the top of the Niagara Escarpment and on a curve, are undesirable owing to the 60 km/h speed limit coupled with poor sightlines. This represents an issue associated with a trail/road crossing. Bruce Trail parking areas are frequently over capacity even during the week as parking is very limited in the western portion of the Waterdown-Sassafras Woods Heritage Lands (Figure 3). Parking areas at City View Park and Kerncliff 1 provide abundant parking, including accessible parking. Accessibility of Bayview Park, including the off-leash dog park, is limited.

Relative Isolation of some Current EcoPark System Lands (13)

Some of the Current EcoPark System Lands are isolated and not directly connected to other Current EcoPark System Lands. For example, portions of Waterdown Woods and Upper Hager Creek are not connected to other Current EcoPark System Lands (Figure 2). Also, there are no connections between Bayview Park/Indian Creek, Falcon Creek, Sassafras Tributary and other Current EcoPark System Lands (Figure 3). Additional opportunities for land securement and protection of the Stewardship Lands could be sought to provide connections for wildlife and/or recreation. Relative isolation of some Current EcoPark System Lands limits opportunities for trail connection and potentially raises management issues such as trespassing. It is important to note that some sections of public lands may not be appropriate for or have agency interest in connecting them via a trail network.

Trespassing (14)

Trespassing on privately-owned lands within the Heritage Lands is an issue. Many “No Trespassing” signs have been posted by adjacent landowners as a result, and conflicts between landowners and EcoPark System users have occurred. For example, cyclists and possibly hikers, that use the trail on the east slope of Falcon Creek, access the trail from the North Service Road via the manicured grass on the Ippolito Transportation Inc. property, despite it being specifically signed “No Trespassing”. Access to Falcon Creek and the landfill site property is also trespassing on public lands, as access is currently not permitted by Halton Region. The issue of trespassing ties into the lack of access as well as the need to identify and mark boundaries of the Current EcoPark System Lands, and the need to educate EcoPark System users about the importance of paying attention to signage and posted management messages.

3.3 Recreation

The existing trail system through the Heritage Lands is extensive and consists of sanctioned and unsanctioned trails (Figure 3). The Bruce Trail Conservancy manages the Main Bruce Trail and Bruce Trail Side Trails, the City of Burlington manages additional trails in City View Park and Kerncliff Park, and some other unsanctioned trails are maintained by cyclists and other members of the local community. Some trails are no longer being used and are naturally regenerating. Trail uses include hiking, on- and off-leash dog use, cycling and motorized vehicle use. Associated trail issues include unsanctioned trail improvements such as the construction of boardwalks or erosion control measures, cycling structures (e.g., jumps and ramps) and trail modifications (e.g., berms and banked corners).

Duplication and Density of Trails (16)

Some portions of the Current EcoPark System Lands currently support a high density of trails (Figure 3). The trail network could be simplified to avoid duplication and impact to the natural environment. Trail closure, in conjunction with trail rationalization and formalization, is one of the highest priorities for management.

Signage (17)

There is very little signage or interpretation of the EcoPark System within the Waterdown-Sassafras Woods Heritage Lands. There is signage posted within Kerncliff 1 about the old limestone quarry structures located there, and within the old quarry. However, interpretive signs have been vandalized within the Heritage Lands in the past (e.g., Kerncliff Park). There are many more opportunities for interpretation and education within the Heritage Lands. This would also provide an opportunity for an increased presence and profile for the EcoPark System through a consistency and approach in branding.

Overuse and Erosion of Trails (18)

Some portions of the trail system show signs of overuse, including exposure of tree roots, impacts to ground flora, soil compaction and widening of the trails. Trail overuse has resulted in soil erosion in some locations. Some erosion, compaction, and water ponding is considered acceptable on trails within natural areas and as long as it is sustainable (i.e., not expanding) and not impacting significant species, habitats or hydrological functions, it is considered to be part of the trail experience. Unacceptable erosion on trails was noted, and can be attributed to overuse, improper trail construction, poor trail alignment and/or drainage issues. According to the Halton Natural Areas Inventory summary of Waterdown Escarpment Woods, areas below the escarpment brow were damaged by recreational vehicles in the past, which reduced the ground cover significantly (Dwyer 2006).

Unsanctioned Structures and Trail Improvements (19)

Unsanctioned structures and trail improvements have been constructed within the Heritage Lands. Examples include bridges, berms, and ramps. These structures and trail improvements pose a management concern.

Trails (21)

A large portion of the existing trail network has been developed without consultation or authorization, and is being used extensively by the community. Most of the existing trails are respectful of natural terrain, drainage features and trees. In many cases logs have been placed over the trail to prevent impacts to tree roots or to enhance a trail to include a technical feature for cycling. The trail network includes single-track trails, which are as narrow as 0.5 m wide. The relative intensity of the use has resulted in rutting and down-cutting of soils in many areas, and soil compaction and loss of understory vegetation in others. Where trails traverse steep sections of slope, erosion is often prevalent (Figure 5).

“Islands” of Permitted Bike Use (15 and 21)

Biking is currently permitted but not promoted in Kerncliff Park, with the exception of the Tyandaga Neighbourhood Trail, which is a wide granular trail that connects the neighbourhood to the parking lot for access to the park. Biking is not permitted within the Bruce Trail Conservancy easement in City View Park, and is signed for no biking. Biking is permitted in all other areas of City View Park. This is an issue that is confusing to users who may not know or may have difficulty interpreting where biking is permitted and where it is not. This same issue extends to Conservation Halton Lands, where biking is permitted, including on the Bruce Trail (although not promoted), and on the McNally property where only hiking is permitted. This creates “islands” of uses within the Heritage Lands.

User Conflicts (22)

Potential conflicts between different trail user groups can impact the safety of park users, and can also decrease the enjoyment of park users. User groups include hikers, cyclists, and on- and off-leash dog walkers. Off-leash dog use is not permitted within Current EcoPark System Lands. Although the Bruce Trail Conservancy does not permit cycling, bike use continues to occur along the main Bruce Trail, and conflicts between cyclists and hikers arise on occasion.

Off-leash Dogs (23)

Off-leash dog use can have the following impacts on natural areas: erosion, soil compaction, water quality impacts, and effects on wildlife. Off-leash dog walkers should be encouraged to use the off-leash dog park at Bayview Park. From a natural heritage perspective, it is preferred that off-leash dog usage occurs outside of sensitive and/or significant natural areas. Several municipalities require that an Environmental Impact Assessment (or similar study) be developed when off-leash dog parks are proposed adjacent to natural areas in order to assess and mitigate impacts.

Non-permitted Uses (24)

Some of the non-permitted uses identified above are relatively benign and do not have a significant negative impact on the natural environment. However, other non-permitted activities have localized impacts and can degrade the quality of natural areas by removing or trampling vegetation, contributing to soil compaction and erosion, damaging or vandalizing trees, and the introduction and spread of invasive species. Some non-permitted uses may also constitute a fire hazard (e.g., fire pits).

Safety Concerns Associated with Non-permitted Uses (25)

There are safety concerns associated with some of the other non-permitted uses noted within the Heritage Lands, such as after-hours partying, rope swings, rock climbing and bow hunting. Increased signage and education regarding permitted uses, along with enforcement to the extent possible, will assist with developing awareness of impacts and concerns associated with non-permitted uses and will contribute to their management.

3.4 Encroachments

Adjacent land uses can create issues for natural areas. The Waterdown-Sassafras Woods Heritage Lands are surrounded by various land uses, including residential and industrial uses. Impacts associated with different land uses can encroach onto the Heritage Lands. For example, encroachment from residences abutting Upper Hager Creek, Forestvale Park, Kerns/Westbury Park, Upper Rambo Creek/Mansfield Park, and Waterdown Woods (Figure 5).

Personal Trails (26)

Personal trails are occasionally created that lead from private residences into the adjacent EcoPark System trail network. In some cases gates are installed into rear lot fencing to facilitate access. This speaks to the frequency of use that these trails experience. When combined, the cumulative effect of these personal trails can have an impact on the quality of the natural area and can also impact wildlife through increased levels of disturbance.

Structures and “Yard Extension” (26)

Structures such as retaining walls, picnic tables and small sheds, and household objects such as lounge chairs and composters were noted within the Current EcoPark System Lands, adjacent to residential properties. Also, yards are occasionally extended by mowing and the placement of flowerbeds within the natural area boundary. This has an impact on edge vegetation and reduces the overall size of the natural area.

Dumping (26)

Yard waste, such as grass clippings and trimmed branches, is often thrown inside the edge of natural areas from adjacent residences. Yard waste dumping can be a vector for the spread of non-native invasive species. It also smothers existing vegetation, reduces establishment of understory forest succession, and degrades the aesthetic and floristic quality of an area. Garbage and other refuse are also found within natural areas which impacts the quality of the natural area.

Vegetation Removal (26)

Removal of vegetation occasionally occurs along the edges of natural areas. For example, tree cutting of both dead and living trees occurs, as well as clearing of brush, and tree topping to maintain views.

These unsanctioned activities reduce the quality of natural areas by reducing or degrading the structure of edge vegetation, and removing snags which have high wildlife value.

Cats/Domestic Pets (26)

Domestic pets, in particular cats, which inevitably roam freely within natural areas, have a significant impact on native wildlife populations. Cats are very proficient predators and are responsible for killing millions of birds, small mammals, reptiles and amphibians each year (Marks and Duncan 2009).

3.5 Hydrologic Impacts

Run-off, Peak Flows and Hydrological Changes (27)

High run-off and peak flows associated with adjacent development, including any future park development, and an increase in impervious surfaces (e.g., buildings and asphalt restrict the ability of precipitation to infiltrate in the ground) can accelerate erosion rates and decrease groundwater infiltration. Any steps taken to limit run-off would be beneficial to the downstream watersheds and Hamilton Harbour.

Drainage, Erosion and Stormwater Management (28)

Drainage and resulting erosion can encroach into natural areas from adjacent land uses. Impacts associated with heavy erosion of watercourses include:

- loss of instream substrates that support aquatic benthic invertebrates, which provide productivity for downstream fish communities;
- bank slumping and loss of riparian vegetation;
- impairment of myriad riparian functions (e.g., wildlife habitat, filtration of surface water runoff, shading of watercourse, input of allochthonous inputs, etc.); and
- sediment loading to Hamilton Harbour, which impacts the ability for the harbour to be delisted as an Area of Concern.

Drainage and resulting erosion has contributed to turbidity and siltation of the various creeks that pass through the Heritage Lands. For example, the stormwater management ponds on the Hanson Brick property discharge into Indian Creek in the Bayview Park/Indian Creek parcel (Figure 5). When designed and maintained appropriately, such facilities can have a relatively small impact on natural areas. However, if designed and maintained poorly, these facilities can have a very large and negative impact. Stormwater has and continues to cause some erosion on the banks along tributaries of Sassafras Tributary to Grindstone Creek, Upper Hager Creek, Indian Creek, and Upper Rambo Creek. Creek erosion issues have also been noted along the Tyandaga areas of Upper Hager Creek, and are related to high runoff issues due to impervious surfaces and area contours. Not all of these areas have stormwater management facilities because of how long ago they were developed. Stormwater management criteria have evolved considerably over the past few decades. Swimming pool drainage from private residences can also lead to severe erosion and the formation of gullies over time, especially on highly erodible soils such as the shales that occur within the Heritage Lands.

Impacts from drainage and erosion can significantly damage vegetation. Throughout the Current EcoPark System Lands, bank erosion has exposed tree roots and has resulted in increased levels of deadfall. Some fallen trees have blocked creeks, which in turn may impact the hydrology and fluvial geomorphology of the watercourse. Habitat for herbaceous plants is also impacted. In some places

where creek banks had naturally sloped gently toward the creek, soil has been washed away until the banks have become almost vertical (through a process called under-cutting). This impacts the establishment of riparian vegetation which subsequently results in further erosion and bank stability issues. Also, sediment accumulation in areas of slower moving water has resulted in impairment of habitat for aquatic vegetation and likely aquatic invertebrates as well. Reduction of light penetration from increased turbidity also impacts the aquatic life living in the creek system. Trails located in the vicinity of undercut banks should be re-routed.

Water Quality Impacts

Water quality impacts associated with phosphorus, nitrite, chloride and *E. coli* have been noted within the Heritage Lands. Elevated levels of phosphorus have been documented downstream of the Hanson Brickyard (West) in Indian Creek (Conservation Halton, Indian Creek Water Quality Report 2014). The Sassafras Tributary has been noted to have exceptionally high values of *E. coli* with recent water quality monitoring sampling completed by Conservation Halton in 2015.

As the lands north of Waterdown Woods develop into residential subdivisions, the transportation network (i.e., roads, parking lots, driveways and trails) will require salting in the winter for safety reasons. The dissolved salt will enter the stormwater management facilities before being released into the surrounding environment. Stormwater management ponds do not remove salt from the water as the salt is present in a dissolved state. There is high salt content in the runoff entering the Waterdown-Sassafras Woods Heritage Lands due to road and residential applications. The City of Burlington has a Salt Management Plan for roads and parking lots, and at City View Park alternatives to salt applications have been implemented (i.e., sand) due to the sensitivity of the surrounding land. Recognizing the impact that salt can have on the natural heritage system, mitigation measures have been developed to reduce this impact, such as using a combination of sand and salt on roads and directing these flows away from sensitive areas during critical seasons. This impact unfortunately cannot be fully mitigated due to road safety requirements and the limitations of existing technology. As South Waterdown becomes urbanized, the City of Hamilton will play an increasingly important role in managing salt impacts on the natural heritage system through winter maintenance practices applied to City streets. Private landowner education and outreach regarding safe and alternative salting practices would be beneficial.

Water Quantity Impacts

Water quantity impacts have been noted downstream of the stormwater management facility located adjacent to Bayview Park/Indian Creek, the stormwater management facilities located adjacent to Upper Hager Creek, and the stormwater management facilities located within City View Park. Erosion and down-cutting has been noted in the downstream watercourse. This has an impact on the hydrological function of the watercourse. As more of the surrounding area becomes developed, increased impacts to hydrological functions are anticipated, as an increase in impervious cover results in decreased infiltration and increased runoff. This puts an even greater strain on existing stormwater management infrastructure, and increases impacts related to water quantity and quality.

With the conversion of agricultural areas to residential north of Waterdown Woods, the way that water once reached the adjacent natural heritage system will be altered. Whether it is from a lack of infiltration due to an increase in imperviousness, a change in flow pattern or a more continual amount of water released, there are anticipated impacts. In order to reduce these impacts, mitigation measures were developed including flow splitting, releasing water to existing discharge locations, and maintaining

the hydrologic function of features. It is recognized that the change in land use cannot be fully mitigated, therefore, it is expected that there will be a period of change where the natural heritage system will have to adapt to the new hydrologic regime. Required monitoring of the hydrologic changes in the EcoPark System is ongoing to identify potential impacts and mitigate these as they occur. Supporting a treatment train approach to stormwater on private land could be utilized to increase lot level infiltration and reduce runoff.

Polluting Spills (29)

Due to the presence of roadways, pipelines and railway lines within the Heritage Lands, there is a potential for polluting spills to occur and encroach within the Current EcoPark System Lands. Polluting spills can have serious and long-term consequences for natural areas. Depending on the substance and quantity spilled, site remediation may be required.

3.6 Ecosystem Management and Restoration

Management issues related to ecosystem management and restoration are aimed at protecting ecosystem features and functions and restoring natural resources. The principal objective of ecosystem management is the restoration of natural ecosystems, preservation of significant species, as well as efficient maintenance and ethical use of natural resources.

Forest Health Decline (30)

Oak Decline, Beech Bark Disease, Emerald Ash Borer, Gypsy Moth, Chestnut Blight, Dogwood Anthracnose, Butternut Canker, and other diseases are currently impacting the health of trees and forests in the Heritage Lands. Asian Long-horned Beetle has not yet been noted in the area, but is a potential threat. Non-native earthworms also appear to be contributing to the decline of forest health. Earthworms are keystone detritivores that can act as “ecosystem engineers” and have the potential to change fundamental soil properties, with cascading effects on ecosystem functioning and biodiversity. Tree blowdowns associated with tree death and/or slope erosion can create gaps in the forest canopy. If small in scale, gaps in the forest canopy can provide habitat heterogeneity within an ecosystem and may not be an issue, or if large in scale they can cause other impacts such as loss of habitat, spread of invasive species, etc. Forest pests, such as Emerald Ash Borer, are causing significant death and dieback of ash trees, creating hazard tree and safety issues. Gaining access to and managing hazard trees creates a secondary management issue.

Loss of Open Woodland Habitat (30)

Open oak woodland with grassland understory historically occurred within the Heritage Lands, in part as a result of several centuries of indigenous people periodically burning to maintain hunting areas, tree seed and fruit production (e.g., Goodban et al. 1997). Over time, open oak woodland habitat has been lost or diminished largely due to the loss of disturbances (e.g., fire) that maintain a more open forest character. Some forest canopies have become more closed, reducing the amount of light that is able to penetrate to the forest floor. This has had an impact on the flora in the area, resulting in a reduction of prairie, savannah and open woodland-dependent species. For example, the decline of Eastern Flowering Dogwood (*Cornus florida*), an endangered species, in the Sassafras Tributaries of Grindstone Creek has been attributed to canopy closure. Some habitat for these species remains within the Heritage Lands in utility corridors that are maintained as open habitat based on the needs of the utility infrastructure as well as on south and south-west facing dry oak slopes.

Management of Species at Risk and Rare Species Habitat (32)

The conservation and recovery of species at risk in the Waterdown-Sassafras Woods Heritage Lands is largely associated with conserving and restoring open oak woodland habitat. The majority of species at risk and rare species in the Heritage Lands require open oak woodlands to persist. Management of conditions surrounding known locations of species at risk (e.g., maintaining open woodland characteristics) may be necessary, as the natural disturbance regime many species at risk rely upon has been removed (i.e., open oak woodlands historically maintained their open character due to disturbance caused by fire and management of understory vegetation). In addition, recreational uses that have become established may not be compatible with the conservation and recovery of species at risk and rare species in some locations.

On-line Ponds (33)

There are five on-line ponds located along the Upper Rambo Creek watercourses at the Tyandaga Golf Course. These ponds could be retrofitted with by-pass channels or managed in a more environmentally conducive manner. In addition, many sections of Upper Rambo Creek in this area are piped underground or do not have adequate riparian buffers.

Karst (34)

Karst is known to occur immediately adjacent to the brow of the Niagara Escarpment and along the escarpment plane, where soils are more permeable and tend to be shallower. Karst features and their catchment areas need to be protected, not only due to their status as hazardous lands, but also as potential pathways for groundwater contamination. As karst topography allows a direct pathway for the mixing of surface and groundwater flows, careful planning of land use and development adjacent to karst areas is a key management strategy for protecting groundwater quality. A Karst Contingency Study and Spills Response Plan should be prepared prior to any adjacent development, to identify groundwater threats and appropriate mitigation strategies (Conservation Halton draft Grindstone Creek Watershed Study 2016). There is also the potential for blockage of karst conduits to result in downstream flooding. Karst conduits that transfer surface stream flows to groundwater seeps may be small and numerous. The conduits may easily become blocked by aggradation within watercourses, and may cycle between being active, open conduits, and closed blocked conduits, as stream processes change over time. Karst Contingency Studies could also provide clear direction on the importance of erosion prevention. Should there be a decrease in subsurface flow conveyance as a result of a blockage of a significant portion of karst conduits, overland flow will increase, resulting in potential for flooding along historic surface flow paths. Protection of karst features yields environmental and socio-economic benefits (Conservation Halton draft Grindstone Creek Watershed Study 2016). Drainage to karst features were maintained through the grading and restoration plans for City View Park.

Invasive Species Management (35)

The following invasive plant species have been noted within the Heritage Lands: Garlic Mustard, Dog-strangling Vine, English Ivy, Periwinkle, Himalayan Balsam, Japanese Knotweed, Common Reed, Purple Loosestrife, White Mulberry, Common Buckthorn, non-native honeysuckles, Multiflora Rose, Japanese Barberry, Norway Maple, Manitoba Maple, and Black Locust. These species displace the native flora, reducing biological diversity, and in some cases degrade the basic conditions needed to sustain native ecosystems. Dog-strangling Vine is particularly prevalent within hydro-corridors. Invasive insect species noted within the Heritage Lands include Gypsy Moth and Emerald Ash Borer. Invasive species tend to spread aggressively and out-compete native species. Non-native earthworms likely occur throughout

the area and are probably causing fundamental changes to soil characteristics and are impacting the native flora and vegetation.

Noxious Plants (36)

Poison ivy and other noxious plants may pose health and safety issues for EcoPark System users who venture off-trail. Poison ivy is found throughout the Current EcoPark System Lands in various concentrations. Giant Hogweed has not been noted within the Current EcoPark System Lands, but has the potential to colonize floodplain valleys.

Wildlife Crossing (37)



















Wildlife crossing has been identified as an issue of concern within the Heritage Lands. There is a large population of White-tailed Deer within the Grindstone Creek Valley system (part of the Clappison-Grindstone Heritage Lands to the west), and deer frequently cross roads within the Waterdown-Sassafras Woods Heritage Lands such as Waterdown, Kerns and King Roads. Crossing of urban and rural roads by White-tailed Deer poses issues for wildlife and for the safety of the public. King Road is closed annually in the early spring to accommodate the movement of salamanders from their overwintering habitat to breeding ponds. This benefits other amphibian and reptile species utilizing the area. Due to the fragmented nature of the natural areas that compose the Waterdown-Sassafras Woods Heritage Lands, wildlife is forced to cross roads, hydro-corridors, and railways.

Cootes to Escarpment EcoPark System Waterdown - Sassafras Woods Heritage Lands

Figure 5: Management Issues

Legend

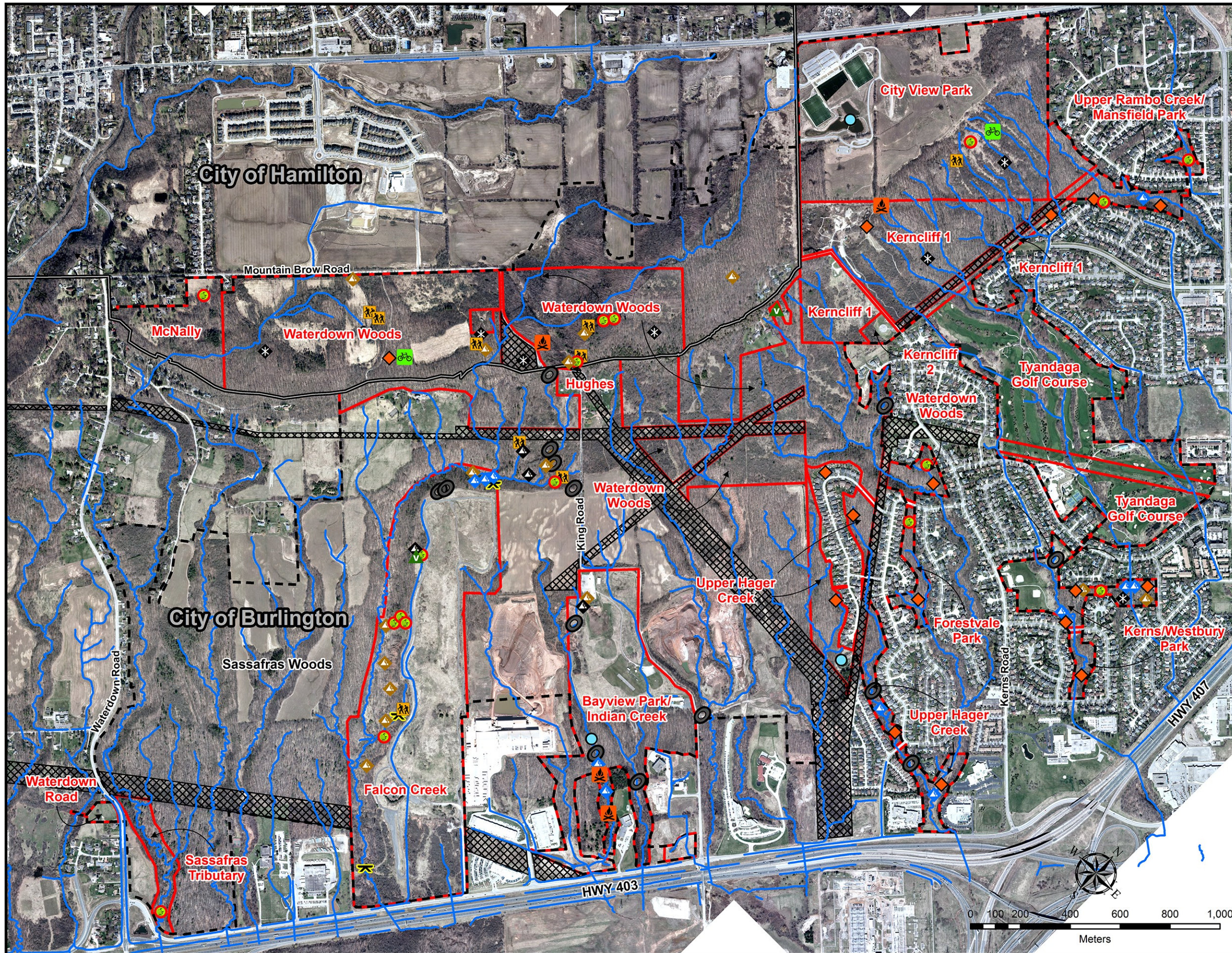
Management Issues

-  Unsanctioned Trail Management
-  Unsanctioned Creek Crossing
-  Encroachment
-  Garbage/Dumping
-  Gully Erosion
-  High Density of Trails
-  Invasive Species
-  Mountain Bike Structures
-  Picnic Area/Fire Pit
-  Stormwater Impacts
-  Stream Erosion
-  Trail Erosion
-  Vegetation Clearing
-  Utility Corridors
-  Municipal Boundary
-  Watercourse
-  Study Area
-  Waterdown - Sassafras Woods Heritage Lands

Note:
Not all management issues have been mapped.

Sources of Information:
Conservation Halton
Hamilton Conservation Authority
City of Burlington
City of Hamilton
Bruce Trail Conservancy
Ministry of Natural Resources and Forestry

All boundaries on this map should be considered approximate. No responsibility or liability is assumed by the C2E EcoPark System partners or their employees, officers and agents for any errors, omissions or inaccuracies, whether due to their negligence or otherwise. Some data on this map is used under license from the Ministry of Natural Resources. Queen's Printer for Ontario, 2016. Teranet Enterprises Inc. and its suppliers. All rights reserved. NOT A PLAN OF SURVEY



4.0 Heritage Lands Management Recommendations

This section of the Management Plan addresses the management issues and opportunities identified in section 3.0. The recommendations have been developed predicated on the expectation that use is going to increase as a result of increased human population from several approved development applications adjacent to or in close proximity to the Heritage Lands, and the possibility of additional approvals in the future. The Waterdown-Sassafras Woods Heritage Lands are at a critical juncture – if management is not implemented, current and anticipated increases in impacts will likely result in substantial degradation of the natural, recreational and cultural values of the area. Thus prioritizing management of these lands is extremely important and timely. Although the Management Plan focuses on Current EcoPark System Lands within the Waterdown-Sassafras Woods Heritage Lands, there are also pressures being placed on Stewardship Lands within the Heritage Lands, and Adjacent Lands. In some instances, management issues on these lands affect the Current EcoPark System Lands, and will influence the efficacy of management initiatives. Thus, communication, education and stewardship with adjacent landowners will be a key consideration in future management. Where appropriate, consideration of these adjacent pressures is provided.

The recommendations of this Management Plan are arranged into 39 “management themes”. These themes are based on the opportunities and issues identified in section 3. Each management theme is numbered solely to allow easy reference to it; the numbers do not reflect any priority for implementation.

4.1 Approach to Management Recommendations

The NEP requires that a Management Plan be prepared for each park and open space in the NEPOSS. An NEP Management Plan lays out the goals and objectives, and guides the protection and management of natural heritage features, cultural heritage features, and activities in NEP park and open space areas. This poses a unique situation for the Waterdown-Sassafras Woods Heritage Lands, which are comprised of several parcels, some of which are classified as separate parks in the NEP. In the context of the Cootes to Escarpment EcoPark System, a single Management Plan is being prepared for each of the six Heritage Lands per requirements specified in the Cootes to Escarpment Park System Phase II Land Management Strategy (October 2009). A single overall Management Plan is desirable in order to manage the lands in a holistic and integrated manner, among multiple partners. To reconcile these two different frameworks, the Waterdown-Sassafras Woods Heritage Lands will not be classified as a single park or open space area, but will adopt the Classification for each park as identified in the NEP. For park and open space areas not included in the NEP, classifications have been recommended. As a result, the Heritage Lands will contain multiple classifications, including Nature Reserve, Natural Environment, Recreation and Resource Management.

The intent of this Management Plan is to provide overall high-level guidance for the future management of the Heritage Lands. Detailed site-specific master plans may be prepared at a later date by individual landowners or agencies to further refine recommendations and depending on whether their lands are within the NEP area these may need to be submitted for approval through the NEPOSS process.

4.1.1 Classification and Zoning of the Heritage Lands per NEPOSS

To assist in the development of future detailed master plans, the Classifications and Zones from the NEPOSS Planning Manual were applied to the Waterdown-Sassafras Woods Heritage Lands. These provide a basis for identifying permitted uses and long-term management. The full rationale and description of the Classification and Zoning exercise is provided in Appendix 1. Note that Classifications are applied to entire parks, as defined in the NEPOSS manual, and Zones are areas that guide development and management within each park.

A summary of the Classifications and Zones is provided below.

1. Classification of the Heritage Lands

The NEPOSS Planning Manual (MNR 2012) provides six Classifications which characterize park and open space areas within the NEP area. The Waterdown-Sassafras Woods Heritage Lands contain multiple Classifications, including Nature Reserve, Natural Environment, Recreation and Resource Management Area. The description and management direction provided in the NEPOSS Planning Manual (MNR 2012) of each of these Classifications is as follows:

- **Nature Reserve:** Nature Reserves represent the most ecologically significant and distinctive natural areas and landforms found along the Niagara Escarpment. These areas serve to protect selected life science and earth science Areas of Natural and Scientific Interest (ANSI). Management practices and uses in a Nature Reserve will ensure that the features and values for which it was established remain protected in perpetuity.
- **Natural Environment:** Natural Environment lands are characterized by the variety and combination of outstanding natural heritage features, cultural heritage features and outstanding landscape. Natural Environment lands provide opportunities for the protection of important natural heritage features and cultural heritage features.
- **Recreation:** Recreation parks are some of the best recreational environments along the Escarpment. Such parks occur naturally or are capable of being developed to provide a wide variety of outdoor recreation opportunities in attractive Escarpment surroundings. Management and development of resources is appropriate in order to provide the recreational environment and facilities required to support a wide variety of activities, which may be for day use only. While public use of recreation parks may include more intensive activities or uses than at other NEPOSS parks, these activities will be suited to the natural character of the particular park. Such activities must occur in Zones identified in an approved Management Plan and be conducted in an environmentally sustainable manner. Development of facilities must be designed and undertaken in a way that will minimize the environmental impact of the development.
- **Resource Management Area:** Resource Management Areas include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control. Resource Management Areas are intended to provide many benefits, including recreation opportunities, the protection of important natural heritage features and cultural heritage features, and resource products. In most cases, these areas will undergo more intensive resource management than the other classifications.

Within the Waterdown-Sassafras Woods Heritage Lands, three park and open space areas and associated Classifications are identified in the NEP:

1. Kerncliff Park – Natural Environment;
2. City View Park – Recreation; and
3. Waterdown Woods – Nature Reserve.

No changes to these Classifications are proposed at this time. Recommended Classifications for the Current EcoPark System Lands within the Waterdown-Sassafras Woods Heritage Lands are provided in Table 3 and illustrated on Figure 6.

Halton Region properties referred to as Waterdown Road and Kerncliff 2 are used for regional water distribution and storage. Given this use, public access to these areas will not be encouraged or supported. Therefore, these two properties have not been Classified or Zoned. Figure 6 shows these properties as “Unclassified and Unzoned Lands”.

2. Zoning of the Heritage Lands

The use of zoning is outlined in the NEP as “essential to the orderly planning, development and effective management of a park or open space area”. NEP zoning is intended to work within each of the park Classifications to guide uses based on the significance of resources, the need for protection, and the potential for recreation or other activities. The NEPOSS Planning Manual (MNR 2012) provides six zones and each one serves a specific purpose and provides direction on planning and management. The description and management direction provided in the NEPOSS Planning Manual (MNR 2012) of each of these zones is as follows:

- **Nature Reserve:** Nature Reserve Zones include significant natural heritage features or areas that require careful management to ensure the long-term protection of their natural features. This type of zone should ensure ecological diversity and provide long-term protection for significant natural heritage features such as: habitat of endangered, threatened and rare species or species of special concern; wildlife and fish habitat; hydrological systems (e.g., streams, wetlands, ponds); woodlands; ANSIs; and escarpment features (e.g., brow, slope, face, toe, and related landforms). Nature Reserve Zones are predominantly natural and should contain naturally functioning ecosystems. Such zones should protect natural heritage features in the long term.
- **Natural:** Natural Zones include aesthetic landscapes in which a minimum of development is permitted to support low- to moderate-intensity recreational activities. This type of zone includes natural landscapes and high-quality natural settings. The Natural Zone can function as a buffer between Development Zones and Historical or Nature Reserve Zones.
- **Access:** Access Zones serve as staging areas (e.g., trailheads, parking lots) where minimal facilities support the use of Nature Reserve Zones and relatively undeveloped Natural and Historical Zones. Access Zones are intended to support the use of and access to adjacent zones.
- **Historical:** Historical Zones include significant archaeological or cultural heritage features or areas that require management that will ensure the long-term protection of the significant features. Management planning for archaeological or cultural heritage features may range from maintaining their present condition to restoring and/or reconstructing the site.

- **Development:** Development Zones provide the main access to the park or open space, and facilities and services to support the recreational activities available. This type of zone may allow for the development of visitor and park facilities. A Development Zone is usually oriented to the provision of recreational opportunities that are suited to the natural character of the particular park or open space and are conducted in an environmentally sustainable manner. This zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape or watershed.
- **Resource Management:** Resource Management Zones include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control. Previously disturbed sites (e.g., abandoned quarries, old fields) where active measures are being taken to re-establish natural vegetation should also be considered for this type of zoning. This type of zone may include land that has traditionally been managed under long-term resource agreements (e.g., forest management agreements or agricultural leases). Resource Management Zones are sustainably managed for many diverse values, such as wildlife, fisheries, forestry and outdoor recreation. Such zones may be places for experimenting with alternative resource management practices and developing a better understanding of ecosystem structure and function in a scientifically sound manner. This zone should demonstrate exemplary conservation and stewardship.

In this Management Plan, the Resource Management Zone has been applied to lands with the sole intent of providing for future restoration activities, and not to provide for active resource extraction or harvesting. It is recommended where restoration would be a principal management activity in the future owing to the current characteristics of the area.

Zoning has been based on the inventory and analysis completed for the Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016). Recommended Zoning for the Current EcoPark System Lands within the Waterdown-Sassafras Woods Heritage Lands is provided in Table 3 and illustrated on Figure 6.

The zones for City View Park shown on Figure 6 have been approved and adopted by the Niagara Escarpment Commission (NEC) and the Ministry of Natural Resources and Forestry (MNR) as part of the New City Park¹ Management Plan (The Landplan Collaborative Ltd. et al. 2009). This approved plan includes a zone, Recreation Zone, which is in addition to the zones provided for in the NEPOSS planning manual (MNR 2012). This Recreation Zone was added to include recreational uses that are more intensive than activities described in other zones, such as sport fields, passive-use sod areas and playgrounds, and will include more intensive recreational activity. For consistency, the Recreation Zone has been applied throughout the Waterdown-Sassafras Woods Heritage Lands to existing and planned intensive recreational sites (Table 3 and Figure 6).

At City View Park, ecological restoration has been undertaken along the brow of the escarpment. This area was zoned Natural in the approved New City Park Management Plan. The rationale for this zoning was to zone for what the area would become. In other areas of the Heritage Lands, areas with restoration potential have been zoned as Resource Management. If ecological restoration is undertaken within these areas, consideration could be given to changing the zoning to Natural. For example, if

¹ New City Park has since been renamed City View Park in the City of Burlington.

ecological restoration is undertaken at the closed landfill at Falcon Creek, ecological restoration lands could be rezoned Natural from Resource Management.

Tyandaga Golf Course has been assigned the Recreation Classification, and the majority of the golf course has been zoned Recreation. The deciduous forest contiguous with Kerncliff Park (Kerncliff 1), and the forested valley features, which cross the Tyandaga Golf Course, have been zoned Natural. The operation of the golf course includes existing uses in the areas zoned Natural that are essential to the function of the golf course. The zoning applied is not intended to interfere with existing uses of the golf course. However, any future development should incorporate setbacks from the watercourses, as required by Conservation Halton, and consider opportunities to enhance surface water quality and riparian habitat.

Waterdown Road and Kerncliff 2 (Figure 2), which correspond to the Waterdown Road Reservoir and Booster Station and Tyandaga Reservoir and Booster Station respectively, were acquired by Halton Region to facilitate the provision of services related to water distribution and storage. These lands were not acquired for park land development. Therefore, these properties have not been Classified or Zoned (Figure 6).

Table 3. Classification and Zoning of the Waterdown-Sassafras Woods Heritage Lands
(*indicates an existing Classification provided in the Niagara Escarpment Plan)

Parcel	Classification	Zoning
Waterdown Woods		
Waterdown Woods	Nature Reserve*	Nature Reserve
	Natural Environment	Nature Reserve Natural
McNally	Nature Reserve*	Nature Reserve
Hughes	Nature Reserve*	Nature Reserve
City View Park		
City View Park	Recreation*	Development
		Access
		Natural
		Nature Reserve
		Recreation
Kerncliff Park		
Kerncliff 1	Natural Environment*	Nature Reserve
		Natural
		Access
		Historical
Upper Rambo Creek/Mansfield Park	Natural Environment*	Natural
Kerncliff 2		
Kerncliff2	Unclassified	Unzoned
Tyandaga Golf Course		
Tyandaga Golf Course	Recreation	Recreation
		Natural
Kerns/Westbury Park		

Parcel	Classification	Zoning
Kerns/Westbury Park	Recreation	Recreation
		Natural
		Access
Upper Hager Creek		
Upper Hager Creek	Natural Environment	Nature Reserve
		Natural
		Resource Management
Forestvale Park		
Forestvale Park	Natural Environment	Natural
		Recreation
Bayview Park/Indian Creek		
Bayview Park/Indian Creek	Recreation	Development
		Access
		Recreation
		Resource Management
		Nature Reserve
		Natural
Falcon Creek		
Falcon Creek	Resource Management	Nature Reserve
		Natural
		Resource Management
Sassafras Tributary		
Sassafras Tributary	Nature Reserve	Nature Reserve
Waterdown Road		
Waterdown Road	Unclassified	Unzoned



Cootes to Escarpment EcoPark System

Figure 6: Classification and Zoning of Waterdown-Sassafras Woods Heritage Lands Legend

Classifications

- Nature Reserve
- Natural Environment
- Resource Management Area
- Recreation

Existing Classification

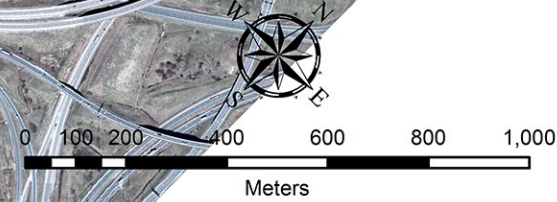
- Niagara Escarpment Plan

Zones

- Nature Reserve
- Natural
- Access
- Historical
- Recreation
- Development
- Resource Management
- Municipal Boundary
- Unclassified and Unzoned Lands

Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy

All boundaries on this map should be considered approximate. No responsibility or liability is assumed by the C2E EcoPark System partners or their employees, officers and agents for any errors, omissions or inaccuracies, whether due to their negligence or otherwise. Some data on this map is used under license from the Ministry of Natural Resources. © Queen's Printer for Ontario, 2016. © Teranet Enterprises Inc. and its suppliers. All rights reserved. NOT A PLAN OF SURVEY



4.1.2 Preferred Use Approach

The majority of impacts to natural areas are invariably the result of the extent and intensity of its use by humans. Thus the determination and regulation of appropriate permitted uses is a paramount concern for future management. The Waterdown-Sassafras Woods Heritage Lands are located within an urban landscape and are subject to a number of urban pressures, mostly related to existing uses. These uses are well-established and will continue to become established, as there is an obvious high desire from the public, especially local residents, to access the Heritage Lands. In general, many, if not most of the existing uses are appropriate (albeit the intensity and location are problematic in places and need management). These existing uses do not always align perfectly with the permitted uses recommended for the NEPOSS Classification and Zoning. To reconcile this, flexibility in the application of some “permitted uses” is recommended. We are referring to this as a “preferred use” approach. It is not feasible or realistic to prohibit many of these uses and it is important that the Classification and Zoning be able to accommodate them, with management, such that their impacts do not threaten the health or integrity of the natural or cultural heritage features and impacts to the natural environment are minimized.

It is understood that limiting access and severely restricting recreational use within the Nature Reserve Classification and Zone would be preferred to protect the ecological and earth science values of the area; however, given the urban context, it is unrealistic to expect that some level of recreation will not continue within these areas, despite the Nature Reserve Classification or Zone. The general intent of this Management Plan where these conflicts occur is to 1) prevent growth of existing uses that are not consistent with NEP policies; 2) tolerate existing uses where they are inconsistent with NEP policies, but will not result in unacceptable impact; 3) manage existing uses to reduce and preferably avoid impacts, but only where the uses are considered sustainable; and 4) eliminate uses that result in unacceptable impacts to natural heritage features and cannot be managed to minimize impacts.

Conservation Halton has used a “preferred use” approach in the management of their lands (e.g., Hilton Falls Conservation Area). This approach provides the opportunity to educate the public about what the preferred use of an area is. For example, within the Nature Reserve Zone, the preferred use is low-impact hiking; within the Natural Zone, the preferred use may be hiking, cycling, or mixed-use. Using the preferred use approach existing uses are tolerated but not encouraged through development and/or enhancement of those activities. The preferred use concept provides flexibility and is a realistic approach for managing recreational use and impacts to natural areas in urban settings where there is an established pattern of use. A strict interpretation of the Nature Reserve Classification and Zone, which would prohibit cycling activity, would only be implementable with a substantial and unrealistic enforcement effort. The preferred use approach provides the opportunity to educate the public, while recognizing the continuation, but not expansion, of an existing use. Thus, in the case of Waterdown Woods, which is classified as Nature Reserve, cycling would not be encouraged, but some limited management may be recommended to reduce or eliminate any impacts from cycling as an existing use (e.g., ensuring appropriate trail construction and maintenance is in place).

4.2 Overarching Management Recommendations

There are a number of recommendations that need to be addressed throughout the EcoPark System and are not specific to the Waterdown-Sassafras Woods Heritage Lands. These recommendations are organized according to the management issues identified in section 3.1, and are provided below:

3. Consistent Delineation of Cootes to Escarpment EcoPark System

- Establish the Cootes to Escarpment EcoPark System and Heritage Lands as a recognizable designation. Signage, promotional material, advertising and educational materials should include the Cootes to Escarpment EcoPark System and Heritage Lands. This will assist with raising the EcoPark System profile, contribute to name-recognition and promote the EcoPark System as a collaborative initiative among the partner agencies.
- The placement of signage can be challenging, especially because there are so many access points into the Cootes to Escarpment EcoPark System. The future placement of signage should take into consideration: visibility, locations of other signage, density of adjacent brush and proximity to intersections.
- Consistently post signage to indicate when users are entering and exiting the Cootes to Escarpment EcoPark System to increase awareness.

4. Delineation of Current EcoPark System Boundaries to Reduce Trespass/Encroachment Issues

- Develop and implement a consistent system to locate and mark boundaries of Current EcoPark System Lands within the Cootes to Escarpment EcoPark System. This could include fencing or where that is not feasible or ecologically appropriate, permanent boundary markers. Increasing awareness of property boundaries will reduce trespass and encroachment issues. It will also provide a basis for enforcement of the policies and permitted uses of each of the partner agencies on their properties. Note that there may also be need to mark boundaries of partner agency properties within the Current EcoPark System Lands, especially where permitted uses change in response to ownership. This could be more subtle marking along trails where they cross property boundaries.

5. Lack of Uniform Set of Rules for EcoPark System

- Clearly communicate permitted uses to EcoPark System users through improved signage and outreach initiatives.
- The partner agencies that own land within the EcoPark System should identify and, to the extent that is possible, reconcile inconsistencies in permitted uses and management policies (e.g., cycling on the Bruce Trail, which is not permitted by the Bruce Trail Conservancy, but is by other partner agencies). Preferably, this would be done for the entire EcoPark System, however, if that is not possible, then at least doing it within each of the Heritage Lands would be helpful to deliver a concise and consistent message to the public.

6. Accommodating Stresses from Future Development

- Impacts on nearby Heritage Lands resulting from development and the increased cost of management needs should be mitigated by the development proponent, where appropriate.
- Planning authorities should consider developing policies that would encourage the implementation of relevant management recommendations made in this Management Plan through development approvals, where appropriate.
- Partner agencies directly involved in the development approval process (in the case of the Waterdown-Sassafras Woods Heritage Lands these are the City of Hamilton, City of Burlington, Halton Region and Conservation Halton) should consider and incorporate the significance of the Heritage Lands in their reviews and in the subsequent development of conditions they impose on development approvals, where appropriate.

- Partner agencies should include consideration of increased use pressures and environmental impacts on Heritage Lands in their assessment of development applications on adjacent and nearby lands, where appropriate.
- Impacts associated with future developments adjacent to the Heritage Lands should be clearly identified and assessed in Environmental Impact Assessments/Studies in the context of the role the Heritage Lands play in the overall Cootes to Escarpment EcoPark System. Limits of developable areas, buffer widths, and management needs such as design and provision of trails within the Heritage Lands should consider the higher ecological value of the Cootes to Escarpment EcoPark System when determining impact mitigation for future development, where appropriate.
- Encourage other agencies and landowners that are not directly involved in the development approval process to comment on development applications that may impact their lands.
- For reference, the Inventory, Opportunities and Issues Report outlines the current approach to planning and natural heritage protection (North-South Environmental et al. January 2016).

7. EcoPark System-wide Guidelines

There are a number of issues that are generally common to all of the Heritage Lands. It would be most efficient to address these issues through several EcoPark System-wide Guidelines which address all the common issues and also identify the issues that are limited to one or more Heritage Lands. This approach has the additional advantage of providing consistency among Heritage Lands, thus contributing to the resolution of consistency and identity issues noted above.

- Using the guidance provided in this Management Plan, it is recommended that the Steering Committee identify themes or groups of issues that are best addressed through EcoPark System-wide Guidelines and initiate the development of those guidelines. As a starting point, it is recommended that the EcoPark System-wide issues can be grouped into the following themes/guidelines:
 - Trail Guideline;
 - Education and Signage Guideline;
 - Vegetation Management Guideline; and
 - Edge Management Guideline.
- Identify participating partners for each EcoPark System Guideline.

The issues to be addressed in these Guidelines, as identified through the Waterdown-Sassafras Woods Heritage Lands Management Plan study, are provided in section 3.0 and recommendations for implementation are provided in section 5.0. Suggestions for which management issues and opportunities could be addressed by each Guideline are provided in Appendix 3.

Each partner agency may already have some form of guidelines (e.g., guidelines for trail construction and/or trail closure), although not specific to the Cootes to Escarpment EcoPark System. Partner agencies are encouraged to use their existing guidelines as a starting point for developing Guidelines that are specific to the Cootes to Escarpment EcoPark System. The Guidelines are intended to engage the partner agencies in the preparation of a series of short reference documents that can be used to guide future management in a consistent and holistic manner across the EcoPark System. For example, the Trail Guideline could include guidelines that are agreed upon by the partner agencies for trail construction, including specifications for trail width, trail surfacing and proper trail alignment, as well as guidelines for trail closure, including specifications for when trails should be closed, how they should be

closed, appropriate signage, etc. Additional detail on the EcoPark System Guidelines is provided in section 5.2.

The Management Plans prepared for individual Heritage Lands are intended to provide high-level guidance for the management of each individual Heritage Lands. The EcoPark System Guidelines are intended to provide specific guidance for trails, education and signage, vegetation management, edge management, etc. agreed upon by the partner agencies to enable consistent and holistic management across the entire EcoPark System.

The Management Plans, once completed for all six Heritage Lands, will provide the basis for the recommended EcoPark System Guidelines, as well as other future system-wide Plans that will provide direction for actual implementation. Both the EcoPark System Guidelines and other future EcoPark System-wide Plans are proposed future initiatives that are not currently planned and will need to be considered by the Cootes to Escarpment EcoPark System Management Committee. Future proposed initiatives include the preparation of EcoPark System-wide Guidelines, EcoPark System-wide Plans including a Recreation Plan (to address trails, trail connections, access points, etc.) and a Wildlife Crossing Plan (to address wildlife crossings, ecopassages, etc.). The preparation of EcoPark System-wide Plans would be followed by implementation (including detailed design and construction), and monitoring.

8. Funding

- Partner agencies should determine how each of the areas that compose the Current EcoPark System Lands are to be accessed by users and on what terms (e.g., pay for use, payment not required).
- Identify sources of funding for the management of Current EcoPark System Lands.
- Identify efficiencies for managing the Current EcoPark System Lands collaboratively, and in a holistic manner. Communication among partner agencies on planned management activities may highlight opportunities for reducing costs and improving the efficiency of implementation.

4.3 Waterdown-Sassafras Woods Heritage Lands Management Plan Recommendations

4.3.1 Vision

The Vision for the Cootes to Escarpment EcoPark System is that “it will be known internationally as a protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario’s Greenbelt” (Phase II Report, October 2009). The primary focus of the Vision is to establish a sustainable natural system that will contribute to ecosystem integrity and enhance the quality of life for the public through appreciation of the natural environment. Inherent in providing opportunities for appreciation is realizing the recreational opportunities in the EcoPark System, and ensuring that recreation will be promoted and supported where consistent with the protection of natural heritage features and functions.

9. Develop Vision

It is recommended that the Steering Committee for the Waterdown-Sassafras Woods Heritage Lands develop a Vision for the Heritage Lands. We suggest the following as a starting point for the Vision:

“The overall vision to guide the long term use and management of the Waterdown-Sassafras Woods Heritage Lands is to protect, restore and appropriately manage significant natural, recreational and cultural heritage resources. Inherent in this vision is recognition of:

- the integral role the Waterdown-Sassafras Woods Heritage Lands play in preserving biodiversity and the ecological integrity of the Cootes to Escarpment EcoPark System;
- the value of the Waterdown-Sassafras Woods Heritage Lands for passive outdoor recreation;
- the value of teaching wise stewardship through active involvement in protection and management activities; and
- the responsibility of the partner agencies and community, through management and stewardship, to preserve biodiversity and ecological functions for the well-being and enjoyment of present and future generations.”

This Vision articulates the long-term intent for the protection and use of the Waterdown-Sassafras Woods Heritage Lands. Given the evolving context of the surrounding landscape and anticipated development and urbanization, it is inevitable that active management will be required to mitigate impacts from increased use and to provide and maintain the appropriate infrastructure for public access. The Heritage Lands Management Plan provides a framework for implementing long-term management.

4.3.2 Recommended Management Directions

10. Permitted Uses per NEPOSS Classification

This section of the Management Plan provides general directions on permitted uses for each park Classification based on the NEPOSS Planning Manual with consideration for the preferred use approach described in section 4.1.2. Specific management recommendations are provided in sections 4.3.2 through 4.3.7 to address the management issues identified in section 3.0. Landowners have the ability to further refine recommended Classifications and permitted uses, as appropriate, at a later date should they opt to develop individual Management Plans for their parks.

Nature Reserve Classification:

Four Nature Reserve class parks occur within the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended permitted uses include the following:

- limited access to nature trails: Access should be limited and not widely promoted due to the sensitivity of the features in them and the potential for impacts;
- the “nature trails” referred to in the NEPOSS manual are understood to refer to low-impact hiking trails, which is the preferred use for trails in Nature Reserve class parks;
- expansion of cycling and higher impact recreational activities are not recommended or encouraged in Nature Reserve class parks. Following the “preferred use” approach, the existing level of cycling use would be tolerated, but it is recommended that:
 - no management be undertaken to expand or encourage cycling in Nature Reserves (e.g., new trails, etc.);
 - management be undertaken that will reduce or eliminate any impacts resulting from the existing level of use; and
 - where the existing use is resulting in unacceptable impacts (e.g., owing to inappropriate trail alignment, proximity to species at risk or other significant or sensitive feature), it be discontinued (see special protection areas, section 4.3.2);

- activities such as ecological restoration and those that can further scientific understanding and education should be encouraged. This includes scientific research, natural history interpretation, nature trails and the Bruce Trail;
- other existing low-impact activities, for example birdwatching or nature photography, that are currently allowed by the existing policies of the partner agencies, should continue to be allowed, subject to other management recommendations of this Management Plan aimed at reducing/eliminating impacts; and
- signage and interpretive facilities should be kept to a minimum and should be restricted to those required to support the preferred use, education and/or minimize impacts.

Recreational activities currently occur in Nature Reserve class parks. Specific management recommendations aimed at minimizing impacts from existing uses are provided in section 4.3.4 that are consistent with the “preferred use” approach.

Natural Environment Classification:

There are five Natural Environment class parks in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). The intent of Natural Environment class parks (e.g., Kerncliff Park) is to protect existing natural heritage features and allow for moderate intensity recreational activities.

Recommended permitted uses include the following:

- day use activities in areas accessible by sanctioned trails;
- recreation activities of moderate intensity such as hiking, trail-running, cycling, on-leash dog-walking, and nature appreciation (botanizing, birdwatching, etc.); and
- other existing low-impact activities, for example nature photography, that are currently allowed by the existing policies of the partner agencies, should continue to be allowed, subject to other management recommendations of this Management Plan aimed at reducing/eliminating impacts.

Specific management recommendations aimed at minimizing impacts from recreation and other uses are provided in section 4.3.4.

Recreation Classification:

There are four Recreation class parks in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended management direction includes the following:

- recreational facilities for day use only;
- recreation activities may include passive uses, such as picnicking and informal games, and more intensive uses on designated recreational sports fields, such as soccer pitches, and fenced off-leash dog parks, playgrounds; and
- other existing low-impact activities, for example hiking, that are currently allowed by the existing policies of the partner agencies, should continue to be allowed, subject to other management recommendations of this Management Plan aimed at reducing/eliminating impacts.

Specific management recommendations aimed at minimizing impacts from recreation and other uses are provided in section 4.3.4.

Resource Management Area Classification:

There is one Resource Management Area class park in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended management direction includes the following:

- ecological restoration is the principal management activity; and
- recreational use, including the construction and use of trails, of the Resource Management Area class park (i.e., Falcon Creek/Halton Region closed landfill site) is not recommended.

Specific management recommendations aimed at minimizing impacts from recreation and other uses are provided in section 4.3.4.

11. Permitted Uses per NEPOSS Zone

This section of the Management Plan provides permitted uses for each park Zone based on the NEPOSS Planning Manual with consideration for the preferred use approach described above. Specific management recommendations that respond to issues identified in section 3.0 are provided in sections 4.3.3 through 4.3.7. Landowners have the ability to further refine recommended zones and permitted uses, as appropriate, at a later date should they opt to develop individual Management Plans for their parks.

Nature Reserve Zone:

There are ten Nature Reserve zones identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- protect, preserve and restore identified natural heritage features;
- hiking, trail running, on-leash dog walking and passive activities such as nature appreciation, birdwatching, etc.;
- visitor uses should be very restricted within the Nature Reserve Zone;
- development should be restricted to maintenance of limited and strategically placed nature trails, interpretive and directional signs;
- any temporary equipment or minor structure required for research or monitoring (e.g., data loggers, quadrats, blinds, recording equipment, etc.);
- cycling and higher impact recreational activities are not recommended or encouraged in the Nature Reserve Zone; however, where they are existing uses, they will be tolerated and management is recommended where it reduces impacts, but does not expand the use;
- activities associated with ecological restoration, conservation and research; and
- signage should be provided that indicates when a park user is entering a Nature Reserve, and what the appropriate behaviour is (e.g., staying on trails, no unsanctioned management, etc.).
- a “special protection” sub-zone should be used within Nature Reserve Zones, where there are significant and/or sensitive features, and where recreational activities, including existing ones (e.g., cycling and hiking) should not be permitted:
 - this sub-zone may be desired in locations such as rare species habitat, talus slopes, wetlands, etc. where access should not be provided;
 - the benefits of applying a “special protection” sub-zone include protecting sensitive and/or significant natural heritage features by directing recreational activities away from these areas; and
 - the “special protection” sub-zone could be established in future property-specific Management Plans.

Natural Zone:

There are fifteen Natural Zones identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the Natural Zone is to function as a buffer between Development Zones and Historical or Nature Reserve Zones;
- visitor uses should be limited to low- to moderate-intensity recreational activities;
- hiking, trail running, cycling, on-leash dog walking, nature appreciation, bird watching, etc.;
- a major difference in use between Natural and Nature Reserve zones is that cycling can be accommodated (on properly designed and located trails) in the former, but only tolerated and not expanded or encouraged in the latter;
- a minimal level of development (e.g., trails, necessary signs, etc.) should be permitted to support low-intensity recreational activities in ecologically appropriate locations; and
- activities associated with ecological restoration, education, research and conservation-based activities.

Access Zone:

There are six Access Zones identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the intent of the Access Zone is to support the use and access of adjacent zones;
- all uses permitted within adjacent zones;
- development should be limited to facilities that support access to Nature Reserve, Natural and Historical Zones, such as parking lots, access roads, signs and trailheads;
- low-impact development techniques, such as permeable pavement and bioswales, should be used wherever feasible to minimize impacts to water quality and quantity resulting from an increase in permeable surfaces (e.g., access roads and parking lots); and
- consider ecological restoration opportunities in Access Zones where manicured turf is not required.

Historical Zone:

There is one Historical Zone identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the intent of the Historical Zone is to protect significant archaeological and cultural heritage features and areas;
- management activities should aim to protect and interpret archaeological and cultural heritage features, and could include interpretive, educational, research and management facilities, trails, signs, and historical restorations or reconstructions; and
- within the Historical Zone, cultural heritage resources should be conserved using appropriate techniques and practices that are consistent with Provincial and Federal standards.

Development Zone:

There are four Development Zones identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the intent of the Development Zone is to provide the main access to the park or open space, and facilities and services to support the recreational facilities available;
- this type of Zone allows the development of visitor and park facilities, subject to other recommendations of this Management Plan;

- development includes parking lots and gates, picnic areas, commercial service facilities, and orientation, interpretive, education, research and maintenance facilities;
- development of facilities must be designed and undertaken in an environmentally sustainable manner that will minimize their environmental and visual impact;
- uses permitted in adjacent zones;
- low-impact development techniques, such as permeable pavement and bioswales, should be used wherever feasible to minimize impacts to water quality and quantity resulting from an increase in permeable surfaces (e.g., access roads and parking lots); and
- the Development Zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape and watersheds.

Resource Management Zone:

There are five Resource Management Zones identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). As noted previously, in this Management Plan the Resource Management zone is applied where ecological restoration is recommended as the primary management need, and is not intended to facilitate resource extraction or harvesting. Recommended intent and permitted uses include the following:

- the intent of the Resource Management Zone for the purpose of this plan is to identify lands where ecological restoration should be a principal management activity owing to the current characteristics of the area and potential for enhancing ecological integrity, biodiversity and other ecosystem services;
- uses permitted will be the same as those recommended for Natural Zones, excepting that in the future, should the restoration result in an area that would qualify as a Nature Zone, the more restrictive uses of that zone would apply;
- recreational uses should not be permitted in Resource Management Zones within Resource Management Area class parks (i.e., recreational use is not permitted in Falcon Creek/Halton Region closed landfill site);
- ecological restoration within Resource Management Zones must aim to compliment adjacent natural heritage resources and to the extent possible must use native species of local genetic provenance;
- Resource Management Zones may be used to demonstrate ecologically sustainable resource management practices; and
- establishing permanent research plots for monitoring purposes is also encouraged.

Recreation Zone:

There are nine Recreation Zones identified in the Waterdown-Sassafras Woods Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- existing and planned recreational uses that include intensive recreational activities (e.g., sports fields, playgrounds);
- existing and planned passive recreational uses (e.g., picnicking and outdoor games); and
- low-impact development techniques, such as permeable pavement and bioswales, should be used wherever feasible to minimize impacts to water quality and quantity resulting from an increase in permeable surfaces (e.g., access roads and parking lots).

4.3.3 Access and Infrastructure Recommendations

This section of the Management Plan provides management recommendations for access and infrastructure-related issues identified in section 3.2.

12. Lack of Adequate/Appropriate Parking and Access

- Evaluate existing parking areas to determine how well they provide access, including: are they located in an appropriate park zone, are they adequately sized, and whether there are any safety concerns.
- Clearly identify existing sanctioned parking areas, where they occur in appropriate zones, as part of the EcoPark System and promote their use.
- Look for opportunities for additional parking and access to investigate further for feasibility.
- Encourage partners to secure additional lands that would enable creation of additional access zones and promote trail connections (e.g., lands adjacent to Waterdown Woods).
- Consider investigating the feasibility of using utility corridors and/or unopened road allowances as additional access points.
- Work with adjacent landowners to establish agreements for access where there are no other alternatives.
- Look for locations for additional parking.
- Complete recommended trail connections throughout the Heritage Lands and beyond through a comprehensive Recreation Plan (see section 4.2, 7. EcoPark System-wide Guidelines for additional detail).
- Provide interpretive and way-finding signage at designated parking areas to orient and educate EcoPark System users.
- Ensure appropriate levels of security are provided at parking and access locations including addressing adequate visibility, safe access and traffic calming, and Crime Prevention Through Environmental Design (CPTED) principles.
- As parking lots, roads, and structures undergo maintenance, low impact development techniques should be considered to reduce environmental impact.

13. Relative Isolation of some Current EcoPark System Lands

- Continue to purchase lands within the Waterdown-Sassafras Woods Heritage Lands and Cootes to Escarpment EcoPark System as they become available through the Land Securement Strategy, with a priority placed on connecting Current EcoPark System Lands.
- Continue to work with landowners to conserve and manage Stewardship Lands through outreach and education.
- Maintain communication with Forterra Brick (formerly Hanson Brick) regarding long-term rehabilitation and parkland dedication opportunities.

14. Trespassing

- Close the unsanctioned access point at the south end of Falcon Creek and the associated unsanctioned trail to address trespass and safety concerns.
- Improve access to other areas of the Heritage Lands by formalizing access points and providing appropriate parking options.
- Identify and mark boundaries of Current EcoPark System Lands in a consistent manner to reduce trespass concerns on neighbouring private properties.

4.3.4 Recreation Recommendations

This section of the Management Plan provides management recommendations for recreation-related issues identified in section 3.3.

15. General Trail Recommendations

- Develop EcoPark System-wide Trail Guideline (Management Theme 7 and section 5.2) that would address the trail-related issues that are common to all or most Heritage Lands. Issues and opportunities that should be addressed, based on the research for this current Management Plan, are provided in the following sections and section 5.2. The Hamilton Burlington Trails Council could support the development of the Trail Guideline by providing comments and review (see sections 3.3 and 5.2).
- Complete recommended trail connections throughout the EcoPark System. Refer to the City of Burlington and City of Hamilton Trail Plans as a reference. These Plans include trail standards, future trail connections, etc.
- Develop guidelines for trail construction including actual construction protocols, choice of trail surface, storage and within-park movement of materials, etc. Since this is an issue common to all Heritage Lands, it should be addressed in the recommended EcoPark System-wide Trail Guideline. An important future proposed initiative is an EcoPark System Recreation Plan to address trails, parking, facilities, etc. (see Management Theme 7).
- Include plant salvage and compensation for impacted vegetation communities resulting from the construction of trails (on-site if possible) as part of the Trail Guidelines.
- Develop trail closure protocols including methods of trail closure, restoration of ground flora, signage, etc.
- Develop monitoring protocols that include:
 - general monitoring for trail condition;
 - through discussion among experts from each of the partner agencies, determine acceptable targets for minor trail impacts (e.g., instances of widening to avoid wet areas, minor erosion, instances of exposed roots on trails), noting that there are no standard thresholds and these will be based on professional judgement, and consider higher standards for Nature Reserve zones and trail sections in proximity (e.g., 10 m) to species at risk;
 - identification of new unsanctioned trails that need to be closed; and
 - monitoring the success of closures.
- Specific amenities, such as viewing platforms, could be constructed where appropriate and access to these platforms should be considered in the trail design.

16. Duplication and Density of Trails

- Rationalize the trails in the Heritage Lands to eliminate the duplication and density of trails.
- Retain or locate trails where they create the least disturbance to habitat and wildlife. Give consideration to wildlife-related timing restrictions for construction (e.g., migratory birds, breeding areas, etc.).
- Ensure alignment of trails have a minimal, or no impact to vegetation and wildlife habitat, and avoid impact to the habitat of species at risk and other significant and/or rare species and ecological communities.
- Develop trail closure guidelines to ensure that trails are closed appropriately.
- Consider closing trails that:
 - duplicate another trail that is in a better location or is in better condition;

- are unsanctioned trails that originate from a private residence;
 - are located in proximity to significant and/or sensitive natural features such as species at risk or the best examples of native vegetation communities (see Management Theme 32);
 - are located in physically inappropriate areas such as low wet areas, streambanks, seepages or steep slopes;
 - on a seasonal basis where the reason for closure is not present year-round.
- If permanently closing trails, consider strategies to make the area less inviting so as not to continue attracting users (e.g., temporary barrier fences, re-vegetation, breaking up soil to encourage natural regeneration in these areas).

17. Signage

- Interpretive and way-finding signage should be developed for all designated parking areas and integrated into a broader Education and Signage Guideline for the Waterdown-Sassafras Woods Heritage Lands.
- Consider developing an Education and Signage Guideline for the EcoPark System (Management Theme 7 and section 5.2) to improve signage and trail markings (refer to section 4.2 for recommendations related to signage to address overarching management recommendations). The Education and Signage Guideline could include:
 - acknowledgement of existing ownership, logos, etc.;
 - location of signs (parking areas, trail access areas, changes in property ownership, boundaries of Nature Reserve Zones, etc.);
 - increasing visibility of existing signage;
 - improving messaging;
 - way-finding signs;
 - interpretive signs;
 - property boundary signs;
 - “rules of use” signs;
 - trail closure signs; and
 - trail blazes.
- Ensure that high quality, durable materials are used for signage.
- Ensure that signage can be easily seen and understood by EcoPark System users of all abilities.

18. Overuse and Erosion of Trails

- Construct bridges and/or boardwalks to address existing erosion and wet trail issues and prevent similar conditions from occurring in the future. Note that some judgement is required as seasonally and/or localized wet areas that are not creating unacceptable impacts are fine and are part of the trail experience. Also, structures should only be used where the trail cannot be re-aligned to prevent the issue or where the re-alignment of a trail would be more impactful on the natural environment than the construction of a structure.
- Investigate alternative trail surfaces (e.g., natural surface, gravel, woodchips, etc.) that are commensurate with site specific trail use and with consideration for the Zone they occur in, the preferred use (as to not encourage non-preferred uses), intensity of use, slope, localized potential for erosion and flooding, etc.
- Continue to monitor for trail erosion and implement appropriate trail construction and remediation measures on steeper slopes where warranted. Close trails where management needs are too onerous.

19. Unsanctioned Structures and Trail Improvements

- Assess unsanctioned structures and trail “improvements” for compatibility with zoning management directions, ecological suitability, safety and effectiveness. Develop a strategy for decommissioning unsanctioned structures and trail “improvements” as well as for retrofitting and maintaining structures and “improvements” that can remain. This could be done as part of the future proposed EcoPark System Trail Guideline and/or Recreation Plan. However, portions of this can be completed prior to an approved Guideline or Plan to ensure that trail closure is not delayed at the expense of natural heritage protection.
- Identify and engage individuals and/or groups currently undertaking unsanctioned stewardship initiatives to formalize a good working relationship by providing guidance, support and recognition of their efforts. Consider in-person and online public engagement formats to educate, promote and encourage stewardship.
- Consider monitoring as a tool to manage for unsanctioned structures and trail improvements.
- Consider placing signage to discourage this behaviour.

20. Interpretation and Education

- Identify interpretive themes that could be conveyed via self-guided trails and signage and which highlight the significance and value of the Waterdown-Sassafras Woods Heritage Lands. These could include:
 - landscape context - importance in connecting the Cootes to Escarpment EcoPark System and why that is important;
 - value as natural heritage – representation of the ecosystems that the first settlers in the area found;
 - contribution to biodiversity – illustrate the large number of species of flora and fauna that the Heritage Lands support;
 - ecosystem services – mitigating the urban heat effect, filtering of air pollutants, carbon storage, psychological respite, flood control, habitat for pollinators, etc.; and
 - value as cultural heritage – quarrying, mills, historic farming, etc.
- Establish viewing areas with interpretive opportunities for people to view the natural and cultural resources of the area as part of the EcoPark System Education and Signage Guideline.
- Develop an education package directed to the private landowners who directly abut the Heritage Lands that, for example, 1) identifies the significance and sensitivity of the area; 2) identifies their special role as immediate neighbours, 3) provides simple, no cost property management practices that will minimize impacts and benefit the natural values which are part of their properties’ character and value, and 4) identifies how they can contribute if they wish to be more involved in stewardship. The education package could include information on how to:
 - remove invasive species;
 - plant native species, including examples of suggested species;
 - not drain pool water into natural areas;
 - not mow or cut vegetation from the Current EcoPark System Lands;
 - not place yard waste or other refuse within the EcoPark System Lands;
 - not trim branches or limbs, or cut trees from within the Current EcoPark System Lands; and
 - use rain barrels to collect rainwater for watering gardens to reduce runoff and rain gardens.

- The Education and Signage Guideline may also include explanations of why the above list of recommendations is important, listing potential impacts associated with these types of encroachments into natural areas.
- Demonstrate how residents' actions can be instrumental in mitigating impacts and preserving the Heritage Lands.
- Develop interpretive signage on the themes listed above as part of the EcoPark System Education and Signage Guideline (see Management Theme 7).

21. Trails

- Close trails that have a negative environmental impact or are considered inappropriate.
- Engage user groups (e.g., the cycling community) in the ongoing monitoring and management of the trail system.
- Undertake detailed inventory work prior to siting specific new trail segments or re-aligning existing ones to determine the sensitivity of the habitat that the trail will traverse.
- Apply appropriate buffers to habitats of species at risk through which trails traverse.
- Discourage trail development and close existing trails through wetlands due to the sensitive nature of soils and vegetation in wetlands (Figure 4).
- Consider installing a staircase or stepped trail using natural materials (e.g., logs) to reduce erosion in steep areas.
- Trails should be designed or re-routed to avoid seepage areas, or where trails are required in such locations trails should be constructed as elevated boardwalks.
- When constructing granular trails, stone that is light in colour (e.g., limestone or granite screenings) should be used to avoid attracting snakes that look to bask on dark-coloured surfaces. This is especially important in areas where high concentrations of reptiles are known to occur.
- Construct viewing platforms at strategic locations to allow EcoPark System users to view sensitive habitats (e.g., forest interior) without creating a trail within the feature and to deter trail users from venturing off-trail and disturbing these features.
- Care should be taken during the construction of trails not to disturb soils in areas adjacent to the trail. Soil disturbance may encourage the growth and spread of non-native invasive plants such as Dog-strangling Vine and Garlic Mustard.

22. User Conflicts

- Undertake a survey to increase the understanding of how the area is currently being used, what the desires of the park users are, etc. and to better understand potential use conflicts.
- Based on present policies, improve signage indicating that cycling is not permitted on the Bruce Trail where it is owned by the Bruce Trail Conservancy. Although cycling is not allowed anywhere on the Bruce Trail, where it occurs on lands owned by other partners, the policies of the landowner should prevail. Note that this is a prime example of a conflicting use policy that needs to be resolved among partner agencies. An alternate trail could be provided where use changes from cycling being permitted to where it is not (i.e., Bruce Trail Conservancy-owned lands). See recommendations for a uniform set of rules for EcoPark System users in section 4.2.
- Adopt the 'preferred use' approach to trail use by allowing some flexibility in trail use rather than trying to implement use policies that will be virtually impossible to enforce. Monitor cycling activity and take appropriate action such as closing unauthorized trails and, to the extent possible, enforce use violations.

23. Off-leash Dogs

- Provide consistent signage that clearly explains permitted uses (e.g., dogs must be on-leash, cycling permitted), or conversely, uses that are prohibited.
- Increase education and management (including enforcement) of off-leash dog use where it is a non-permitted use.
- Encourage use of the existing off-leash dog park at Bayview Park.
- Securement tends to focus on highly sensitive lands; however, consideration could be given to purchasing lands that are less ecologically sensitive that could provide opportunities and would be more suitable for a dog-friendly area (and/or other forms of more intensive recreation).
- Off-leash dog parks should preferably be located outside of sensitive natural areas. Evaluate opportunities to include an off-leash dog park in the planned City of Hamilton public lands in the Mountain Heights development area.
- Engage the dog-walking community in evaluating opportunities to accommodate leashed and off-leashed dog-walking, where it can be accommodated without impacting sensitive and/or significant natural heritage features.

24. Non-permitted Uses

- Partner agencies should look for appropriate locations for additional benches and picnic tables to facilitate small social gatherings in desired locations, in less sensitive park areas.
- Unsanctioned “party spots”, campfire areas, etc. should be closed and remediated/restored.
- Certain activities and associated infrastructure (e.g., BMX jumps and ramps) should be decommissioned and/or trails re-routed on a case-by-case basis to best manage the area in accordance with the intent of the recommended Zoning (see also Management Theme 19).

25. Safety Concerns Associated with Non-permitted Uses

- Develop or refine local ordinances and by-law policies to include prohibition of non-permitted uses in natural areas.
- Illegal activities should be reported to the appropriate law enforcement agencies.
- Rope swings should be taken down.
- Post signage indicating permitted and non-permitted uses at each access point. This may include indication of fines where applicable. Undertake appropriate enforcement where supported.

4.3.5 Recommendations for Encroachment

This section of the Management Plan provides management recommendations for encroachment-related issues identified in section 3.4.

26. Impacts from Adjacent Use

- Establish a program to educate adjacent residential landowners by providing information on the impacts of free-ranging cats, disposing yard waste, garbage, garden structures, draining of pools, etc., and other forms of encroachment in natural areas.
- Post signage to educate the public about the impacts associated with encroachment.
- As part of the recommended EcoPark System-wide Recreation Plan, evaluate and where appropriate identify trail closures including the closure of personal trails from private residences (see Management Theme 27). Priority for closures could be related to the recommended zoning and/or presence of sensitive natural heritage features.

- Provide fencing along the outer perimeter of Nature Reserve Zones and any other areas where there are sensitive/significant natural heritage features, where they abut private property (see Management Theme 14). Priority should be given to fencing where management issues, such as encroachment, have been identified.
- Identify locations of dumped garbage and yard waste to facilitate clean up on an ongoing basis.
- Encourage landowners to maintain natural vegetation on their properties in areas adjacent to the EcoPark System (see recommendation 5.2.5 on providing an education package to adjacent landowners as part of the recommended Education and Signage Guideline).
- Review and evaluate the effectiveness of existing by-laws² and identify gaps in by-laws to facilitate the enforcement of use policies, including a cat control by-law.
- Agency partners should allocate additional resources to enforce encroachment policies. This should be implemented in conjunction with the education/awareness initiatives and Heritage Land boundary identification.
- Remove excessive fallen tree limbs and branches from within the watercourse in Kerns/Westbury Park (Figure 5), which appear to be the result of and exacerbated by human impacts.
- Reach out to residents adjacent to Kerns/Westbury Park to reduce encroachment such as dumping of yard waste, spread of invasive species, cutting of vegetation, etc.

4.3.6 Recommendations for Hydrologic Impacts

This section of the Management Plan provides management recommendations for hydrologic impact-related issues identified in section 3.5.

27. Run-off, Peak Flows and Hydrological Changes

- Encourage implementation of low impact development techniques through the development and re-development process (e.g., underground storage tanks or super pipes, green rooftops) to reduce peak flow volumes to stormwater infrastructure-receiving watercourses.
- Any future development in the escarpment plateau area of the City of Hamilton should continue to evaluate the potential impact of such development on downstream environments, particularly the cumulative hydrological and hydrogeological effects, and incorporate any lessons learned from the ongoing monitoring associated with existing development approvals.

28. Drainage, Erosion and Stormwater Management

- Encourage agencies to work with development proponents and assumed stormwater management infrastructure to ensure stormwater management is functioning properly and that water quality exceedances are remediated.
- Encourage implementation of low impact development techniques through the development and re-development process (e.g., underground storage tanks or super pipes, green rooftops) to reduce peak flow volumes to stormwater infrastructure receiving watercourses.
- Mitigate the erosion issue at the southwest corner of the Bayview Park parking lot for the off-leash dog park.

² Many by-laws exist; however, due to the lack of staffing resources, municipalities are unable to enforce them and are thus unable to address encroachment issues through this approach.

29. Polluting Spills

- Improve spill prevention and response by ensuring that spill prevention plans, contingency plans and emergency response plans are updated for the purpose of protecting natural features along roads, railway lines and pipelines. Ensure that partner agencies inform themselves of what the spill response protocols are so that if they become aware of a spill, they know who to call.

4.3.7 Ecosystem Management and Restoration Recommendations

This section of the Management Plan provides management recommendations for ecosystem management and restoration-related issues identified in section 3.6.

30. Forest Health Decline and Loss of Open Woodland Habitat

- Partner agencies are encouraged to initiate or continue monitoring for invasive insect pests to enable appropriate management and control. These include: Gypsy Moth and Emerald Ash Borer.
- Partner agencies are encouraged to monitor or continue monitoring trails for hazard trees, especially in areas with a higher abundance of ash that may be impacted by Emerald Ash Borer (see Figure 4 for ash-dominated vegetation communities).
- Improve condition of rare and uncommon ecosystems, such as remnant open woodlands, possibly through thinning understory and sub-canopy vegetation to increase light conditions, management of invasive species, trail closure or relocation, etc.
- Wherever possible, retain mature trees and snags for cavity nesting birds, and fallen logs for salamander and other wildlife habitat.
- Develop an EcoPark System-wide Vegetation Management Guideline (Management Themes 31, 32 and 35) that considers historical and current vegetation composition and includes the following:
 - consider habitat requirements for species at risk in the context of overall vegetation management;
 - identify areas within each of the Heritage Lands, including Waterdown-Sassafras Woods Heritage Lands, that provide the best examples of the major forest types to 1) provide examples of target vegetation for restoration initiatives, 2) act as a reference point for establishing baselines for monitoring, and 3) use interpretation to communicate to the public what the native woodland should look like;
 - where possible, open oak woodland should be incorporated into restoration targets as a reference ecosystem type;
 - include guidelines for grassland/prairie and open oak woodland restoration, including target amount, patch size, and best management practices;
 - include consideration of prescribed burns, which is considered best practice for managing prairie, savannah and open woodland habitats; and
 - note that it is likely impractical to restore the majority of the woodland that displays some level of degradation, and it is recommended that the area (size and number of patches) of vegetation identified for restoration be achievable as it would be better to have a limited number of representative woodlands and woodlands that support species at risk, than a larger area where restoration is attempted but is not successful owing to limited human and financial resources.
- Conduct research in areas where there is a gap in knowledge, including:
 - the composition of the native woodlands which most likely occurred in the Heritage Lands;
 - woodland composition and management techniques to maintain woodland on steep, erosion-prone slopes associated with the valley systems in the Heritage Lands; and

- ecological disturbances that maintained the original forest ecosystems, including the feasibility of re-introducing or emulating certain natural disturbances that were a part of those ecosystems.
- Continue monitoring and maintaining the restoration of native woodland along the escarpment brow in City View Park as part of the matrix, windbreak and island planting plan detailed in the park-specific Management Plan (The Landplan Collaborative Ltd. et al. 2009).

31. Vegetation Restoration and Management Recommendations

- Include options and recommendations for restoration in the EcoPark System-wide Vegetation Management Guideline (see Management Themes 30 and 32) for the Heritage Lands, including:
 - explore options for restoring degraded woodlands and plantations to improve structure and function, biodiversity and ecosystem integrity;
 - restore natural area edges where they have been impacted by uncontrolled access (see recommendation to complete an Edge Management Guideline in section 5.2.4);
 - investigate new approaches for restoring native vegetation on closed landfills for implementation where appropriate on the former Regional landfill adjacent to Falcon Creek (Figure 4);
 - explore options for restoring areas to improve connectivity, patch size and/or shape (e.g., restoring portions of the existing non-native meadow area at Bayview Park/Indian Creek and Falcon Creek into native meadow, tallgrass prairie, or oak woodland); and
 - wherever possible, tableland restoration should aim to achieve pre-settlement run-off conditions to reduce peak flows to watercourses (e.g., kettle and palustrine tableland wetland pockets could be included in site-specific restoration plans to reduce run-off).
- Contact and engage utility companies to pursue a collaborative arrangement to maintain open habitat conditions and manage invasive species along utility lines.

32. Management of Species at Risk and Rare Species Habitat

Although some species at risk and other rare species may persist with no or little management at current levels of use, it is anticipated that with the anticipated increased level of use, restoration and enhancement will be required to sustain and recover many of these species. As the majority of species at risk and rare species are associated with open oak woodlands, savannahs and prairies, restoration should, to the extent possible, follow an ecosystem-based approach to species at risk restoration, as opposed to species-specific restoration. This will be more efficient and benefit a wider range of flora and fauna.

- Partner agencies are encouraged to continue ongoing monitoring of the populations of significant plants and animal species found in the area (e.g., American Columbo, Eastern Flowering Dogwood, Jefferson Salamander, Mottled Duskywing) in collaboration with academic and research groups.
- Identify any areas where existing trails and recreational uses could be impacting species at risk and rare species habitat, and identify the need for re-alignment or localized treatment in the preparation of the recommended EcoPark System-wide Trail Guideline and/or Recreation Plan (refer to sections 4.3.4 and 5.2.1).
- Investigate management options for reducing existing recreational impacts on species at risk and species at risk habitat (e.g., alternatives to pruning Eastern Flowering Dogwood located near trails).
- Review the status and threats to each of the species at risk and other rare species to 1) prioritize management needs, and 2) most importantly, identify if any species are under immediate threat of

extirpation. Some of this work has been completed through the Hamilton-Burlington Conservation Action Plan (Appendix C) (February 2010).

- Follow an ecosystem-based approach to species at risk restoration and if not possible, use a species-specific approach developed and implemented under a work plan for species identified as threatened or endangered in the Waterdown-Sassafras Woods Heritage Lands, with consideration given to any existing Recovery Strategies, Recovery Action Plans, Government Response Statements, etc. from the provincial or federal government.
- As part of stewardship/education initiatives, establish a protocol for reporting locations of species at risk and rare species to the MNRF and Conservation Halton. See recommendation to complete an Education and Signage Guideline in section 5.2.5.

33. On-line Ponds

- Consider pursuing the Audubon Golf Course Certification for the Tyandaga Golf Course.
- Manage on-line ponds located along the Upper Rambo Creek watercourses at the Tyandaga Golf Course in a more environmentally conducive manner, for example:
 - preservation and enhancement of native vegetation to improve water quality, reduce nuisance wildlife (e.g., Canada Geese), attract amphibians and other wildlife;
 - preservation and enhancement of buffers to attract wildlife and filter nutrients; and
 - undertaking water quality projects such as installing aerators to infuse oxygen into the water.
- Consider retrofitting the ponds with by-pass channels to reduce thermal and flow regime impacts to the receiving creeks. While this is not required under the Ministry of Environment and Climate Change guidelines, it is a best management practice.
- Consider improving riparian buffers along Upper Rambo Creek within the Tyandaga Golf Course to improve the quality of water entering on-line ponds.

34. Karst

- Any proposed future development or site alteration (including relatively passive proposals) on or adjacent to karstic areas should include a thorough analysis of the karst conditions to protect ground and surface water quality, as well as address any human safety/structural concerns associated with the potentially weakened bedrock.
- Ecological restoration near karstic areas should aim to protect the karst and provide a natural vegetated buffer to minimize public access to the feature.
- Catchment areas of each karstic feature should remain unchanged to maintain baseline runoff conditions.
- Recommend that a Karst Contingency Study and Spills Response Plan be prepared prior to any future development on or adjacent to karstic areas, to identify groundwater threats and appropriate mitigation strategies.

35. Invasive Species Management

- Formalize the program to document and map the locations of major aggressive invasive species, and monitor and control the spread of invasive plant species on an ongoing basis.
- Develop an Invasive Species Management Guideline as part of the EcoPark System Vegetation Management Guidelines to direct the removal of priority invasive plant species throughout the Cootes to Escarpment EcoPark System.

- Within the Guideline, prioritize management of invasive plant species populations with consideration given to:
 - high quality vegetation communities;
 - threats to species at risk, rare species or rare vegetation types;
 - newly established and easily eradicated invasive plant populations;
 - budget and staff efficiencies (e.g., other projects occurring in an area);
 - volunteer and partnership opportunities; and
 - ease of access for management.
- Within the Guideline, provide detailed monitoring recommendations to evaluate the success of control/removal initiatives.

36. Noxious Plants

- Include recommendations for monitoring noxious plants as part of invasive species monitoring (e.g., to identify potential locations of Giant Hogweed, etc.).
- Post educational signage noting key identification features and the toxic properties of Poison Ivy in a few key trailhead locations as an educational/precautionary measure.

37. Wildlife Crossing

- Maintain and protect the continuity and integrity of the Niagara Escarpment, Sassafras Tributaries of Grindstone Creek and Falcon Creek through the Waterdown-Sassafras Woods Heritage Lands, particularly across Waterdown, King and Kerns Roads.
- Continue annual road closure of King Road for salamander crossing.
- Investigate the need for and feasibility of implementing wildlife corridors and ecopassages through the Environmental Assessment process. Ensure that best design principles for ecopassages are incorporated, including the provision of adequate fencing to accompany ecopassage structures.
- Identify representatives from City of Burlington, City of Hamilton and Halton Region that have responsibility for road maintenance and capital works projects in the Heritage Lands and include them in management discussions that involve roads (e.g., salt/de-icing agent management, pedestrian trail road crossings, eco-passages, roadkill cleanup, roadside parking, signage on roads etc.).
- Develop a strategy to prioritize and upgrade existing crossing structures (e.g., road culverts); to improve wildlife passage. This could be completed across a municipal jurisdiction and would not necessarily need to be tied to the Cootes to Escarpment EcoPark System, but should be designed to complement the objectives of the Cootes to Escarpment EcoPark System (e.g., Wildlife Crossing Plan recommended as part of Management Theme 7).
- Contribute to long-term monitoring opportunities by initiating and/or continuing to monitor wildlife crossing and road mortality. Monitoring programs could be developed at a municipal scale, and designed to complement the objectives of the Cootes to Escarpment EcoPark System.

4.3.8 Cultural Heritage Recommendations

This section of the Management Plan provides management recommendations for cultural heritage-related issues identified in section 3.0.

38. Cultural Heritage Conservation

Cultural heritage within the Waterdown-Sassafras Woods Heritage Lands can best be conserved by providing:

- access to information;
- the tools and best practices to guide stewardship;
- opportunities to develop co-operative action; and
- eligibility for specific programs and maintenance designed to support the protection and presentation of historic sites and artefacts.

The most effective conservation and protection will come from integrating cultural heritage resources into the comprehensive planning and management of the Waterdown-Sassafras Woods Heritage Lands. The following initiatives to communicate the cultural heritage resources of the Heritage Lands are recommended:

- Develop educational signage to commemorate local history and the recognition of community values and include guidelines for commemorative signage in the EcoPark System Education and Signage Guidelines.
- The use of digital story-telling and other web-based applications could be implemented to relate the history of the site through smartphone technology.
- Identify and implement commemorative and interpretive opportunities at the Old Nelson Quarry (Kerncliff 1 on Figure 2) to illustrate the importance of quarrying and the industrial history associated with the area.
- Consider developing new storyboard panels to interpret the various themes represented in Kerncliff 1.
- Significant views should be maintained to provide opportunities for EcoPark System users to access and enjoy these views in a safe and controlled manner.

5.0 Implementation

It is recognized that resources and funding are limited and thus a key concern for implementation of this, and other Management Plans for the six Heritage Lands, is finding efficient and cost-effective ways to develop and implement the numerous management recommendations that have been identified. Two approaches that will assist with this are 1) identifying common management needs among the six Heritage Lands and developing solutions that can be used throughout the EcoPark System, and 2) prioritizing so that the management tasks that will reduce impacts (existing and anticipated) and protect high risk or locally threatened natural heritage features are addressed first. In view of this, it is recommended that a series of “EcoPark System Guidelines” be developed, as outlined below. The EcoPark System Guidelines and recommended Recreation Plan will address the majority of the issues identified for the Waterdown-Sassafras Woods Heritage Lands. Although this Management Plan applies only to lands owned by the partner agencies with land holdings in the Waterdown-Sassafras Woods Heritage Lands, the majority of the issues and recommendations provided are relevant throughout the EcoPark System and are thus of interest to all partner agencies.

Implementation of the management recommendations discussed in section 4.0 has been organized into three categories: 1) issues and recommendations that are perceived to be high priority are discussed in section 5.1; 2) issues and recommendations related to the recommended EcoPark System Guidelines are discussed in section 5.2 and Appendix 3; and 3) issues and recommendations that are site-specific management tasks are discussed in section 5.3. Table 4 provides suggested implementation of the recommendations made per Management Theme under these three categories.

Table 4: Suggested Implementation of Recommendations per Management Theme for the Waterdown-Sassafras Woods Heritage Lands

Management Themes	High Priority Tasks	EcoPark System Guidelines				Other / Site-specific Management Tasks
		Trail	Education and Signage	Vegetation Management	Edge Management	
Classification and Zoning of the Heritage Lands						
1: Classification per NEPOSS						X
2: Zoning per NEPOSS						X
Overarching Management Recommendations						
3: Consistent Delineation		X	X		X	
4: Delineation of Current Boundaries		X	X		X	
5: Lack of Uniform Set of Rules		X	X		X	
6: Accommodating Stresses from Development						X
7: EcoPark System-wide Guidelines		X	X	X	X	
8: Funding						X
Heritage Lands Management Plan Recommendations						
9: Develop Vision						X
Recommended Management Directions						
10: Permitted Uses per NEPOSS Classification		X	X			X
11: Permitted Uses per NEPOSS Zone		X	X			X
Access and Infrastructure Recommendations						
12: Lack of Adequate/Appropriate Parking and Access		X	X			X
13: Relative Isolation of some Current Lands			X			X
14: Trespassing	X	X	X		X	X

Management Themes	High Priority Tasks	EcoPark System Guidelines				Other / Site-specific Management Tasks
		Trail	Education and Signage	Vegetation Management	Edge Management	
Recreation Recommendations						
15: General Trail Recommendations	x	x	x		x	
16: Duplication and Density of Trails	x	x	x			
17: Signage		x	x			
18: Overuse and Erosion of Trails	x	x	x			
19: Unsanctioned Structures and Trails		x	x			
20: Interpretation and Education			x			
21: Trails		x	x			
22: User Conflicts		x	x			
23: Off-leash Dogs			x			
24: Non-permitted Uses	x	x	x	x		x
25: Safety Concerns	x	x	x			x
Recommendations for Encroachment						
26: Impacts from Adjacent Use		x	x		x	x
27: Run-off, Peak Flows, Hydrological Changes						x
28: Drainage, Erosion and Stormwater Management						x
29: Polluting Spills						x
Ecosystem Management and Restoration Recommendations						
30: Forest Health Decline and Loss		x		x		
31: Vegetation Restoration		x		x		x

Management Themes	High Priority Tasks	EcoPark System Guidelines				Other / Site-specific Management Tasks
		Trail	Education and Signage	Vegetation Management	Edge Management	
32: SAR and Rare Species Habitat	x	x		x		
33: On-line Ponds						x
34. Karst						x
35: Invasive Species		x		x	x	
36: Noxious Plants			x	x		
37: Wildlife Crossing						x
Cultural Heritage Recommendations						
38: Cultural Heritage Conservation			x			
Monitoring the Implementation of Recommendations						
39: Review Schedule for Monitoring						x

5.1 High Priority Management Tasks

High priority management tasks are priorities that should be completed as soon as possible to address safety concerns, existing high priority impacts, and known trespassing issues. Table 5 lists the tasks that are considered high priority management tasks, and includes recommendations for the partner agency responsible. Although some issues identified in section 3 appear to be obvious candidates for immediate action, there may be others that are deemed high priority owing to the responsibilities and/or mandates of the partner agencies. Thus the list of high priority management tasks provided in Table 5 should be reviewed and refined by the partner agencies.

Table 5. High Priority Management Tasks for the Waterdown-Sassafras Woods Heritage Lands

High Priority Management Tasks	Partner Agency Responsible
1. Close the unsanctioned access point at the south end of Falcon Creek to address trespass and safety concerns.	Halton Region*
2. Look for opportunities to locate an access area on future public lands north of Waterdown Woods in the current Heritage Lands (e.g., within the right-of-way of Mountain Brow Road, in the section where it will be closed in the future).	City of Hamilton and Conservation Halton
3. Reach out to residents adjacent to Kerns/Westbury Park to reduce encroachment such as dumping of yard waste, spread of invasive species, cutting of vegetation, etc. Remove dumped yard waste and restore woodland to address impacts.	City of Burlington
4. Reach out to adjacent school that may access the Bayview Park/Indian Creek parcel on occasion through unsanctioned access. Remove tire rope swing, network of ropes tied into a web, and restore area of compacted soils adjacent to Indian Creek, west of the school (Figure 5).	City of Burlington
5. Reduce density of trails in Waterdown Woods. Close trails that are routed through sensitive habitats, rare species habitat, etc. (Figure 5).	Conservation Halton
6. Install fencing along the outer perimeter of nature reserve zones where there is evidence of encroachment or trespassing and where it is ecologically appropriate.	Conservation Halton and City of Burlington
7. Close or re-route trails that are in close proximity to species at risk and/or rare vegetation communities if the trail is causing negative impacts to the significant feature.	Conservation Halton, City of Burlington and Bruce Trail Conservancy

*Halton Region to work in cooperation with the affected landowner(s).

5.2 EcoPark System Guidelines

As noted above the majority of issues identified for this Management Plan are relevant across all, or most of the Heritage Lands, and thus are most efficiently implemented in Guidelines that span the entire EcoPark System (see Management Theme 7). These are intended to be short reference documents that would only address generic issues. Partner agencies are encouraged to look internally and across partner agencies at certain management issues (e.g., trails, education and signage, etc.) to address these issues at an EcoPark System level. Addressing certain management issues at this higher level will introduce a broader efficiency and consistency to how the Current EcoPark System Lands are managed. Future Management Plans prepared for each of the remaining Heritage Lands may identify additional issues and recommendations to consider in the proposed EcoPark System Guidelines. Four potential EcoPark System Guidelines are listed below, however, some of these could be combined (e.g., Trails, and Education and Signage) and not all may be necessary (e.g., Edge Management):

- EcoPark System Guideline: Trails
- EcoPark System Guideline: Education and Signage
- EcoPark System Guideline: Vegetation Management
- EcoPark System Guideline: Edge Management

The potential purpose (to be refined by those developing the Guideline) of each Guideline is outlined broadly below:

- **Trails:** standardize the trail system within the Cootes to Escarpment EcoPark System (see Section 4.3.4);
- **Education and Signage:** standardize signage and educational messaging used within the Cootes to Escarpment EcoPark System, with acknowledgement of ownership where appropriate;
- **Vegetation Management:** identify guiding principles and best management practices for vegetation management, including the management of invasive species, within the Cootes to Escarpment EcoPark System; and
- **Edge Management:** identify guiding principles and best management practices to restore disturbed natural area edges, and standardize information used to engage adjacent landowners in appropriate management of natural area edges.

Responsibility for Developing EcoPark System Guidelines

The various EcoPark System Guidelines could be prepared internally by the partner agencies or through external contracts. Owing to funding constraints, and given that each of the partner agencies have substantial expertise and experience in the management of parks and natural heritage features, it is recommended that the Guidelines would be best developed internally. Logistically, it will be most efficient for one partner agency to take the lead in the development of each Guideline, and coordinate input from the other partners. The lead partner should be determined through internal discussion with consideration for experience and capacity.

The following provides a suggested framework for the development, organization and content of the EcoPark System Guidelines.

EcoPark System Guidelines Organization

Introduction

The proposed EcoPark System Guidelines should be developed as a series of reference documents. They should have a minimum of introductory text and focus on the identification of issues and their related management needs. It is suggested that they not contain figures showing the location of issues, but just provide guidance on solutions, possibly with illustrations of “typical” situations. The introductory sections that outline the purpose and organization of each EcoPark System Guideline can be generic and with minor variations be used for each of the proposed EcoPark System Guidelines.

EcoPark System Issues

This section of each EcoPark System Guideline is an iterative task that draws on the collective experience to identify the issues or topics to be addressed. Thus a list of issues or topics for each EcoPark System Guideline, that apply to all or most Heritage Lands, should be developed (suggested lists for each EcoPark System Guideline are provided in Appendix 3, based on the issues identified at the Waterdown-Sassafras Woods Heritage Lands).

Management Recommendations

For each EcoPark System Guideline, compile all existing management approaches and protocols from partner agencies (e.g., trail construction and maintenance, boundary delineation, education/stewardship for adjacent landowners, etc.). The existing documents from the various agencies should be reviewed for consistency and the partners should, to the extent possible, agree on a single protocol for all lands within the EcoPark System. The recommendations provided in Section 4.0 of this Management Plan may also assist in the development of solutions to each of the issues.

References and Contacts

This section of each EcoPark System Guideline would provide reference material and contacts that may be useful in implementing management recommendations.

5.3 Site-specific Management Tasks

There are a few issues that were identified through this Management Plan that may be specific to the Waterdown-Sassafras Woods Heritage Lands and thus would not be addressed through the proposed EcoPark System Guidelines. These issues are discussed below.

Natural Resource Management Actions (Management Themes 24, 30, and 31)

- Remove excessive fallen tree limbs and branches from within the watercourse in Kerns/Westbury Park (Figure 5), which appear to be the result of and exacerbated by human impacts.
- Continue monitoring and maintaining the restoration of native woodland along the escarpment brow in City View Park.
- Maintain communication with Forterra Brick (formerly Hanson Brick) regarding long-term rehabilitation and parkland dedication opportunities.
- Investigate new approaches for restoring native vegetation on closed landfills for implementation where appropriate on the former Regional landfill adjacent to Falcon Creek (Figure 4). Restoration will not always be feasible in all locations as the clay cap on the closed landfill requires constant maintenance, and drainage conditions must also be maintained.

- Close and remediate/restore unsanctioned “party spots” and campfire areas.
- Remove rope swings and slack-lines.

Erosion Management Action (Management Theme 28)

- Mitigate the erosion issue at the southwest corner of the Bayview Park parking lot for the off-leash dog park.
- Consider restoring historical catchment areas and flow regimes in the Bayview Park area.

On-line Ponds in Tyandaga Golf Course (Management Theme 33)

- Manage on-line ponds located along the Upper Rambo Creek watercourses at the Tyandaga Golf Course in a more environmentally conducive manner by improving buffers with native species plantings.
- Consider improving riparian buffers along Upper Rambo Creek to improve water quality of water entering on-line ponds.

Table 6 provides a recommended implementation priority for completion of EcoPark System Guidelines and site-specific management tasks.

Table 6. Implementation Priority for Completion of EcoPark System Guidelines and Site-specific Management Tasks for the Waterdown-Sassafras Woods Heritage Lands

Action	High Priority	Medium Priority	Low Priority
Recommended Guidelines			
Trail Guidelines	x		
Education and Signage Guidelines	x		
Vegetation Management Guidelines	x		
Edge Management Guidelines		x	
Site-specific Management Tasks			
Natural Resource Management Actions	x		
Erosion Management Action		x	
On-line Ponds in Tyandaga Golf Course			x

6.0 Management Plan Monitoring Evaluation

This section of the Management Plan provides direction on how to monitor the implementation of the Plan. This could be achieved indirectly through measures that determine changes in the Heritage Lands (e.g., degradation or improvement of trails, increase/decrease in invasive plants, etc.) or it can be measured directly by monitoring the number of recommendations that are implemented, and possibly the timing of their implementation. The difficulty with the indirect approach is that it will not discriminate between any particular recommendation being implemented, and the effectiveness of the recommendation. For example, trails may continue to degrade either because there was no attempt to implement the trails recommendations, or the trails recommendations were implemented, but the recommendations were either inadequate or use increased beyond the carrying capacity of the trail. Thus, since the main intent of this section is to measure implementation of the Management Plan, direct measurement of the implementation of recommendations is preferred, regardless of their effectiveness.

It is important to note that the effectiveness of management (i.e., efficacy of the recommendations) is also critically important, and so some guidance is provided on the development of performance indicators, but these can only be developed when the tasks that respond to recommendations in this report are developed.

6.1 Monitoring the Implementation of Recommendations

Section 4 of this Management Plan arranges the recommendations into 39 Management Themes, each of which is a general management issue for the Waterdown-Sassafras Woods Heritage Lands. It is recommended that each of these themes be evaluated annually to determine, 1) if action on the theme has been initiated; and 2) has action been completed, or in the case of issues needing ongoing management (e.g., invasive species control), are there active programs in place that are resulting in ongoing management.

Table 7 provides an outline for tracking the implementation and completion of Management Themes. A blank column has been provided for indicating the agency(s) that are involved with implementing each theme. It is recommended that the Cootes to Escarpment EcoPark System Management Committee determine agency involvement. Once this information is available, the “Agencies Involved” column in Table 7 can be filled out. Without a better understanding of the capacity, available funding and other priorities of the partner agencies, it is not possible to provide guidance on realistic timeframes for initiation. Thus the Steering Committee should review and propose a realistic schedule for implementation.

39. Review and Refine Schedule for Monitoring Management Themes

- The Cootes to Escarpment EcoPark System Management Committee should identify the agencies involved in each of the Management Themes provided in Table 7.
- The Steering Committee should review and propose a realistic schedule for implementation.

Table 7. Outline for Tracking the Implementation and Completion of Management Themes for the Waterdown-Sassafras Woods Heritage Lands

Management Themes	Agencies Involved	Task Initiated (date)	Task Completed (date)
Classification and Zoning of the Heritage Lands per NEPOSS			
1: Classification of the Heritage Lands			
2: Zoning of the Heritage Lands			
Overarching Management Recommendations			
3: Consistent Delineation			
4: Delineation of Current Boundaries			
5: Lack of Uniform Set of Rules			
6: Accommodating Stresses from Future Development			
7: EcoPark System-wide Guidelines			

Management Themes	Agencies Involved	Task Initiated (date)	Task Completed (date)
8: Funding			
Heritage Lands Management Plan Recommendations			
9: Develop Vision			
Recommended Management Directions			
10: Permitted Uses per NEPOSS Classification			
11: Permitted Uses per NEPOSS Zone			
Access and Infrastructure Recommendations			
12: Lack of Adequate/Appropriate Parking and Access			
13: Relative Isolation of some Current Lands			
14: Trespassing			
Recreation Recommendations			
15: General Trail Recommendations			
16: Duplication and Density of Trails			
17: Signage			
18: Overuse and Erosion of Trails			
19: Unsanctioned Structures and Trail Improvements			
20: Interpretation and Education			
21: Trails			
22: User Conflicts			
23: Off-leash Dogs			
24: Non-permitted Uses			
25: Safety Concerns			
Recommendations for Encroachment			
26: Impacts from Adjacent Use			
27: Run-off, Peak Flows, Hydrological Changes			
28: Drainage, Erosion, Stormwater Management			
29: Polluting Spills			
Ecosystem Management and Restoration Recommendations			
30: Forest Health Decline and Loss			
31: Vegetation Restoration			

Management Themes	Agencies Involved	Task Initiated (date)	Task Completed (date)
32: SAR and Rare Species Habitat			
33: On-line Ponds			
34: Karst			
35: Invasive Species Management			
36: Noxious Plants			
37: Wildlife Crossing			
Cultural Heritage Recommendations			
38: Cultural Heritage Conservation			
Monitoring the Implementation of Recommendations			
39. Review and Refine Schedule for Monitoring			

6.2 Guidance for Performance Indicators

6.2.1 Adaptive Management

As noted above, it is important to evaluate the efficacy of management actions to determine if they are producing the desired outcome. The accepted approach to achieve this is Adaptive Management. Adaptive Management involves the following steps:

1. Implement management actions based on the best available information and analysis;
2. Monitor the outcome of the management actions;
3. Evaluate monitoring outcomes against management objectives and/or targets; and
4. Where objectives and/or targets are not being achieved, refine management prescriptions.

In some instances, Adaptive Management will reveal unrealistic or unattainable objectives and/or targets, in which case they will need to be revised. Monitoring and evaluation should continue until objectives and/or targets are achieved, or in the case where the management action is ongoing (e.g., invasive species management), as long as management is undertaken.

Adaptive Management is especially valuable where the outcome of management actions is uncertain, for example, when introducing a disturbance regime to restore a particular vegetation type, trying a new trail surface, or undertaking habitat modification to conserve a species at risk. However, it is also useful for actions such as trail closure, where it is simply a matter of seeing if the method to prevent further use of the trail (signage, restoration at trail entrance, placing obstructions across entrance, etc.) is effective. Adaptive Management is essential to increase knowledge, i.e., to gain a better understanding of what management techniques work in a particular application. It is also very useful for reporting results, as it provides objective and defensible information on the progress of management.

A key component of Adaptive Management is establishing a benchmark for success; some yardstick against which results can be compared to evaluate progress. These can be objectives, targets or

performance indicators. In most cases, these cannot be established until detailed management tasks are developed, and generally require more detail than is available for this Heritage Lands Management Plan. They would be established when the protocols for management are developed, or decisions on management are made (e.g., which trails should be closed, how EcoPark System boundaries will be demarcated, etc.). Also, some management tasks may not lead themselves to establishing performance indicators, such as the development of education/stewardship material, as it would be extremely difficult to measure their efficacy. In such cases, it is probably reasonable to assume that they will benefit overall management goals and evaluate the tasks simply by noting if they were completed, as outlined in Table 8.

Notwithstanding, the difficulty of providing performance indicators before more detailed plans are developed, guidance for their development is suggested in Table 8. In making these suggestions it is realized that it would be possible to develop metrics to measure and evaluate probably all of the recommendations. However, the time and effort to actually develop and undertake that level of monitoring is probably not justified in most cases. For example, for the recommendation to install perimeter fencing, one could measure the length of fencing completed as a measure of implementation success, but it is probably sufficient to note that the fencing has been initiated, in progress, and finally completed. There are other recommendations where the efficacy of the recommendation is more tenuous, for example vegetation management, management of species at risk, etc., and it is in these cases where targets and performance monitoring is recommended in Table 8. There are no standards for when a rigorous, Adaptive Management approach should be undertaken, thus the recommendations regarding the appropriateness of setting targets and performance measures can be re-evaluated and revised as deemed necessary.

Table 8. Guidance on Targets and Performance Indicators for the Waterdown-Sassafras Woods Heritage Lands

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
Classification and Zoning of the Heritage Lands		
1: Classification per NEPOSS	N	N/A
2: Zoning per NEPOSS	N	N/A
Overarching Management Recommendations		
3: Consistent Delineation	N	N/A
4: Delineation of Current Boundaries	N	N/A
5: Lack of Uniform Set of Rules	N	N/A
6: Accommodating Stress from Development	N	N/A
7: EcoPark System-wide Guidelines	N	N/A
8: Funding	N	N/A
Heritage Lands Management Plan Recommendations		
9: Develop Vision	N	N/A
Recommended Management Directions		
10: Permitted Uses per NEPOSS Classification	N	N/A
11: Permitted Uses per NEPOSS Zone	N	N/A
Access and Infrastructure Recommendations		
12: Lack of Adequate/Appropriate Parking and Access	N	N/A
13: Relative Isolation of some Current Lands	N	N/A
14: Trespassing	N	N/A

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
Recreation Recommendations		
15: General Trail Recommendations	Y	<ul style="list-style-type: none"> • Identify all potential trail connections in the EcoPark System (the target) and use proportion of connections achieved as a performance measure. • Use total length of trail to be closed as target, and use proportion of trails successfully closed as performance measure. • Considerations for general condition could include: <ul style="list-style-type: none"> • owing to extensive trails system, select representative sections of trails to monitor (e.g., 10 100m long sections) including: “typical” sections, sections where issues are contemplated, areas with steep slopes, sections adjacent to SAR, and sections in Natural and Nature Reserve Zones; • measure frequency of trail widening to circumvent wet areas; • measure frequency of substantial erosion issues; and • measure frequency of damage to trail-side vegetation from users leaving trail to avoid conflict with other users (e.g., hiker/cyclist conflicts). • Evaluate efficacy of closures using motion-triggered cameras to record use of newly closed trails; report number of uses per week for 6 weeks following closure and per month for one year and record if trail was accessed by foot and/or bicycle. Evaluate success of closure, determine need for re-visiting closure protocol based on number of users and considering if use is increasing or decreasing.
16: Duplication and Density of Trails	Y	<ul style="list-style-type: none"> • See suggestions for Management Theme 15. • Include trail monitoring sections wherever trail is in close proximity (e.g., 10 m) of a species at risk.
17: Signage	N	N/A

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
18: Overuse and Erosion of Trails	Y	<ul style="list-style-type: none"> Determine total number of instances where a boardwalk or bridge is required to prevent impacts. Use proportion of structures installed as performance measure. Performance measures for evaluating different trails surfaces should be established but these will be dependent on the actual surface used and the impacts they are intended to address; it maybe the measures suggested for Management Theme 15 will suffice. Closures in response to erosion/steep slopes are covered in suggestions for Management Theme 15.
19: Unsanctioned Structures and Trails	Y	<ul style="list-style-type: none"> Determine total number of unsanctioned structures and instances of inappropriate, unsanctioned trail management (targets) and use proportion of structures and improvements removed as performance measures.
20: Interpretation and Education	N	N/A
21: Trails	N	N/A
22: User Conflicts	N	N/A
23: Off-leash Dogs	N	N/A
24: Non-permitted Uses	N	N/A
25: Safety Concerns	N	N/A
Recommendations for Encroachment		
26: Impact from Adjacent Use	N	N/A
27: Run-off, Peak Flows Hydrological Changes	Y	<ul style="list-style-type: none"> Targets and performance measures should definitely be established for the stormwater management facilities, but this will have to be done collaboratively between ecologists and water resource

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
		engineers. This was done for South Waterdown/Mountainview Heights through the Subwatershed Study.
28: Drainage, Erosion and Stormwater Management	Y	<ul style="list-style-type: none"> If not already done, targets and performance measures should be included in the Grindstone Creek Watershed Plan or other watershed/subwatershed studies.
29: Polluting Spills	N	N/A
Ecosystem Management and Restoration Recommendations		
30: Forest Health Decline and Loss	Y	<ul style="list-style-type: none"> Targets and performance measures related to the control of invasive insects are specific to the species and largely dependent on the ability/practicality of controlling them; these will need to be established on a case-by-case basis. <p>Development of targets and performance measures for vegetation restoration and management is a substantial task that should be undertaken within the EcoPark System Vegetation Management Guideline, but some ideas are provided below.</p> <ul style="list-style-type: none"> Determine the main vegetation types that are representative of the each of the Heritage Lands and any rare or otherwise significant vegetation types, especially those containing species at risk. Identify areas with the Heritage Lands that are the best remaining remnants of these vegetation types; these may be relatively small patches (2500 - 10,000 m²?) within larger units of more disturbed vegetation. Establish measurable characteristics that define each of the vegetation types (e.g., canopy closure, indicator species, extent of native ground cover, plant species richness, etc.) that could serve as to develop targets and related performance measures.

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
		<p>Conservation Halton has already accumulated 10 years of Ecological Monitoring and Assessment Network (EMAN) forest health monitoring data from Waterdown Woods through the ongoing Long-term Environmental Monitoring Program. This information could inform the establishment of benchmark conditions.</p> <ul style="list-style-type: none"> • Determine reasonable timelines for restoration, including response times for vegetation following management action, and use to determine monitoring/evaluation schedules.
31: Vegetation Restoration	Y	<ul style="list-style-type: none"> • To be developed based on management themes 30 and 31.
32: SAR and Rare Species Habitat	Y	<ul style="list-style-type: none"> • Targets and performance measures for species at risk are species dependant and should be developed as part of the restoration/monitoring protocol, and should be based on Recovery Strategies where they have been developed. • Targets should be informed by the relevant provincial and federal Recovery Strategies, Government Response Statements, etc. and focus on maintaining or increasing population size(s) (number of individuals or number of patches). • Targets and performance measures could also include population health, i.e. monitoring whether flowering/seed set/recruitment is maintained or improved. • Where there are known threats to SAR, consider monitoring and evaluating the threats, rather than the species. • See Geomatics International (1994) for discussion and suggestions for monitoring species at risk, and Geomatics International (1991, 1992) for monitoring American Columbo. • See suggestions for management themes 15 and 16 for trail monitoring.
33: On-line Ponds	Y	<ul style="list-style-type: none"> • Targets and performance measures would only be established if

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
		<p>there were proposals to modify the ponds, and would be developed as part of the overall proposal</p>
34: Karst	Y	<ul style="list-style-type: none"> • Monitoring would only be needed in the unlikely event of any development being proposed in the future on or adjacent to karstic bedrock. • Since the concern would primarily be related to maintaining the current quality and quantity of water that infiltrates via the karst, targets would basically reflect the desire to maintain pre-development conditions; noting that the issue includes decreases and increases in infiltration, as the former could influence groundwater recharge and surface water through local recharge/discharge systems, and the latter owing to the possibility of increased dissolution of the bedrock. • Performance measures would need to be established with a karst expert.
35: Invasive Species	Y	<ul style="list-style-type: none"> • Targets and performance measures are essential to determine the efficacy of control measures. • Targets for species with the capacity for serious degradation of native ecosystems should be complete elimination, where feasible. • Consider most aggressive targets in Nature Reserves, representative vegetation areas, and where there may be threats to SAR. • Performance measures should focus on reduction of individuals, patch size and/or number of patches of invasive species.
36: Noxious Plants	Y	<ul style="list-style-type: none"> • Where noxious species is non-native, targets and performance measures should be determined in concert with invasive species (management theme 36 above). • Targets and performance measures for native noxious species (e.g. poison-ivy) should focus on control along sanctioned paths and

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
		areas where access is facilitated.
37: Wildlife Crossing	Y	<ul style="list-style-type: none"> The number of priority locations for eco-passages can be used as the target, noting this will likely be refined as greater knowledge of the Heritage Lands is gained (e.g., implementation of the top 10 wildlife crossing locations throughout the entire Cootes to Escarpment EcoPark System). Performance measures could be the proportion of potential locations where eco-passages are installed. Efficacy (targets and performance measures) of individual eco-passages can only be determined when they are designed as they should focus on the target species that the passage is designed to accommodate (e.g., targets and performance measures will be different for deer and salamanders).
Cultural Heritage Recommendations		
38: Cultural Heritage Conservation	N	N/A
Monitoring the Implementation of Recommendations		
39. Review Schedule for Monitoring	N	N/A

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Appendix 1: Waterdown-Sassafras Woods Heritage Lands Land Classification and Zoning Report



Waterdown-Sassafras Woods Heritage Lands

LAND CLASSIFICATION AND ZONING REPORT

Prepared for Cootes to Escarpment EcoPark System

March 2016

Cootes to Escarpment EcoPark System Partners



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Cover Photograph of Waterdown Woods taken by Leah Lefler, 2015

1.0 Introduction

This report recommends classifications and zones for the Waterdown-Sassafras Woods Heritage Lands in accordance with the Niagara Escarpment Parks and Open Space System (NEPOSS). It builds on a previous report that provided a complete inventory of natural, cultural and recreation resources, identified management opportunities and issues, and provided preliminary thoughts on management of the Heritage Lands. Although the focus is on the classification and zoning, permitted uses are also discussed in this report to provide a fuller understanding of the repercussions of the proposed classifications and zoning. More detail on permitted uses, as well as the overall management recommendations, will be developed for the final report to be prepared in June, 2016.

1.1 Niagara Escarpment Parks and Open Space System

The majority of the Waterdown-Sassafras Woods Heritage Lands are located within the Niagara Escarpment Planning Area (NEPA) and are thus subject to the policies associated with the NEPOSS. These policies form a framework for establishing and coordinating a system of publicly owned lands on the Escarpment. NEPOSS is comprised of more than 140 parks and open space areas, most of which are or will be connected by the Bruce Trail (MNR 2012). These parks and open space areas are owned and managed by a number of conservation authorities and agencies, including local municipalities, Bruce Trail Conservancy and the Royal Botanical Gardens. NEPOSS balances protection, conservation and sustainable development to ensure that the Escarpment will remain largely as a natural environment for future generations (MNR 2012). The objectives of NEPOSS are:

- to protect unique ecological areas;
- to provide adequate opportunities for outdoor education and recreation;
- to provide for adequate public access to the Niagara Escarpment;
- to complete a system of major parks and open space areas through additional land acquisition and park and open space planning;
- to secure a route for the Bruce Trail;
- to maintain and enhance the natural environment of the Niagara Escarpment;
- to support tourism by providing opportunities on public land for discovery and enjoyment by Ontario's residents and visitors;
- to provide a common understanding and appreciation of the Niagara Escarpment; and
- to show leadership in supporting and promoting the principles of the Niagara Escarpment's UNESCO¹ World Biosphere Reserve Designation through sustainable park planning, ecological management, community involvement, environmental monitoring, research and education.

The Niagara Escarpment Plan (NEP) requires that management plans be prepared for each park and open space in the NEPOSS. Management plans lay out the goals and objectives, and guide the protection and management of natural heritage features and cultural heritage features, and activities in parks and open space areas. This poses a unique situation for this current project, and the Cootes to Escarpment EcoPark System in general, as the Waterdown-Sassafras Woods Heritage Lands (and other Heritage Lands) are comprised of several parcels, some of which are classified separately in the NEP. In the context of the Cootes to Escarpment EcoPark System, a single management plan is being prepared for each of the six Heritage Lands. A single management plan is required by the Cootes to Escarpment

¹ UNESCO = United Nations Educational, Scientific and Cultural Organization.

Park System Conservation and Land Management Strategy Phase II Report (Wong 2009) for each of the Heritage Lands. A single management plan is desirable in order to manage the lands in a holistic and integrated manner, among the multiple owners.

Thus the Waterdown-Sassafras Woods Heritage Lands will not be classified as a single park and/or open space area, but will adopt the classifications for each park as identified in the NEP. This report confirms the classifications and recommends zoning for each of the individual park and open space areas that make up the Heritage Lands. As a result, the Heritage Lands will contain multiple classifications, including Nature Reserve, Natural Environment, Recreation, and Resource Management.

The intent of these management plans is to provide high-level guidance for the future management of the Heritage Lands. Detailed site-specific master plans may be prepared at a later date by individual landowners or agencies to further refine recommendations and these will need to be submitted for approval through the NEPOSS process. There is no intent to submit this current management plan being prepared for the Waterdown-Sassafras Woods Heritage Lands to the Niagara Escarpment Commission for endorsement, or to the Ministry of Natural Resources and Forestry for approval.

Within NEPOSS, classifications and zones serve as a guide to agencies and other landowners in the management and use of a park or open space. Detailed descriptions of NEPOSS classifications and zones are provided in sections 1.2 and 1.3. A discussion of how the parks and open space areas identified in the NEP are addressed in the Waterdown-Sassafras Woods Heritage Lands management plan, and the classification and zoning of the Heritage Lands follows in section 2.0.

While not all of the Waterdown-Sassafras Woods Heritage Lands are in the NEPA, they are part of the broader ecosystem. As such, tools outlined in the NEPOSS Planning Manual (MNR 2012) have been used to guide the classification and zoning of all the Current EcoPark Lands within the Heritage Lands, including those outside of the NEPA, in combination with other guiding principles based on best practices. The following sections contain a summary of the NEPOSS guidelines for the classification and zoning of lands and the uses permitted in each area.

The NEPOSS classification and zoning is intended to be applied to park and open space areas along the escarpment that are generally relatively large natural areas. However, the Cootes to Escarpment EcoPark System, and the Waterdown-Sassafras Woods Heritage Lands in particular, includes urban parks, golf courses, urban ravines and closed landfill sites which were otherwise not anticipated to occur within the NEPA when NEPOSS was drafted. The NEPOSS classification and zoning guidelines do not address some of these types of open space particularly well, perhaps because they are outside its intended use. In this report, the NEPOSS guidelines were applied as best as possible.

As this management plan is not going through the NEPOSS approval process, the classifications and zones are recommendations based on current understanding of the areas. They will be used to guide the development of future park-specific management plans that will need to be approved through the NEPOSS process.

1.2 NEPOSS Classifications

NEPOSS provides six classifications which are assigned based on the predominant characteristics of park and open space areas within the NEP area. Each of the six classifications serves a specific purpose and provides planning and management direction to agencies. The classifications are included within the NEP and re-classification is generally discouraged. The classifications are described in the NEPOSS Planning Manual as follows:

Table 1. NEPOSS Classification Descriptions

Classification	Description
Nature Reserve	Nature Reserves represent the most significant and distinctive natural areas and landforms found along the Niagara Escarpment. These areas serve to protect selected life science and earth science Areas of Natural and Scientific Interest (ANSI).
Natural Environment	Natural Environment lands are characterized by the variety and combination of outstanding natural heritage features, cultural heritage features and outstanding landscape.
Recreation	Recreation parks are some of the best recreational environments along the Niagara Escarpment. Such parks occur naturally or are capable of being developed to provide a wide variety of outdoor recreation opportunities in attractive Escarpment surroundings.
Historical	Historical parks or open spaces are characterized by the distinctive features that represent the Escarpment's archaeological and historic heritage.
Escarpment Access	Escarpment Access parks or open spaces will complement the larger and, in some cases, more developed parks or open space areas, by providing opportunities for public access to the Niagara Escarpment at appropriate points of interest along it. Generally, these areas are small (4 ha – 25 ha).
Resource Management Area	Resource Management Areas include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control.

1.3 NEPOSS Zones

The use of zoning is outlined in the NEP as “essential to the orderly planning, development and effective management of a park or open space area”. NEP zoning is intended to work within each of the park classifications to guide uses based on the significance of resources, the need for protection, and the potential for recreation or other activities. According to the NEPOSS Planning Manual, zones are intended to fulfill a variety of functions in a park or open space area, including the following:

- identification and recognition of the features and attributes;
- protection of key natural heritage features and cultural heritage features and functions;
- segregation of conflicting recreational activities by directing activities with higher impacts to the least sensitive areas and low-impact activities to areas that are more sensitive, if appropriate;
- delineation of areas on the basis of their requirements for management;
- standardization of the approach to support management objectives and actions, based on a variety of features;
- balancing of public use with the preservation of the natural environment; and

- encouraging users to understand the park and open space policies and to appreciate the unique contribution each park or open space makes to NEPOSS.

The NEPOSS Planning Manual provides six zones and each one serves a specific purpose and provides direction on planning and management. The six zones and their descriptions are:

Table 2. NEPOSS Zone Descriptions

Classification	Description
Nature Reserve	Nature Reserve Zones include significant natural heritage features or areas that require careful management to ensure the long-term protection of their natural features. This type of zone should ensure ecological diversity and provide long-term protection for significant natural heritage features such as the following: <ul style="list-style-type: none"> • habitat of endangered, threatened and rare species or species of special concern • wildlife and fish habitat • hydrological systems (e.g., streams, wetlands, ponds) • woodlands • ANSIs • escarpment features (e.g., brow, slope, face, toe, and related landforms)
Natural	Natural Zones include aesthetic landscapes in which a minimum of development is permitted to support low- to moderate-intensity recreational activities. This type of zone includes natural landscapes and high-quality natural settings.
Access	Access Zones serve as staging areas (e.g., trailheads, parking lots) where minimal facilities support the use of Nature Reserve Zones and relatively undeveloped Natural and Historical Zones.
Historical	Historical Zones include significant archaeological or cultural heritage features or areas that require management that will ensure the long-term protection of the significant features.
Development	Development Zones provide the main access to the park or open space, and facilities and services to support the recreational activities available. This type of zone may allow for the development of visitor and park facilities.
Resource Management	Resource Management Zones include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control. Previously disturbed sites (e.g., abandoned quarries, old fields) where active measures are being taken to re-establish natural vegetation should also be considered for this type of zoning. This type of zone may include land that has traditionally been managed under long-term resource agreements (e.g., forest management agreements or agricultural leases).

In addition to providing the above descriptions of each zone, the NEPOSS Planning Manual includes the management direction and types of uses that are considered appropriate within the zone description. Management direction and permitted uses within each zone are reviewed in section 4.0.

2.0 Establishing Classifications and Zones

2.1 Establishing Classifications

Within the Waterdown-Sassafras Woods Heritage Lands, three park and open space areas have been classified in the NEP:

1. Kerncliff Park – Natural Environment;
2. City View Park –Recreation; and
3. Waterdown Woods – Nature Reserve.

No changes to these classifications are proposed at this time.

The inventories and analysis undertaken in the Inventory, Opportunities and Issues report for the Waterdown-Sassafras Woods Heritage Lands (North-South Environmental et al. 2016) were used to review and confirm the classifications applied to parks and open space areas within NEPOSS. Classifications are recommended for those portions of the Heritage Lands that are located outside the NEPA, based on the description and management direction of each classification provided in the NEPOSS Planning Manual. The management direction provided by the NEPOSS manual (MNR 2012, Table 5.1) for the classifications applied are as follows:

Nature Reserve:

Management practices and uses in a Nature Reserve will ensure that the features and values for which it was established remain protected in perpetuity.

Natural Environment:

Natural Environment lands provide opportunities for the protection of important natural heritage features and cultural heritage features.

Recreation:

Management and development of resources is appropriate in order to provide the recreational environment and facilities required to support a wide variety of activities, which may be for day use only. While public use of recreation parks may include more intensive activities or uses than at other NEPOSS parks, these activities will be suited to the natural character of the particular park. Such activities must occur in zones identified in an approved management plan and be conducted in an environmentally sustainable manner. Development of facilities must be designed and undertaken in a way that will minimize the environmental impact of the development.

Resource Management Area:

Resource Management Areas are intended to provide many benefits, including recreation opportunities, the protection of important natural heritage features and cultural heritage features, and resource products. In most cases, these areas will undergo more intensive resource management than the other classifications.

The Resource Management Area Classification has also been applied to properties that facilitate the provision of services relating to water distribution and storage within the Current EcoPark Lands. These lands have unique characteristics, and an ideal classification is not currently provided by the NEPOSS

Manual (MNR 2012). The Resource Management Area Classification has been determined to be the most appropriate for these lands based on the fact that water and Halton Region's water distribution and storage system is an important resource.

2.2 Establishing Zones

Zoning, according to section 3.1.5 of the NEP, is essential to the planning, development and effective management of a park or open space area. Within the Heritage Lands, zones were applied within each classified park and open space area through a process that examined the park and open space areas and Current EcoPark Lands of the Waterdown-Sassafras Woods Heritage Lands in detail to determine:

- what natural heritage features and cultural heritage features exist;
- what permitted uses and development options are appropriate; and
- what management priorities and policies should be put in place for the future.

Zoning was based on the inventory and analysis undertaken in the Inventory, Opportunities and Issues report (North-South Environmental et al. 2016). It included the location of Areas of Natural and Scientific Interest (ANSI), Environmentally Sensitive Areas or Environmentally Significant Areas (ESA), Species at Risk (SAR) and other rare or uncommon species, rare vegetation communities, etc. Knowledge of the Heritage Lands gained through fieldwork for this study, existing information, and reference to aerial photography were all used in determining the recommended zones. Zones were marked on a map by hand. In general, there is flexibility in the precise location of zoning boundaries. For example, in Waterdown Woods, the distinction between the Nature Reserve Zone and the Natural Zone is more of a transitional area, rather than a discrete line. Zoning boundaries should be refined as part of future site-specific master plans.

Zoning assigns uses to lands based on their significance for protection and their potential for recreation within the classification policy (MNR 2012). In the NEPOSS Planning Manual the management direction provided for the zones applied are as follows:

Nature Reserve:

Nature Reserve Zones are predominantly natural and should contain naturally functioning ecosystems. Such zones should protect natural heritage features in the long term.

Natural:

The Natural Zone can function as a buffer between Development Zones and Historical or Nature Reserve zones. Natural Zones are not permitted in Nature Reserve class parks.

Access:

Access Zones are intended to support the use of and access to adjacent zones.

Historical:

Management planning for archaeological or cultural heritage features may range from maintaining their present condition to restoring and/or reconstructing the site.

Development:

A Development Zone is usually oriented to the provision of recreational opportunities that are suited to the natural character of the particular park or open space and are conducted in an environmentally sustainable manner. This zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape or watersheds. Development Zones are not permitted in Nature Reserve class parks.

Resource Management:

Resource Management Zones are sustainably managed for many diverse values, such as wildlife, fisheries, forestry and outdoor recreation. Such zones may be places for experimenting with alternative resource management practices and developing a better understanding of ecosystem structures and functions in a scientifically sound manner. This zone should demonstrate exemplary conservation and stewardship. Resource Management Zones should not be established in Nature Reserve parks, provincial parks or in life science ANSIs, except as noted in section 3.1.5 of the NEP. These exceptions are:

- a) where existing forestry agreements are in effect;
- b) to facilitate uses permitted under existing approved Parks Master/Management Plans;
- c) to maintain or protect the unique features of an Area of Natural or Scientific Interest, where such features would otherwise disappear without active management;
- d) for emergency access (e.g., fire protection); and
- e) on public lands included in the Resource Management Area Class.

In this report, the Resource Management Zone has been applied to lands with the main intent of providing for future restoration activities, i.e., not to provide for active resource extraction. It is recommended where restoration would be a principal management activity in the future owing to the current characteristics of the area. If ecological restoration is undertaken within a Resource Management Zone, consideration could be given to changing the zoning from Resource Management to Natural. For example, if ecological restoration is undertaken at the closed landfill at Falcon Creek, zoning of this area could be changed from Resource Management to Natural.

In addition, the Resource Management Zone has been applied to the Waterdown Road Reservoir and Booster Station and Tyandaga Reservoir and Booster Station located within Waterdown Road and Kerncliff 2 respectively (Figure 1). This zone was determined to be the best suited to lands that facilitate the provision of services related to water distribution and storage; however, this use is currently not described in the NEPOSS Manual description of the Resource Management Zone provided above.

Recreation:

At present, there is no Recreation Zone included in the NEPOSS Planning Manual (MNR 2012). However, a Recreation Zone was created within City View Park in an approved Management Plan (The Landplan Collaborative Ltd. et al. 2009) in recognition of the recreation facilities planned for the park there. Since there are similar recreation facilities within the Waterdown-Sassafras Woods Heritage Lands, we propose to also use a Recreation Zone, as there is no existing zone in the NEPOSS Planning Manual that easily accommodates this use. The proposed Recreation Zone as described here is only for the purpose of the Waterdown-Sassafras Woods Heritage Lands Management Plan. Such a zone may also be appropriate elsewhere, but it is not the intent of this plan to provide a generic description and permitted uses for application elsewhere in the NEPA.

The intent of the proposed Recreation Zone is to provide a category that permits recreational uses that require more intensive development such as sports fields, playgrounds, golf courses, off-leash dog parks or the open area required for the existing model aircraft facility at Bayview Park. Recreation Zones do not include associated infrastructure such as driveways, parking lots, washrooms and other amenities normally associated with urban recreation facilities. Driveways and parking lots are zoned as Access, and washrooms and other buildings are zoned as Development per the NEPOSS Planning Manual (MNR 2012). The Recreation Zone is applied to spaces used for more intensive recreation.

In this report, the Recreation Zone has been applied only to existing and planned intensive recreational sites within the Waterdown-Sassafras Woods Heritage Lands that do not support, or provide only minimal, natural heritage values. This zoning should not be applied to areas with native vegetation or high-quality natural settings. Nor should it be applied to abandoned fields where they provide complimentary ecological functions to adjacent natural features, or where restoration would substantially improve the natural heritage values of adjacent natural sites. The proposed Recreation Zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape and watersheds.

For the Waterdown-Sassafras Woods Heritage Lands Management Plan, the proposed Recreation Zone is only being proposed for areas where there is an existing intensive recreational use at City View Park (sports fields and playground), Kerns/Westbury Park (sports fields and playground), Forestvale Park (playground), Bayview Park (off-leash dog park and model airplane flying club²), and Tyandaga Golf Course (golf course).

3.0 Recommended Classifications and Zones

Recommended classifications and zones for the Current EcoPark Lands within the Waterdown-Sassafras Woods Heritage Lands are provided in Table 3, which includes supporting rationale. Figure 1 illustrates the recommended classifications and zones. For additional information on property boundaries and property ownership, refer to Figure 2 in the Inventory, Opportunities and Issues report (North-South Environmental et al. 2016).

The Waterdown-Sassafras Woods Heritage Lands are mainly comprised of large natural areas that have received limited use in recent past. The Heritage Lands are largely homogeneous, predominantly consisting of wooded escarpment features as well as wooded, urban ravines associated with the Sassafras Tributary subwatershed of the Grindstone Creek Watershed, and the Falcon Creek, Indian Creek, Hager Creek and Upper Rambo Creek watersheds. As a result, the range of uses and the subsequent application of zones are limited compared to other areas within the Cootes to Escarpment EcoPark System, such as the Burlington Heights Heritage Lands.

There is a need to establish better formal access to Waterdown Woods; however, due to the significance and sensitivity of Waterdown Woods, there is not currently a suitable location for an Access Zone. Partner agencies should look for opportunities to locate an access area on future public lands north of the current Heritage Lands. There may be options to achieve this within, or in conjunction with, the right-of-way of Mountain Brow Road, in the section where it will be closed in the future.

² Burlington Radio Control Modellers (BRCM)

The zones for City View Park shown on Figure 1 have been approved and adopted by the Niagara Escarpment Commission (NEC) and the Ministry of Natural Resources and Forestry (MNRF) as part of the New City Park³ Management Plan (The Landplan Collaborative Ltd. et al. 2009). This approved plan includes a zone, Recreation Zone, which is in addition to the zones provided for in the NEPOSS planning manual (MNR 2012). This Recreation Zone was added to include recreational uses that are more intensive than activities described in other zones, such as sport fields, passive-use sod areas and playgrounds, and will include more intensive recreational activity. For consistency, the Recreation Zone has been applied throughout the Waterdown-Sassafras Woods Heritage Lands to existing and planned intensive recreational sites (Table 3).

At City View Park, ecological restoration has been undertaken along the brow of the escarpment. This area was zoned as Natural in the approved New City Park Management Plan. The rationale for this zoning was to zone for what the area would become. In other areas of the Heritage Lands, areas with restoration potential have been zoned as Resource Management. If ecological restoration is undertaken within these areas, consideration could be given to changing the zoning to Natural. For example, if ecological restoration is undertaken at the closed landfill at Falcon Creek, ecological restoration lands could be rezoned Natural.

Tyandaga Golf Course has been assigned the Recreation Classification, and the majority of the golf course has been zoned as Recreation. The deciduous forest contiguous with Kerncliff Park (Kerncliff 1), and the forested valley features, which cross the Tyandaga Golf Course, have been zoned as Natural. The operation of the golf course includes existing uses in the areas zoned as Natural that are essential to the function of the golf course. The zoning applied is not intended to interfere with existing uses of the golf courses. However, any future development should incorporate setbacks from the watercourses, as would be required by Conservation Halton, and consider opportunities to enhance surface water quality and riparian habitat.

Falcon Creek has been classified as Resource Management; however, alternatively it could be classified as Natural Environment. The site consists mainly of a closed landfill, but also includes a high-quality natural setting (Falcon Creek and associated valley). The Resource Management Classification has been used, because the existing permitted uses which limit public access to the landfill are more consistent with the Resource Management Classification. If there is a future desire to develop the landfill for mixed recreational and ecological restoration uses, it is recommended that the classification be changed in the future. As of March 9, 2016, the zoning of the southern-most portion of Falcon Creek remains under discussion, and is subject to change (i.e., the area zoned as Natural on Figure 1).

Waterdown Road and Kerncliff 2 (Figure 1), which correspond to the Waterdown Road Reservoir and Booster Station and Tyandaga Reservoir and Booster Station respectively, were acquired by Halton Region to facilitate the provision of services related to water distribution and storage. These lands were not acquired for park land development. Given this use, these properties should be treated differently than other Current EcoPark Lands in the Management Plan, and has also been reflected in the classification (Resource Management Area) and zoning (Resource Management). The only classification that is appropriate for these properties is Resource Management Area. However, it is recognized that even this classification is ill-fitted based on the description provided in the NEPOSS Manual (MNR 2012).

³ New City Park has since been renamed City View Park in the City of Burlington.

Waterdown Road and Kerncliff 2 have also been zoned Resource Management, as this zone was determined to be the most appropriate for lands that facilitate the provision of services related to water distribution and storage; however, this use is currently not described in the NEPOSS Manual description of the Resource Management Zone provided above (Section 2.2). Further discussion on the unique management required for these lands will be provided in the Management Plan.

In assigning/confirming the NEPOSS classifications, and in determining the appropriate zoning, it is very important to take into account the context of the Heritage Lands. The NEPOSS Planning Manual applies to the whole of the Niagara Escarpment and must address a variety of parks, each with its own unique characteristics. The Waterdown-Sassafras Woods Heritage Lands are located within an urban context and are subject to a number of urban pressures, mostly related to existing uses. These uses are well-established and, without management, are expected to escalate with the substantial recent and anticipated urban development approvals adjacent to, or in proximity to the Heritage Lands. Because of this we recommend that flexibility in the application of some “permitted uses” be provided. It is not feasible or realistic to prohibit many of these uses and thus it is critical that the classification and zoning be able to accommodate the management of these uses such that their impacts do not threaten the health or integrity of the natural or cultural heritage features for which it is designated and impacts to the natural environment are minimized, both in terms of location and intensity.

It may be beneficial in places to classify and/or zone an area in recognition of its natural values (e.g., as a Nature Reserve), yet still accommodate activities such as cycling, which in other circumstances or locations may not be acceptable. Recognition of the natural and/or cultural value of such areas through classification and zoning helps convey their importance to the public (and thus assists in getting acceptance of restrictive management and limited use), as well as providing the mandate for protection, restoration and management of valued resources as required.

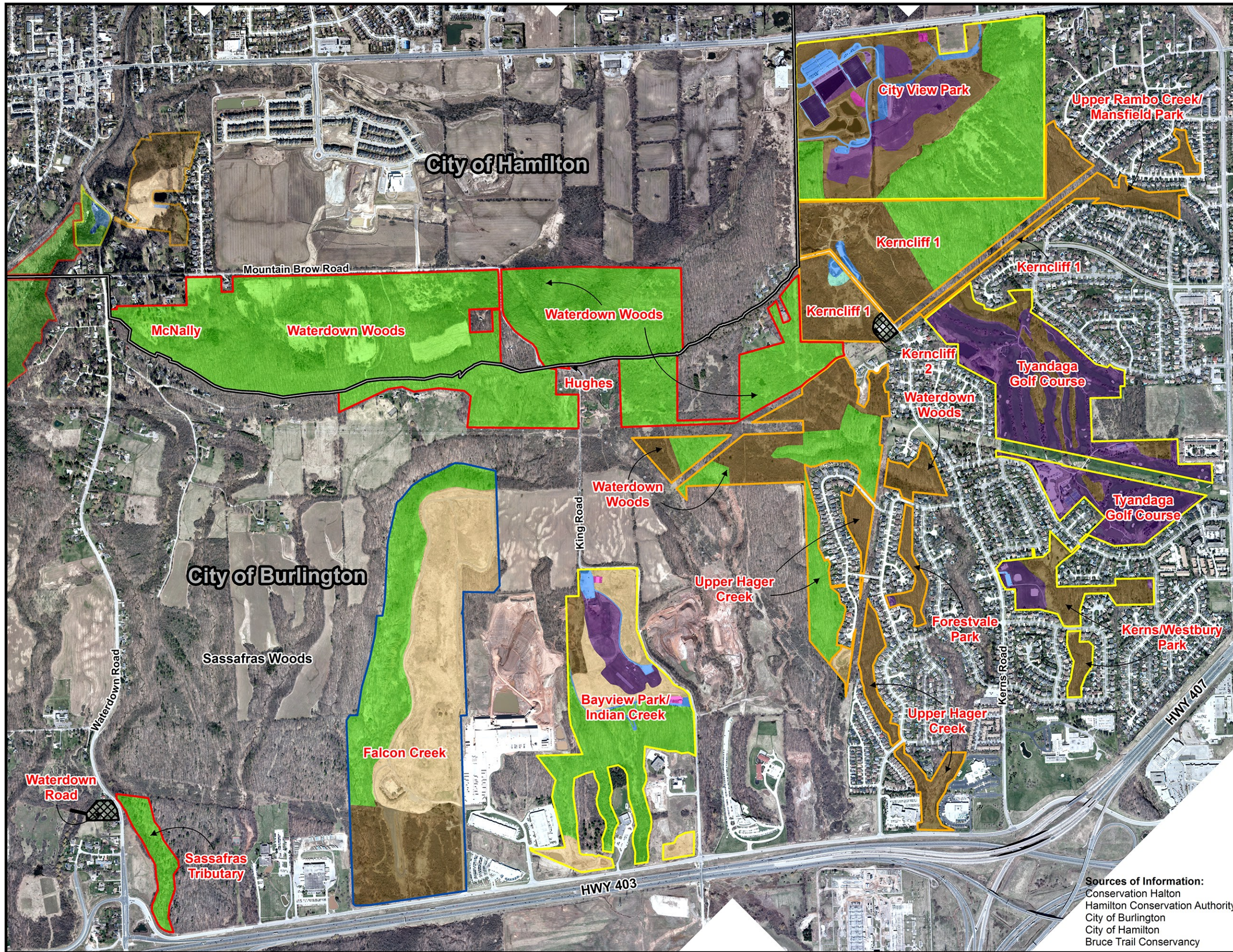
Table 3. Classification and Zoning of the Waterdown-Sassafras Woods Heritage Lands

Parcel	Classification	Zoning	Rationale
Waterdown Woods			
Waterdown Woods	Nature Reserve	Nature Reserve	NEP classification, ANSI/ESA/SAR
	Natural Environment	Nature Reserve	ESA/SAR, rare species/ecosystems
		Natural	high-quality natural setting
McNally	Nature Reserve	Nature Reserve	NEP classification, ANSI/SAR, rare species/ecosystem
Hughes	Nature Reserve	Nature Reserve	NEP classification, ANSI/ESA
City View Park			
City View Park	Recreation	Development	future location of pavilion, playground
		Access	driveways, parking lots
		Natural	high-quality natural setting, woodlands, escarpment, wetland, ecological restoration area
		Nature Reserve	ESA/SAR, rare species/ecosystems
		Recreation	sports fields, areas for passive recreational use
Kerncliff Park			
Kerncliff 1	Natural Environment	Nature Reserve	SAR, rare species/ecosystems
		Natural	escarpment natural area, high-quality natural setting
		Access	existing access driveway and parking area
		Historical	quarry processing artefacts
Upper Rambo Creek/Mansfield Park	Natural Environment	Natural	high-quality natural setting, ravine
Kerncliff 2			
Kerncliff2	Resource Management	Resource Management	Tyandaga Reservoir and Booster Station managed by Region of Halton Public Works, mowed grass
Tyandaga Golf Course			
Tyandaga Golf Course	Recreation	Recreation	existing golf course
		Natural	deciduous forest contiguous with Kerncliff Park, forested valley features
Kerns/Westbury Park			
Kerns/Westbury Park	Recreation	Recreation	existing sports fields, playground
		Natural	high-quality natural area, woodland, ravine
		Access	existing parking lot for sports fields
Upper Hager Creek			
Upper Hager Creek	Natural Environment	Nature Reserve	SAR, rare species/ecosystems
		Natural	narrow wooded ravines, partially surrounded by development

Parcel	Classification	Zoning	Rationale
		Resource Management	existing stormwater management pond
Forestvale Park			
Forestvale Park	Natural Environment	Natural	narrow wooded ravines, entirely surrounded by development
		Recreation	existing playground
Bayview Park/Indian Creek			
Bayview Park/Indian Creek	Recreation	Development	existing building and pavilion
		Access	existing driveways and parking lots
		Recreation	model airplane flying club, off-leash dog park
		Resource Management	existing stormwater management facility, restoration potential ⁴
		Nature Reserve	valleylands, SAR, rare species
	Natural	existing natural vegetation, restoration potential	
Falcon Creek			
Falcon Creek	Resource Management ⁵	Nature Reserve	SAR, rare species/ecosystems, ravine, valley
		Natural	high quality natural area, woodland, ravine, valley
		Resource Management	closed landfill, restoration potential, recreational potential
Sassafras Tributary			
Sassafras Tributary	Nature Reserve	Nature Reserve	ANSI, SAR, ravine
Waterdown Road			
Waterdown Road	Resource Management	Resource Management	isolated Region of Halton property managed by Public Works: Waterdown Road Reservoir and Booster Station, mowed grass, restoration potential

⁴ Restoration potential in this case refers to the potential to augment the existing stormwater management infrastructure, as well as possible future ecological restoration of portions of the closed landfill.

⁵ Classification of Falcon Creek could be Resource Management or Natural Environment. If landfill ever developed for recreation, the classification should be changed to Recreation.



Cootes to Escarpment EcoPark System

Figure 1: Classification and Zoning of Waterdown-Sassafras Woods Heritage Lands

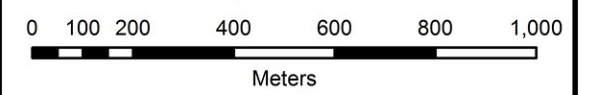
Legend

Classifications

- Nature Reserve
- Natural Environment
- Resource Management Area
- Recreation

Zones

- Nature Reserve
- Natural
- Access
- Historical
- Recreation
- Development
- Resource Management
- Municipal Boundary
- Unclassified and Unzoned Lands



Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy



4.0 Permitted Uses

4.1 Permitted Uses per Classification

The NEPOSS Planning Manual provides the following direction on permitted uses per classification (subject to management planning):

Table 4. Permitted Uses per Classification

Classification	Permitted Uses
Nature Reserve	<ul style="list-style-type: none"> • Access to Nature Reserve class parks will not be widely promoted due to the sensitivity of the features in them. Activities will be limited to those that can further scientific understanding and education (e.g., scientific research, natural history interpretation, nature trails or the Bruce Trail). • Facilities will be kept to a minimum. • Forestry or tree cutting in a life science ANSI in public ownership will be permitted where it is necessary to maintain the features for which the area was designated, for emergency access or to implement uses permitted in an approved NEPOSS management plan that are not in conflict with the Niagara Escarpment Plan.
Natural Environment	<ul style="list-style-type: none"> • Activities may range from back-country hiking in the interior to car-camping and day use activities in the more developed or accessible areas. Agencies should consider compatible uses within the park or open space.
Recreation	<ul style="list-style-type: none"> • Facilities for overnight camping may be provided, including campgrounds, temporary yurts and tents, lean-to's and unserviced cabins. • Visitor service facilities with a retail component may be permitted. • Small-scale, special-purpose facilities designed and operated in support of natural history, environmental and UNESCO World Biosphere Reserve and related programming, which may include fully serviced overnight accommodations with meals for facility guests only, are permitted. They may also be allowed as an accessory use if specifically permitted in an approved management plan. • Note: Intensive commercial facilities, such as full-service restaurants, banquet halls, lodges, hotels, conference centres, retreats, schools, spas and buildings with provision for fully serviced overnight accommodation, as distinct from camping, will not be permitted. • Certain activities or functions such as those listed above may be considered if such use is a secondary or an off-season use at an approved recreational facility. For example, a ski lodge where food is served during the winter may be used for occasional day conferences during off-season periods.
Resource Management Area	<ul style="list-style-type: none"> • Uses of these areas may include sustainable forest and wildlife management, and activities such as hiking, cross-country skiing and nature appreciation.

Nature trails are understood to refer to low-impact hiking trails. Therefore, mountain-biking and other higher impact recreational activities are not recommended or encouraged in parks classified as Nature Reserve. Natural Environment classified parks may include recreational activities of moderate intensity, and would include mountain-biking.

4.2 Permitted Uses per Zone

The NEPOSS Planning Manual provides the following direction on permitted uses per zoning (subject to management planning):

Table 5. Permitted Uses per Zone

Zone	Permitted Uses
Nature Reserve	<ul style="list-style-type: none"> To protect, preserve and rehabilitate identified natural heritage features, visitor uses are limited or restricted. Development is generally restricted to trails, necessary signs, interpretative facilities (where warranted), temporary research facilities and conservation practices.
Natural	<ul style="list-style-type: none"> Low- to moderate-intensity recreational activities are permitted. A minimal level of development (e.g., trails, backcountry campsites, necessary signs and minimal interpretive facilities) is permitted to support low-intensity recreational activities.
Access	<ul style="list-style-type: none"> Development may include minimal facilities to support Nature Reserve, Natural and Historical Zones. Examples include roads, signs, trailheads and parking lots.
Historical	<ul style="list-style-type: none"> Development will include protection and interpretation of archaeological or cultural heritage features. Examples include interpretative, educational, research and management facilities, trails, signs, and historical restorations or reconstructions.
Development	<ul style="list-style-type: none"> Development may include roads, parking lots and gates, beaches, picnic areas, campgrounds and commercial service facilities, and orientation, interpretative, educational, research and maintenance facilities. Development of facilities must be designed and undertaken in a way that will minimize their environmental and visual impact.
Resource Management	<ul style="list-style-type: none"> Resource Management Zones may be used to demonstrate ecologically sustainable resource management practices. Establishing permanent research plots for monitoring purposes (e.g., permanent sample plots for growth and yield studies) is encouraged in these zones. Water may be controlled for purposes related to flood protection, watershed management or municipal water supply. The recreation uses of Resource Management Zones are subject to park management planning.

The Waterdown-Sassafras Woods Heritage Lands are situated in an urbanized/urbanizing environment. Recreational uses have, and will continue to become established within the Heritage Lands, and there is an obvious high desire from the public to access the Heritage Lands. It is understood that limiting access and minimizing recreational impacts within the Nature Reserve classification and zone is best suited to protecting the ecological and earth science values of the area; however, given the proximity of the Heritage Lands to a large population base, it is unrealistic to expect that some level of recreation will not continue within these areas, despite the Nature Reserve classification or zone.

Conservation Halton has begun utilizing a “preferred use” concept in the management of their lands (e.g., Hilton Falls Conservation Area). This approach provides the opportunity to educate the public about what the preferred use of an area is. For example, within the Nature Reserve zone, the preferred use is low-impact hiking; within the Natural Zone, the preferred use may be hiking, mountain-biking, or mixed-use. The preferred use concept provides flexibility and is a realistic approach for managing recreational use and impacts to natural areas. A strict interpretation of the Nature Reserve classification and zone, which would prohibit mountain-biking activity, would only be implementable with a substantial, and unrealistic, enforcement effort. The alternative would result in a Nature Reserve classification or zone being used by an unplanned and incompatible use. The preferred use concept provides the opportunity to educate the public, while recognizing the continuation of an existing use.

Thus, in the case of Waterdown Woods, which is classified as Nature Reserve, mountain biking would not be encouraged, but some limited management may be recommended to reduce or eliminate any impacts from mountain biking as an existing use (e.g., providing trail connections, ensuring appropriate trail construction and maintenance is in place).

Existing mountain biking use of the Region of Halton Landfill (i.e., Falcon Creek on Figure 1) is not an approved or acknowledged existing use. Portions of Falcon Creek are zoned Nature Reserve, and due to the sensitivity of the Falcon Creek ravine, mountain-biking is not a “preferred use” and recreation within Falcon Creek is not an approved use. In future management planning exercises, consideration could be given to designating portions of the Nature Reserve Zone within Falcon Creek (Figure 1) as a “special protection” sub-zone (see discussion of “special protection” sub-zones below), where mountain biking would be considered incompatible.

A management recommendation should be made that specifies that hiking is the preferred use in the Nature Reserve Zone, mountain biking is tolerated but not preferred, and that expansion of use by mountain biking activities is not recommended within the Nature Reserve Zone. Certain activities and infrastructure may be decommissioned and/or rerouted on a case-by-case basis to best manage the area in accordance with the intent of a Nature Reserve Zone. In addition, a “special protection” sub-zone could be added under the Nature Reserve Zone, where recreational activities are not permitted. This sub-zone may be desired in locations such as rare species habitat, talus slopes, wetlands, etc. The benefits of applying a “special protection” sub-zone include protecting sensitive and/or significant natural heritage features by directing recreational activities away from these areas. The “special protection” sub-zone could be established in future property-specific management plans.

5.0 Next Steps

NEPOSS classifications and zones have been applied to the Current EcoPark Lands within the Waterdown-Sassafras Woods Heritage Lands as a means of categorizing and defining appropriate management actions. Four classifications have been applied: Nature Reserve, Natural Environment, Recreation and Resource Management. All six of the NEPOSS zones have been applied: Nature Reserve, Natural, Access, Historical, Development, and Resource Management. An additional zone, Recreation, has also been included per the MNR and NEC approved zoning of City View Park. This Recreation zone has been applied throughout the Waterdown-Sassafras Woods Heritage Lands to existing and planned intensive recreational uses.

The designation of a zone acknowledges that a range of activities may take place. It also highlights where existing incompatible uses are occurring. Within the Waterdown-Sassafras Woods Heritage Lands, existing incompatible uses include mountain biking in Nature Reserve classed parks and open spaces, and in Nature Reserve zoned lands (e.g., Waterdown Woods). The incompatibility of existing uses will be explored further with regard for the preferred use concept in the management plan, following refinement and acceptance of the classifications and zones recommended in this report.

Classification and zoning set the management direction for Waterdown-Sassafras Woods Heritage Lands. Following the review and approval of the recommended classifications and zones by the Steering Committee and Stakeholder Advisory Committee, recommendations for bringing existing uses in line with the recommended classifications and zones will be provided in the Waterdown-Sassafras Woods Heritage Lands Management Plan, along with opportunities for education, research, interpretation and restoration.

6.0 References

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Appendix 2: Waterdown-Sassafras Woods Heritage Lands Stakeholder Advisory Committee Members

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Linda Axford – Aldershot Resident
Susan Cooper – Ministry of Natural Resources and Forestry
Michael Fischer – Hamilton Naturalists’ Club
Guy Granka – Friends of Kerncliff Park
Lisa Grbinicek – Niagara Escarpment Commission
John Hall – Hamilton Harbour RAP
Cam Levack – Hager Creek Stewardship Group
Lorraine Norminton – Ministry of Natural Resources and Forestry
Gloria Pennycook – Iroquoia Bruce Trail Club
Shelly Petrie – Greenbelt Foundation
Paul Schnepf – Bicycle Works
Sue Somers – Waterdown Resident
Wayne Terryberry – McMaster University

Appendix 3: Suggested List of Issues to be Addressed in Each Proposed EcoPark System Guideline

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EcoPark System Guideline: Trails

- Lack of adequate and appropriate parking and access
- Lack of accessibility
- Trespassing
- Duplication and density of trails
- Overuse and erosion on trails
- Unsanctioned structures and trail improvements
- User Conflicts
- Off-leash dogs
- Natural area degradation associated with non-permitted recreational uses
- Safety concerns associated with non-permitted recreational uses
- Personal trails

EcoPark System Guideline: Education and Signage

- Consistent branding of the Cootes to Escarpment EcoPark System
- Identification of Current EcoPark System Lands boundaries to reduce trespass and encroachment issues
- Trespassing
- User conflicts
- Off-leash dogs
- Interpretation
- Natural area degradation associated with non-permitted recreational uses
- Safety concerns associated with non-permitted recreational uses
- Dumping
- Unsanctioned structures and trail improvements
- Interpretation
- Natural area degradation associated with non-permitted recreational uses
- Safety concerns associated with non-permitted recreational uses
- Personal trails
- Structures and “Yard Extension”
- Vegetation removal
- Cats/domestic pets
- Drainage and erosion
- Interpretation and commemoration

EcoPark System Guideline: Vegetation Management

- Natural area degradation associated with non-permitted recreational uses
- Vegetation removal (encroachment)
- Forest health decline
- Loss of open woodland habitat
- Conservation and recovery of species at risk
- Invasive species
- Noxious plants

EcoPark System Guideline: Edge Management

- Personal trails leading from backyards
- Structures and “yard extension”
- Dumping along edges of Current EcoPark System Lands (e.g., yard waste, Christmas Trees, potted plants)
- Vegetation removal along edges of Current EcoPark System Lands
- Cats/domestic pets
- Drainage and erosion (e.g., caused from swimming pool drainage)

Appendix 4: Definition of Stewardship Lands as Used Within the Management Plan Document

Appendix 4: Definitions of Stewardship Lands as Used Within the Management Plan Document

Identified privately-owned lands that are situated adjacent to properties owned by Cootes to Escarpment EcoPark System partners are referred to as ‘Stewardship Lands’ within this report. This term does not imply that there are formal stewardship agreements on these lands between private landowners and any partner within the Cootes to Escarpment EcoPark System. The term references the fact that there are opportunities for private landowners within the Stewardship Lands to seek advice from Cootes to Escarpment EcoPark System staff, if the private landowner is interested in projects that enhance the environment on their properties. This Management Plan is intended as a guiding document for partner staff at each of the nine partner organizations within the Cootes to Escarpment EcoPark System and does not impose restrictions to private landowners living in proximity to Cootes to Escarpment EcoPark System partner properties.

Entry onto identified Stewardship Lands by members of the public without express permission of private property owners is an act of trespass.