Conservation Halton

Parks Master Planning

Master Plan for Hilton Falls Conservation Area

Stage Three Report

MARCH | 2014

TCI Management Consultants

DILLON CONSULTING

EDA Collaborative Inc.

Approval Statement

We are pleased to approve the *Master Plan for Hilton Falls Conservation Area* as the official policy document for the management and development of this conservation area. The plan reflects Conservation Halton's intent to protect the natural environment of the Niagara Escarpment and the natural and cultural features of Hilton Falls Conservation Area and to maintain and develop high quality opportunities for outdoor education, recreation, discovery and enjoyment of the Niagara Escarpment by Ontario residents and visitors.

_____ _____

Ken Phillips
Chief Administrative Officer
Conservation Halton

Date

_____ _____

John Vice
Chair, Board of Directors
Conservation Halton

Date

I am pleased to deem this master plan in conformity with the general intent and purpose of the Niagara Escarpment Plan (2005) pursuant to S. 13-(1) of the *Niagara Escarpment Planning and Development Act*.

_____ _____

Deb Pella Keen
Director
Niagara Escarpment Commission

Date

_____ _____

Ray Pichette
Director
Natural Heritage Lands and Protected Spaces Branch
Ontario Ministry of Natural Resources

Date

Preface

The *Master Plan for Hilton Falls Conservation Area* is the principal guiding policy document for the planning, development and resource management of the conservation area, which is owned and administered by Conservation Halton. This master plan has been undertaken as recommended by the *Limestone Legacy* report prepared by Conservation Halton in 2007, which proposed a vision to create "a sustainable network of world class conservation parks for ecological health and to provide public greenspace for quality education and recreation." The visions, goals and objectives of that plan are attached to this report as Appendix III.

This plan was developed in a phased three stage planning process that was designed to address growing regional recreational demands while also ensuring the long-term protection and sustainability of this natural escarpment park. The planning process was structured to satisfy the legislative requirements of the *Niagara Escarpment Plan (2005)* and the *Conservation Authority Ac*t and has included extensive consultation with the public, stakeholders and related agencies.

Final approval of this plan is under the jurisdiction of the Ontario Ministry of Natural Resources in accordance with the *Niagara Escarpment Plan (2005)*. Upon approval of this document by the Board of Conservation Halton, submission is made to the Ontario Ministry of Natural Resources and Niagara Escarpment Commission for review, circulation and final approval by the Minister or designate of the Ontario Ministry of Natural Resources. The Master Plan will be the prevailing policy document for the next ten years from the date of the Ontario Ministry of Natural Resources approval

The Stage One Inventory and Analysis Report was released in March 2010. The Stage Two document Concept Alternatives and Management Considerations was released in August 2010 for circulation and response from the public and related agencies.

The *Master Plan for Hilton Falls Conservation Area* is the approved policy document for the management and development of Hilton Falls Conservation Area. This document sets out park zoning and conservation area policies for resource management and operations as well as development policies to guide proposed conservation area development.

Executive Summary

Vision Statement

To be one of Conservation Halton's regionally significant Niagara Escarpment Parks, protecting and sustaining the unique interior forest habitat and unique escarpment environment, while providing excellence in high quality educational and outdoor passive recreational experiences through enhanced facilities and amenities.

Significant Attributes of Hilton Falls Conservation Area

Hilton Falls Conservation Area possesses an impressive array of natural and cultural heritage features including:

- Together with the Halton Regional Forest Complex, it is part of one of the largest remaining publically owned natural areas in Southern Ontario;
- 655.5 hectares of forest including 410 hectares of interior forest with 275 hectares of deep interior forest comprising 67 different habitat types, expansive wetlands and escarpment rim features;
- A network of 35 kilometres of hiking, cross country skiing, and cycling trails, featuring 10 kilometres of the Bruce Trail;
- Part of the Niagara Escarpment UNESCO World Biosphere Reserve and identified as a Natural Environmental Park under the Niagara Escarpment Parks and Open Space System;
- Identification of the Hilton Falls Complex ESA - the largest ESA in Halton Region that includes headwaters of the Sixteen Mile Creek and extensive wooded areas creating an outstanding natural area;
- Identification as a Provincially Significant Area of Natural and Scientific Interest (ANSI) representing the Halton Forest South Life Science ANSI feature;
- Identification as Provincially Significant Wetlands for the Halton Escarpment Provincially Significant Wetland Complex;
- Over 699 plant species(53 rare, 127 uncommon), 152 bird species (22 rare, 38 uncommon), 30 mammal species (3 rare, 2 uncommon), 10 reptiles (2 rare, 1 uncommon), and 17 amphibians (3 rare, 5 uncommon) can be found in the conservation area and the immediate surrounding area;(rare and uncommon in Halton Region)
- Protected habitat for 12 species at risk as well as 5 globally rare and 9 provincially rare habitat types, and ancient Eastern White Cedars;
- Lowland areas containing a variety of wetland communities, including swamps, open aquatic, and shallow marsh vegetative communities;
- Remnant ruins of an 1840's saw mill archaeological site
- A major 1970's flood control reservoir that flows downstream into Kelso Reservoir;
- A modest visitor centre offering a variety of visitor information, orientation and interpretation with over 55,000 visitors in 2010.

- Existing natural heritage features provide the equivalent of $4.4 million in ecosystem services annually.

Existing Policy Framework

The *Master Plan for Hilton Falls Conservation Area* builds on and supports existing Conservation Halton and provincial policy documents including the *Conservation Halton Strategic Plan* (2009), *Halton Escarpment Parks – A Limestone Legacy* plan (2007) and the *Niagara Escarpment Plan* (2005).

The *Limestone Legacy* document outlines a draft strategy to protect and enhance Conservation Halton's system of escarpment conservation areas through a unique partnership between Halton Region and Conservation Halton

Within the provincial *Niagara Escarpment Plan (2005)*, Hilton Falls is designated as a Natural Environment Park that accommodates activities including high quality, low to moderate intensity recreation such as hiking, cross country skiing, snowshoeing, mountain biking, nature viewing and picnicking.

Summary of Significant Issues and Challenges

Financial Constraints: Over the past 20 years, with changes in government and priorities, Conservation Halton's funding for conservation area development and enhancement has almost disappeared. Therefore, Conservation Halton has been primarily using conservation area revenues to offset operating expenses with limited funds for basic capital maintenance work, new facilities or tools to monitor environmental impact. Currently there is no real capital funding source. This limited funding has resulted in the deterioration of natural heritage features, facilities and amenities as well as the quality of the visitor experience. Limited funding threatens Conservation Halton's ability to continue to protect and maintain, let alone improve or enhance, the conservation area.

Hilton Falls Conservation Area, along with the other Conservation Halton conservation areas, suffers from the impacts of severely limited tax-supported funding. Funding models in many other Conservation Authorities in Southern Ontario include regional, municipal and/or provincial tax levy support. Additionally, development charges permit fees and other associated development fees are charged against Conservation Halton for conservation area capital development projects. Other park agencies in the region are normally exempt from these fees and charges.

Growth in Visitation: Over the last five years, Conservation Halton conservation areas have experienced 9.4 percent annual increase in visitation, while the regional population has grown at a rate of 4.5 percent over the same period. This growth trend is projected to continue, if not accelerate over the next ten years. This growth represents regional resident's positive attitude towards participation in healthy-lifestyle pursuits and interest in conservation, but also represents a threat to the sensitive natural ecology of the site unless properly managed and serviced with the appropriate facilities.

Natural Heritage Protection: Hilton Falls Conservation Area's unique and diverse natural heritage system is generally well protected and secure. However, some deterioration was identified at certain heavily used locations along the trails system, highlighting the need for stronger monitoring and protection measures, especially in light of the population and visitation projections.

Cultural Heritage Protection: There is one registered archaeological site within the Hilton Falls Conservation Area: the area around the 1840's sawmill ruin at the falls site.

Visitor Experience: While the natural and cultural features of the Hilton Falls Conservation Area are spectacular and unique, the present built amenities, facilities and infrastructure are inadequate to serve the projected growth in visitation. While visitors currently enjoy their experience at the conservation area, continued growth will put facilities beyond the capacity they were built for, which will detract from the quality of the visitor experience.

Education and Programming: The educational programming at Hilton Falls Conservation Area is not well developed. The consultation process indicated interest and potential for Hilton Falls Conservation Area to become a leading site for outdoor recreation education particularly related to trails activities such as hiking, cross-country skiing and snowshoeing as well as education focusing on trails systems management for these forms of recreation.

Recommended Policies

This master plan has been developed to support the Hilton Falls Conservation Area as a significant regional destination for local visitors and tourists. This master plan:

- Ensures protection and enhancement of the natural heritage and cultural spaces of the site;
- Promotes environmental values, excellence in education, healthy lifestyles and outdoor recreation;
- Prescribes a workable visitor impact management(VIM) strategy that addresses the expected increased visitation and any accompanying potential impacts;
- Specifies development requirements and standards that meet the appropriate level of design excellence in high quality educational, interpretive and recreational facilities, programs and amenities; and;
- Outlines a realistic financial management strategy that defines funding and revenue generation requirements, potential partnerships, management and operational costs and that aims at ensuring long-term viability.

Highlights of the Development Proposal

The master plan identifies a range of new facilities to provide enhanced natural heritage protection, visitor experience, amenities, educational and interpretive opportunities and recreational conveniences. Financial and environmental sustainability are defining and, in some cases, limiting factors in the proposed list of master plan recommendations. Some of the proposed development may be exempted from requiring a Niagara Escarpment Development Permit in accordance with section 5.41 of Ontario Regulation 828/90. The main elements of the master plan are summarized as follows:

- A state-of-the-art renovation and addition to the existing visitor centre to accommodate the Hilton Falls Conservation Area's expanded role in relation to information, orientation, education and interpretation.
- A system of entrance, directional, interpretive and other signage that is consistently branded across all Conservation Halton conservation areas and standardized to meet accessibility, readability, risk management and marketing objectives.
- An enhanced, sustainably-designed system of small-scale roads and parking areas that promotes safety and security for visitors and a positive sense of arrival, and which is tastefully designed to harmonize with the natural setting of the conservation area.

- Upgrade existing access route and parking areas; resurfacing existing parking lot and access road, add a grass paver system to the overflow parking areas, add automatic gate at kiosk for pass holders.
- Site technology upgrades, including telephone and video surveillance (future).
- Accessibility upgrades for all buildings and pathways to meet the *Accessibility for Ontarians for Disabilities Act* (AODA) build environment standards.
- Trail system improvements to ensure protection and enhancement of the natural heritage system including some re-routing, re-construction and closure where appropriate.
- Provision of rental equipment such as cross-country skis and snowshoes.
- Redevelop the existing interpretive lookouts and stairs at the falls.
- An upgraded standardized palette of day-use passive recreation amenities such as 100 sq. meter picnic shelters and additional site furniture.
- Site services upgrades including electrical service and wastewater treatment that use sustainable technologies that demonstrate respect for environmental values associated with the site.
- Consideration of acquisition of additional lands for future expansion of the administrative facilities, recreational programming sites and natural heritage features and requirements.

Overall Capital Development Costs

Overall capital development cost for the build out of the proposed master plan for Hilton Falls Conservation Area amounts to approximately $5.94 million over a ten-year period. A generalized breakdown of this amount is summarized below.

Signage	$ 125,000
Roads and parking	$ 863,000
Picnic and site furnishings	$ 145,000
Visitor Centre / infrastructure	$ 1,365,000
Trails	$ 823,000
Restoration of natural features	$ 1,097,300
Visitors Impact Management Plan	$ 150,000
Subtotal	**$ 4,568,300**
Soft costs, fees, contingency (30%)	$ 1,370,490
Total	**$ 5,938,790**

Overview of Financial Parameters

The key financial and related parameters of the development plan for Hilton Falls Conservation Area are as follows:

- The cost of the development plan for Hilton Falls Conservation Area over the 10-year development timeframe is just under $5.94 million (measured in terms of 2010 dollars); a stable capital-funding source must be established to facilitate plan implementation.
- Attendance at the conservation area is expected to grow significantly to just over 95,000 by the year 2020.
- While more visitors will generate increased revenues, the financial analysis in this report demonstrates that this by itself will not be sufficient to offset the higher costs of operation; however, despite increased operating costs, Hilton Falls Conservation Area can operate on a break even basis or even generate a small surplus, through a variety of strategies.
- To provide the enhanced level of customer services and environmental protection called for in this master plan and not incur an operating deficit, a pricing study must be undertaken to determine how to increase net revenues or identify means to subsidize operating costs.

Putting it in Context – Conservation Halton's Contributions to Society and the Environment

Conservation Halton creates significant direct economic benefit in the community. The operations of Conservation Halton, plus the expenditures of visitors who come to the region to utilize the programs and services offered, create nearly $12 million of additional gross domestic product (GDP) in Halton Region alone. This is associated with 274 jobs in the Region, $8.4 million in wages and salaries and $5.7 million in additional taxes paid. If this were a single business or industry, it would be recognized as a significant component of the economic base of the Region. Beyond Halton Region itself, there are further economic benefits accruing across the Province of Ontario.

In addition to the economic impacts, Conservation Halton provides a valuable service to the community in terms of 'ecosystem services' – the impact of the forest and wetlands maintained by Conservation Halton in terms of filtering and cleaning water and air. Ecosystem valuation quantifies the cost of providing these services commercially as opposed to having conservation authority lands provide these benefits 'for free'. The estimated savings to society from these services provided by Conservation Halton's holdings are nearly $16 million annually.

Conservation Halton conservation areas provide a growing population with access to abundant, natural green space for leisure and recreation. More specifically, these spaces offer opportunities for recreation that promotes healthy living through physical activity and exercise. By keeping costs low, Conservation Halton conservation areas strive to offer accessibility to all residents while supporting communities that are culturally and socioeconomically diverse. In addition to serving local residents, as significant regional destinations, the conservation areas also serve to attract tourists to Halton Region.

The availability of Conservation Halton spaces, programs and services adds considerably to the perceived quality of life in Halton Region. This in turn can be extremely valuable in attracting the highly mobile 'creative class,' those individuals most likely to create businesses, invest in the community and bring new ideas and energies into the region. Thus, indirectly, Conservation Halton operations add to the attractiveness of the region overall as a place to live and work.

Financial Sustainability Strategy

The master planning process has made it abundantly clear that:

- While the prime focus of Conservation Halton's conservation areas has been and will continue to be protection and enhancement of the natural heritage resources, it is also imperative that there be consideration of the social and economic components of the sustainability model;
- As growth in visitation inevitably increases, so too must the investment in infrastructure, amenities, related facilities and the visitor impact management that is required to protect and enhance the natural heritage features, and thereby achieve and maintain the necessary balance between protection and usage;
- Protection of natural heritage resources requires key investments in:

Enhancements to existing facilities, infrastructure and amenities;

New facilities: educational, recreational and interpretive;

Protection and enhancement initiatives: visitor impact management, restoration, etc.

Annual base level of financial support should be sourced through Halton Region (the Province of Ontario and / or Municipalities, etc.,) as the main recipient(s) of the benefits provided by this conservation area. This should result from (and possibly be correlated with) the significant population growth occurring in the Region, which will by itself place a heavier demand on Conservation Halton's areas and facilities. A new and different business model needs to be developed for Conservation Halton, one that acknowledges the significant economic benefits conferred upon Halton Region by Conservation Halton, and recognizes the pressures placed upon Conservation Halton by population growth.

Consequences of not providing adequate on-going capital funding may include the need to implement one or more of the following actions:

- Raise admission fees at specific conservation areas;
- Raise membership fees;
- Charge differentially at peak times;
- Limit visitation;
- Limit access to certain conservation areas;
- Cut back on some of the programs and services currently offered;
- Cut back the proposed capital development program or extend it beyond the projected 10-year timeframe with subsequent increases in cost.

Conservation Halton creates valuable environmental, social and economic benefits, and provides significant value-added services to Halton Region. In order to enable Conservation Halton to continue to provide these benefits, ongoing investment in Conservation Halton's conservation area facilities and programs is required.

Acknowledgements

The *Master Plan for Hilton Falls Conservation Area* is the product of collective input from Conservation Halton staff, local residents and key stakeholders. These dedicated individuals addressed important concerns and issues surrounding the development of the master plan.

Those who made an effort to participate in the public meetings and design charrettes will have a greater sense of community ownership and pride, because they helped to shape the master plan concept and recommendations for Hilton Falls Conservation Area. The ideas of local citizens combined with the management experience of Conservation Halton and the analytical and design expertise of the consultants has produced a master plan concept to guide the future development of this unique and beautiful natural area.

Consultants

EDA Collaborative Inc. completed this study between November 2008 and March 2011. This document summarizes the factors including environmental, social, economic and management policy considerations that were taken into account in order to create an appropriate *Master Plan for Hilton Falls Conservation Area.*

Dillon Consulting Limited provided the environmental analysis and programming with particular attention to resource management policies.

TCI Consulting Inc. provided the economic evaluation, market analysis, and preliminary capital and operating budgets for the master plan.

Conservation Halton Master Plan Review Committee

Neil Switzer – Manager of Projects and Services

Angela Nonkes – Landscape Designer /Parks Planner

Robert Edmondson – Director of Watershed Management Services

Gene Matthews – Director, Conservation Lands

Marta Proctor – Director, Conservation Lands (past)

Lorrie O'Brien – Director, Conservation Lands (past)

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Linda Scott – Manager of Crawford Land and Mountsberg Conservation Areas

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Conservation Halton Board of Directors

Conservation Halton Foundation

FEREN

Halton Environmental Network

Halton Multi-Cultural Council

Halton Region

Halton Region Health Department

Ontario Parks

Our Kids Network (Vanessa Box-Jones)

Province of Ontario South Peel Naturalists

Sustainable Trails Limited

Funding for this project was provided by The Regional Municipality of Halton

Assistance for this project was provided by The Ontario Ministry of Natural Resources

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Section One: Introduction

1.1 Background

Master planning for Hilton Falls Conservation Area was undertaken to provide Conservation Halton with a sustainable management and development plan for the site to operate as a Natural Environment Park under the Niagara Escarpment Parks and Open Space System (NEPOSS). This planning process is important to the protection and management of the 655.5-hectare site, which is located in the Town of Milton, a part of Halton Region, in Southwestern Ontario just to the west of the Greater Toronto Area.

This report constitutes the third and final stage of the master planning process--the master plan. Previous stages produced the *Inventory and Analysis: Stage One Report* (EDA Collaborative Inc. 2010a) and the *Concept Alternatives and Management Considerations: Stage Two Report* (EDA Collaborative Inc. 2010b). Further details of the planning process can be found in Section 1.7 below.

1.1.1 Existing Conservation Area

Established in 1971, Hilton Falls Conservation Area is located within the area covered by the *Niagara Escarpment Plan* (2005) within the Town of Milton; north of Campbellville Side Road, north of Highway 401, east of Guelph Line and west of Sixth Line in the Town of Milton. Water management concerns resulted in the acquisition of the land base and the construction of the dam, reservoir and water diversion structure to the north of the reservoir. The outflow from this reservoir flows into the reservoir at Kelso Conservation Area.

The conservation area currently consists of 655.5 hectares, predominantly of escarpment plain forest. The approximate location of this conservation area is shown on Figure 1-1. The Bruce Main Trail and Side Trail traverse the study area; the main trail provides a pedestrian link from the Kelso Conservation Area to the south and continues northeast along the escarpment. Conservation Halton works with the Toronto Bruce Trail Club and volunteers to maintain these trails. There is an extensive trail system throughout the site. The most popular and intensively used route is the trail to the mill ruins, where people stop to picnic.

Hilton Falls Conservation Area is endowed with a combination of significant natural and cultural heritage features. These significant resources include the inherent qualities of its Provincially Significant Life Science ANSI, Niagara Escarpment site as part of the World Biosphere Reserve, Provincially Significant Wetlands and Environmentally Sensitive Area. It also has unique geological features such as the sinkholes and has cultural heritage artifacts such as the remains of the Hilton Falls Mill. Together, these features provide visitors with an exceptionally wide range of interpretive and educational opportunities on one site.

The lands comprising Hilton Falls Conservation Area have been designated as Escarpment Natural Area and a small percentage of Escarpment Protection Area under the *Niagara Escarpment Plan* (2005). The Escarpment Natural Area consists of a significant expanse of mature forest. The Escarpment Protection Areas are mainly former farmlands. Most of Hilton Falls Conservation Area is not suitable for development due to significant natural heritage features, topography and wetlands. See Section Two of the Stage One Report (EDA Collaborative Inc. 2010a) for policy constraints on development of these lands. Applicable policy documents are summarized in Section 1.3 below.

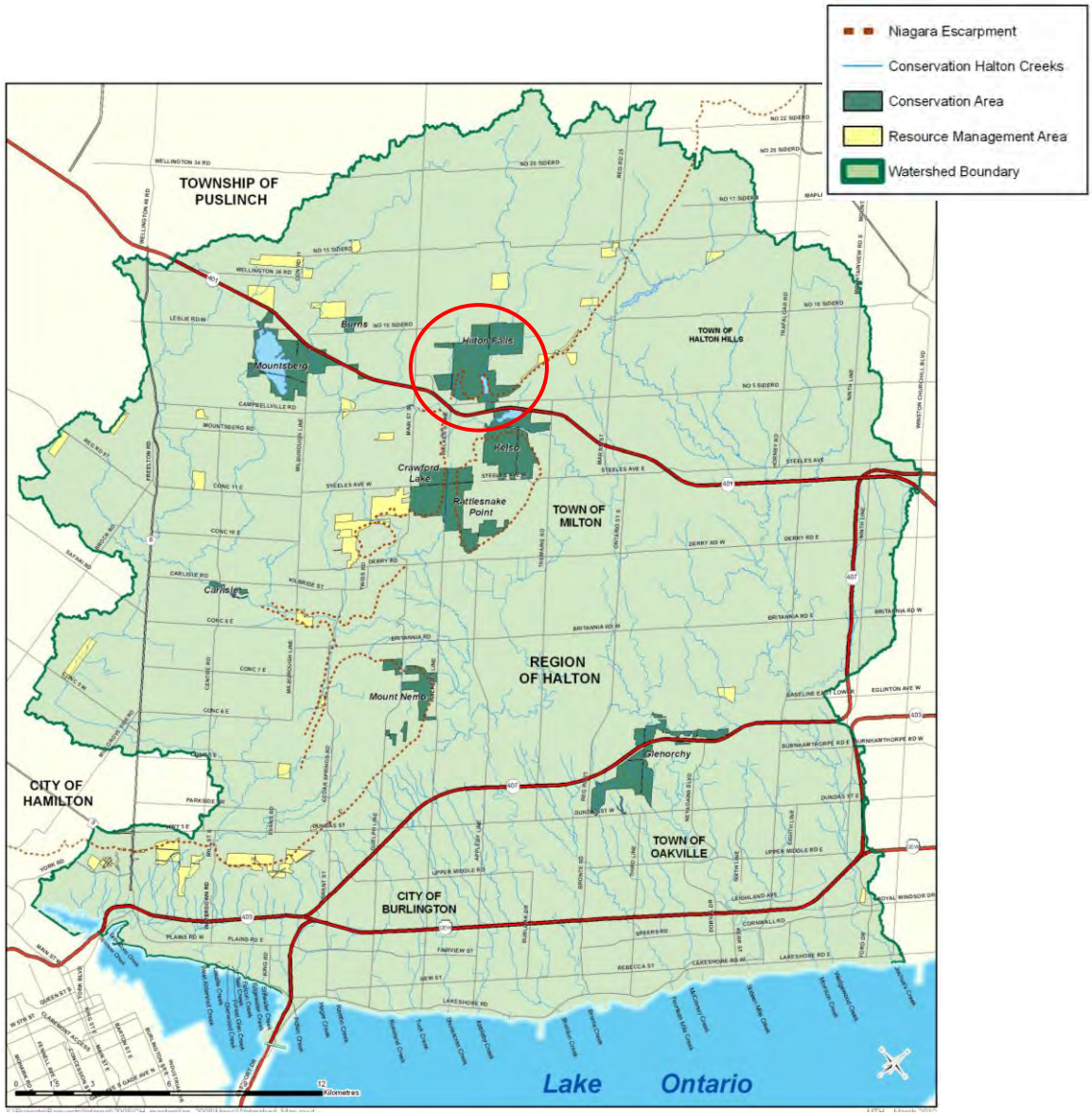


Figure 1-1: Location Map

1.1.1.1 Infrastructure

A number of facilities and amenities exist within Hilton Falls Conservation Area including:

- The entrance road to the conservation area is off Campbellville Side Road.
- A gatehouse (approximately 120 square feet, 11.2 square meters), was constructed in 2002 of wood frame construction with a pitched roof.
- The parking lot is located on the south end of the entrance road and contains 175 spaces.
- Key support facilities and amenities are available at the visitor centre and include a multi-purpose room, washrooms and administrative offices

The existing visitor centre (approximately 1264 square feet, 117 square metres) was constructed in 1982 with minor renovation in 2005. The building has a full concrete block basement and timber frame

structure above ground with board and batten siding on the walls. The building has electrical services, water, septic tank and telephone service.

- An open day-use area north of the existing parking area is used by visitors for picnicking, field games and related activities.
- All vault toilets on the site are open year-round to the public.
- A combination stairway and observation deck is located at the falls site. Constructed in 1989, the stairway has concrete footings, timber structure, steel grate treads and steel and wood handrails.
- A special observation platform (64m²) with interpretive signage at vernal pools, constructed in 2011

1.1.1.2 Recreation

Hilton Falls Conservation Area currently offers hiking, group picnicking, cycling trails, cross-country skiing, geocaching, nature study and photography. Geocaching is a recreational activity that Conservation Halton also allows within its conservation areas. Specific guidelines on geocache locations have been developed in order to minimize negative impacts from this activity. Guidelines include protocols to reduce off trail trampling and removing or relocating geocaches in environmentally sensitive or hazardous locations. Hilton Falls Conservation Area has approximately 35 km of trails within its boundaries. Cycling trails currently comprised 13km of trails, which are consistently monitored and maintained for environmental impacts.

1.1.1.3 Staffing

Hilton Falls Conservation Area, in conjunction with Mount Nemo and Rattlesnake Point Conservation Areas, has a dedicated staff, totaling about seven full- and part-time staff that has been developed over a number of years.

1.1.1.4 Visitation

In 2009, about 62,000 people visited Hilton Falls Conservation Area. The average for the years 2005-2009 is 53,000 but recent years have seen a decided increase in visitation levels. Most visitors to Hilton Falls Conservation Area are hikers, nature enthusiasts or cyclists. Groups school and Guides / Scouts, although low in numbers, do visit to picnic, hike and engage in curriculum / program related activities. As discussed in Section 5.2.1 below, visitation is expected to continue to increase in coming years.

1.2 Site Characteristics

The landscape character that is associated with the Niagara Escarpment Planning Area is evident at Hilton Falls Conservation Area. Contributing factors include natural features such as extensive forestlands, seeps and unique geological formations. Thus, the conservation area offers opportunities to interpret the natural environment, including ecosystem succession, the unique character of the escarpment itself, and the general patterns of animal and plant habitats of the Niagara Escarpment. Seasonal changes dramatically influence the visual character of the site. This wide diversity of natural heritage features renders the lands aesthetically valuable.

1.3 Site Ecology and Policy Context

Designated natural features in Hilton Falls Conservation Area and surrounding area include regionally and provincially significant landforms, globally and provincially rare vegetation communities and other natural heritage features including:

- Hilton Falls Complex Environmentally Sensitive Area (ESA)
- Halton Forest South Provincially Significant Life Science Area of Natural and Scientific Interest (ANSI)
- Halton Escarpment Provincially Significant Wetland (PSW)

The *Master Plan for Hilton Falls Conservation Area* must conform to numerous planning acts and policies, including but not limited to the *Planning Act*, *Provincial Policy Statement, Niagara Escarpment Plan*, *Greenbelt Plan*, *Places to Grow Act*, *Conservation Authorities Act*, the Regional Municipality of Halton's *Regional Official Plan* and the *Town of Milton Official Plan*. The implications of these policy statements are laid out in the *Stage One Report* (EDA 2010a).

Recently Halton Region has adopted an amendment to their official plan. Instead of land use designations called Greenlands A and B, they have initiated a Regional Natural Heritage System.

> *The goal of the Regional Natural Heritage System is to increase the certainty that the biological diversity and ecological function within Halton will be preserved and enhanced for future generations. ROPA 38 (Adopted December 16, 2009, approval pending)*

All of the conservation area falls under this natural heritage system classification.

1.4 Land Use Context

1.4.1 Regional Context and Surrounding Land Use

The population base within Southern Ontario is significant and growing rapidly. The estimated current (2010) population within a half-hour drive radius is just over 2 million, while that within a one-hour radius is estimated to be nearly 7 million. At anticipated growth rates, the population within the one-hour radius will be approximately 8.5 million by the year 2021.

The provincial growth plan, the *Places to Grow Plan*, sets population and employment targets that Halton Region must plan to achieve. Specifically, it needs to plan for a *total* of 780,000 people and 390,000 jobs by 2031. Thus, Halton Region needs to plan for an *additional* 134,000 people and 54,000 jobs in the years 2021-2031. Clearly, Conservation Halton's facilities and programs can draw on and will have to accommodate a significant and growing local and regional market.

Although the area is experiencing phenomenal population growth and will continue to do so for the foreseeable future, most of the surrounding area has a rural character. Moreover, the local municipalities as well as Halton Region are committed to "Smart Growth" principles of concentrating development and preserving open space.

The Halton Regional Forest Complex is located to the north and west of the conservation area, thus establishing a significant combined core forest area that is also designated Escarpment Natural Area.

The lands south of Highway 401 are generally designated Escarpment Protection Area with some small areas of Regional Natural Heritage System (ROPA 38, approval pending). Kelso Conservation Area lies within these areas south of Hilton Falls Conservation Area.

There are also some small areas of rural residential and agricultural uses to the south and west of the conservation area.

1.4.2 Local Context

1.4.2.1 Land Use

The area directly abutting Hilton Falls Conservation Area lies entirely within the Niagara Escarpment Planning Area and, thus, all land uses must comply with the policies governing the assigned designations. The conservation area is comprised almost entirely of Escarpment Natural Area with a small amount of Escarpment Protection Area.

1.5 Study Purpose

Master planning for Hilton Falls Conservation Area was undertaken to ensure that Conservation Halton meets its obligations under the *Niagara Escarpment Plan* (NEC 2005) and aligns with its own *Strategic Plan* (2009). It is also in fulfillment of the mission of the *Limestone Legacy* report (2007). The purpose of this new master plan is to update and renew the 1983 *Master Plan*. This process is important to the protection and management of the 655.5-hectare site which is part of a UNESCO World Biosphere Reserve.

The overall purpose of the master planning process was to protect and enhance the significant natural features and ecological functions of the conservation area while providing opportunities for the public to enjoy this spectacular area, appreciate its outstanding scenic beauty and participate in recreational opportunities. The master plan develops a vision and role for the conservation area in relation to other facilities within the Conservation Halton watershed. The *Master Plan for Hilton Falls Conservation Area* will serve as the principal guiding document for the future planning, design, development and resource management of Hilton Falls Conservation Area in accordance with all relevant Acts and regulations. It is applicable for 10 years from the date of formal approval by the Ontario Ministry of Natural Resources with opportunities for amendment as described in Section 7.4 below.

1.6 Study Goals and Objectives

The primary goal of the *Master Plan for Hilton Falls Conservation Area* is to create an optimum balance between environmental protection, resource management and public use. This goal was accomplished through a phased and integrative planning and consultation process. Objectives of the final master plan included:

- Identify heritage features and restoration area components;
- Establish NEPOSS zones for the protection of all significant natural and cultural features;
- Conduct inventory and market analysis of surrounding natural and recreational facilities;
- Recommend enhanced basic facilities and amenities to bring the areas up to standards appropriate to a regionally significant resource;
- Establish details of the type and location of current and proposed uses;
- Develop appropriate park zoning, development guidelines and management policies;
- Recommend species at risk monitoring and habitat management program;

- Assess the feasibility of implementing a Visitor Impact Management (VIM) program and recommend a suitable VIM plan;
- Conduct financial assessment and develop budget estimates for capital and operating costs;
- Address physical and financial accessibility barriers to visitation; and,
- Define carrying capacities for the conservation area's various uses.

1.7 Study Process

A master plan provides a long-range vision to guide development over a period of many years. The master planning process for this study involved three stages.

Stage one of the study provided the context and foundation for the master plan that was being developed for Hilton Falls Conservation Area. It summarized the site's existing environmental, social and economic features and factors, and opportunities and constraints that influenced the development of the final master plan. This required an extensive inventory and analysis process, the findings of which are documented in the *Inventory and Analysis: Stage One Report* (EDA 2010a).

The *Stage Two Report* consists of three development options including suggestions for programming, facilities and finances (EDA 2010b). The three conceptual options included Concept A - Upgraded status quo: provide proposed basic level of Conservation Halton conservation area services or meet expectations; Concept B - Basic level plus additional, "value added" services that exceed expectations and Concept C - Become a regional destination: a "must see/must do" experience. All concepts were built upon a major natural heritage system protection and enhancement program. These options were presented to interested members of the public and key stakeholders for review and discussion and, based on these findings: a preliminary preferred concept was identified.

Park Zoning is essential to the effective management of a park or open space. It can be used to assign land uses based on an area's significance for protection and potential for recreation within the context of a parks classification (NEP, 2005) As per 3.1.5 of the NEP, park zoning is required as part of Master Plan development for all parks within NEPOSS. The NEPOSS planning manual (MNR, 2012) describes this park zoning system in more detail These zones and respective management policies are presented in Section 3 of this report.

Other park management policies, such as trail development and cultural heritage protection, are also found in Section Three. These policies have been developed in accordance with governing policy documents such as the *Ontario Heritage Act*, the *Niagara Escarpment Plan* (2005) and the *Conservation Authorities Act*.

During this third and final stage of the master planning process the preferred concept as determined in stage two has been further refined and a phased implementation plan developed for Hilton Falls Conservation Area. The final master plan includes a phased implementation and management plan for Hilton Falls Conservation Area. The completed plan will be submitted to the Board of Conservation Halton for approval and then to the Niagara Escarpment Commission and the Ontario Ministry of Natural Resources for endorsement/ final approval.

1.7.1 Public Consultation

The master plan process started with visioning sessions with staff and board members in January 2009. In early February 2009, targeted interviews were held with interested organizations[1] to gain

insight into what they would like to see in the Master Plan for each park. On February 25, 2009 there was an initial open house to discuss proposed ideas for Hilton Falls, Rattlesnake Point and Mount Nemo. This open house was at Conservation Halton Administration office and had 37 public citizens attend, which included 27 organization[1] representatives. More information regarding the visioning and workshop can be found in Stage One Report: Appendix II.

After Stage I: Inventory and Analysis was complete, the development of three proposed concepts for Hilton Falls were brought forward and discussed at an Open House on May 29th, 2010. Also at the open house, discussion about Rattlesnake Point, Mount Nemo and Crawford Lake were had. The open house was advertised in the local papers, newsletters and on the Conservation Halton website, to which 15 public citizens attended the workshop which included 3 Metis Nation of Ontario members, and 3 Conservation Halton staff. An extensive survey was distributed at the parks and online regarding Hilton Falls, Rattlesnake Point, Mount Nemo and Crawford Lake Conservation Areas, to which 170 people responded. Survey results and information on the May 29th, 2010 workshop can be found in Appendix IV.
The preferred concept for Hilton Falls Conservation Area, derived from this review process, is based on Concept B presented in the *Stage Two Report* (Ibid.), The review process included survey results, detailed planning considerations, economical, environmental and social considerations. Concept "B" builds on the basic work proposed under Concept A (consisting of an upgrade of existing facilities to the enhanced base level proposed in *the Master Plans)*. Concept B further proposed to expand the existing visitor centre, add viewing platforms and a picnic shelter. Concept B represents a balance between environmental protection and public enjoyment.

The Four Park Master Plan Stage II Documents, Hilton Falls, Mount Nemo, Rattlesnake Point, and Crawford Lake were posted on Conservation Halton's website and letters were distributed to neighbours within 120 meters of the park on September 1, 2010. Newspaper ads were placed in local papers and Halton Conservation posted a media blast in September 2010 announcing the time and place of the Master Plan Stage II Open House. On October 7th, 2010 the preferred concept "B" for Hilton Falls was presented at two open houses held in the afternoon and evening at the administration office. In total 37 people attended the workshop, 15 staff, 20 residents and two consultants. A variety of opinions and issues were presented by members of the public. Some issues which were brought up at this meeting were keeping the hydro corridor as a meadow. These items were discussed and changes were made within the Stage III Master Plans. The Master plan was further refined based on input from the Ontario Ministry of Natural Resources, Halton Region, the Niagara Escarpment Commission, the Town of Milton and members of the public. In general, Conservation Halton has received requests for more adult learning opportunities and handicapped accessibility to the facilities and interpretive programs.

1.8 Significant Issues

The *Master Plan for Hilton Falls Conservation Area* has been developed in response to significant input from staff, current park visitors and a technical advisory committee. During this process, a number of significant issues have come to the fore, which it has been necessary for this master plan to address. These issues are summarized below.

[1] Organizations – Represents; Groups, Interested parties and corporate bodies. Examples; Ontario Climbing Coalition, The Bruce Trail Conservancy, Tourism Burlington, and Dufferin Aggregates

1.8.1 Visitation and Community Issues

Conservation Halton expects to see visitation expand considerably at its conservation areas due to the expected population growth for Halton Region (anticipated to be 71% over the next 20 years) and recreation trends (see section 5.1 below and Section 6.6 in the *Stage One Report*, EDA 2010a). At the open houses, concerns were expressed regarding community impacts that may result from development and increased visitation. Conservation Halton customarily locates activity areas away from adjacent neighbours and additionally provides buffers, such as hedgerows, to screen views and buffer sound. Moreover, Conservation Halton strives to work in harmony with its neighbours and considers their concerns at all times and will ensure that the Visitor Impact Management Program remediates any effects on neighbouring properties, Throughout the Master Planning process, invitations have been extended to neighbouring property owners, the general public and specific user groups to provide feedback to the proposed development options.
Concerns that the natural environment wasn't being given enough emphasis in these plans were raised; however, Conservation Halton's mandate includes providing appropriate levels of public access and recreational opportunities while being financially self-sustaining. Nevertheless, environmental protection has been of paramount importance throughout this master planning process. Many management policies are incorporated in this plan, most notably the Visitor Impact Management plan, and all development is confined to the Development Zone, with trails and other low-impact facilities being located in other zones.

Recent site inventory has revealed that public trails are located within the Nature Reserve Zone. The master plan calls for major upgrading of existing trails to minimize the potential for erosion and ponding. During this process, Conservation Halton will review the need to close or reroute trails away from sensitive areas.

Concern was expressed by representatives of the Ontario Ministry of Natural Resources and the Niagara Escarpment Commission about intensive mountain biking. This existing program will be maintained but not expanded. In addition, Conservation Halton is going to take a more active role in the management and monitoring of the activity. Through the Visitors Impact Management Plan and Trail Impact Monitoring Program, many steps will be taken to ensure minimal impacts on the park. Some measures which will be taken are; tracking visitations numbers, monitoring usage and the impacts of trail usage. Conservation Halton has decommissioned some trails with the cooperation of the Foresters of the Halton Regional Forest Complex and the cycling community.

1.8.2 Financial Constraints

Conservation Halton has been underfunded for more than a decade and has fallen behind in important infrastructure upkeep. Ongoing financial constraints are partially due to a lack of any supplemental regional / municipal or provincial tax levy support. Many other Conservation Authorities are supported by tax levies. Additional capital cost burdens include municipal development charge requirements when typically other public parks in Halton Region are exempt.

1.8.3 Cultural and Natural Resource Protection

This master plan suggests that Conservation Halton continue to develop and implement detailed management plans in areas such as invasive species control and monitoring species at risk, such that the natural heritage features and system at Hilton Falls Conservation Area are protected and enhanced to the greatest extent possible, using the most up-to-date knowledge and practices. Conservation Halton should also develop a comprehensive Cultural Heritage Resource Management plan to better

track, assess and protect areas of cultural, historical and archaeological significance within Hilton Falls Conservation Area and its other properties. Section Three elaborates on the need for, and some requirements of, these plans.

1.8.4 Provincial Policy

The policies of the Niagara Escarpment Plan (2005) aim to balance protection, conservation and sustainable development. The objective of the Niagara Escarpment Plan (2005) of particular relevance to this Master Plan include: to protect unique ecologic and historic areas, to maintain the Escarpment's open landscape character and to provide adequate opportunities for outdoor recreation as well as public access to the Escarpment. Development at Hilton Falls Conservation Area will be designed with the intention to:

- Preserving the natural scenery;
- Maintaining the open landscape character;
- Maintaining the cultural heritage landscapes;
- Maintaining natural vegetation cover, slope, terrain and other natural features (e.g. escarpment brow and prominent slopes);
- Protecting the view of the escarpment and the land in its vicinity;
- Protecting the natural environment; and
- Minimizing land use conflicts.

The Niagara Escarpment Parks and Open Spaces Planning Manuel (MNR,2012) advocates for a park zoning system; such a system has been used for this master plan. These NEPOSS zones, and management guidelines for each, are presented in Section Three of this report along with other park management policies such as for trail development, Visitor Impact Management and cultural heritage protection. These policies will be developed in accordance with governing policy documents such as the Ontario Heritage Act, the Niagara Escarpment Plan (2005) and the Conservation Authorities Act.

Section Two: Background Considerations

2.1 Environmental Benefits of this Conservation Area

Within the context of the Conservation Halton watershed, Hilton Falls Conservation Area supports a core area of the natural environment that connects many significant life science and earth science features with official designations defining their use. Hilton Falls Conservation Area lies within the Niagara Escarpment UNESCO World Biosphere Reserve, and is part of areas designated as Provincially Significant Life Science Area of Natural and Scientific Interest (ANSI), Environmentally Sensitive Areas (ESA), Provincially Significant Wetlands (PSW) and Regional Natural Heritage System.

The conservation area includes many natural features some of which include forest interior, corridor linkage, significant geologic formations, national and provincial species at risk, as well as globally and provincially rare vegetation communities. The natural heritage features associated with the conservation area were provided in three main maps in the *Inventory and Analysis: Stage One Report* including Figure 3-5 Core Conservation Lands, Figure 3-7 Areas of Functional Ecological Importance and Figure 3-10 Significant Natural and Cultural Features (EDA 2010a). These maps combined, delineate the natural heritage system discussed in Section 3.2 of the *Stage One Report* (Ibid.). Figure 3-5 is being reproduced in this report as Figure 2-1.

2.2 Social Benefits of Natural Areas

2.2.1 Benefits of Healthy Lifestyles and Outdoor Recreation

Conservation Halton's contribution to the health and wellbeing of residents of Halton Region cannot be overemphasized. Investment in parks and recreation brings societal and economic benefits to a community; it ensures the health of citizens both by helping to create a cleaner environment and by providing outlets for physical activity and psychological restoration, thereby also reducing health care costs. The province and Halton Region are both investing considerable resources in public health initiatives such as Active 2010, Active Halton and Walk this Way.

Recently, the Province of Ontario proposed a Children's Activity Tax Credit to encourage parents to involve their children in pursuits that help them grow as knowledgeable, involved, healthy and productive individuals. Considerable attention has also been given to youth diversion programs that help kids at risk to find healthy and fulfilling alternatives to the lure of gangs, drugs and crime. More money spent on programming for at-risk youth reduces spending on incarceration.

In addition to the benefits of outdoor recreation activities, Conservation Halton's conservation area programming helps to instill knowledge of, and respect for, environmental protection and sustainability, which helps to ensure a healthy and productive open space for future generations.

2.2.2 Public Use and Appreciation of Parks and Open Space

Parks and public open space contribute to a vibrant and healthy community. According to a 2009 Parks and Recreation Ontario (PRO) report based on an extensive survey of people from across Ontario, citizens consider parks and public open space to be highly valuable not only to themselves but to the community as a whole. The report concludes that:

> *Parks provide many values for users and to the community as a whole. Parks provide a sense of place in the community, allowing for escape, contemplation, discovery, access to nature, interpretive education and recreation. They also provide shelter, wildlife habitat, relief from urban form, reduce] the "heat island effect" and improve] air quality, and serve as buffers between residential and industrial areas. Parks enhance aesthetic quality, increase property values and improve the image and livability of communities. Recreation, through physical, social and artistic expression, provides opportunities for individuals to improve their health and wellness, socialize and interact with others, learn new skills, have fun and find balance in their lives. In particular, physical activity and stress reduction are two health issues that researchers identify as benefits of local parks and recreation to public health.*

Key findings of this report include:

- Recreation is important in achieving "work-life balance."
- Ontarians seek recreation opportunities in their communities and rely on municipal and non-profit recreation and parks services.
- Recreation needs to be accessible to everyone.
- All Ontarians benefit from parks and recreation: The use of parks and recreation services is spread almost equally across the age continuum.
- Most people are willing to pay for public recreation and parks.
- Ontarians understand the wider benefits of parks and recreation.
- Public space is vital to community health.
- Participating in recreation is a key determinant of health status and quality of life.
- Local parks and recreation services have a vital impact on community and social development.

Conservation Halton's move to create a regional system of high-quality, publicly-accessible natural areas to satisfy these public needs and desires. As a public agency, Conservation Halton has struggled to keep entrance fees low in order to be financially accessible to all people. The importance of this public service will only increase in the coming years.

2.2.3 Benefits of Contact with Nature

The concept of biophilia was first introduced by Harvard biologist Edward O Wilson in 1984. The word biophilia literally means "love of life." Wilson chose it to label what he defined as humans' innate and evolutionarily based affinity for nature. In the last few years, studies have begun to show it has significant and measurable effects on people's state of mind.

Many such studies have been conducted to explore the benefits accrued from exposure to natural elements. Overwhelming evidence has been accumulated, which has been summarized in a literature review written by environmental sociologist Dr. Cicely Maller and her associates at the School of Health and Social Development, Deakin University, Melbourne (1998). Summarized below are the benefits related to parks.

It has widely been found that views of, and contact with, nature have significant health benefits. It has been proven to:

- Positively influence immunity and cardiovascular function;
- Reduce stress;

- Promote healing;
- Improve cognitive function and self-esteem; and
- Alleviate anxiety and depression.

In addition, it has been found that involvement in nature-based activities in one's own community can foster a sense of belonging or a sense of place and enhance social ties and relationships, thereby boosting satisfaction with one's neighbourhood. Moreover, parks and nature are an affordable, non-elitist, highly accessible means of improving community health that may help people reach their full potential; however, parks are a public resource yet to be fully utilized for individual and community health and wellbeing.

Conservation Halton's conservation areas will undoubtedly confer many benefits to Halton Region and its citizens.

2.2.4 Local Values

As mentioned is Section One, Halton Region recently drafted *Amendment 38* for their *Official Plan*, which introduced the notion of a Regional Natural Heritage System (117(6)). One of the uses permitted in that system is "non-intensive recreation uses such as nature viewing and pedestrian trail activities." Moreover, Halton Region supports the provision of a diverse range of accessible cultural and recreational facilities and services as set out in the *Regional Official Plan* Section 161; and as part of their economic development policy, they express the intention to:

> *Promote Halton as a tourist and recreational destination for both its own residents and outside visitors based on the following themes:*
>
> *a) scenic beauty,*
>
> *b) extensive trails,*
>
> *c) a strong and diversified agricultural industry,*
>
> *d) waterfront,*
>
> *e) major outdoor and indoor recreational facilities,*
>
> *f) Halton's Heritage Features, museums and other cultural attractions, and*
>
> *g) indigenous goods and products.*
>
> *Regional Official Plan (170 (16))*

As part of the development of these recreation and tourism opportunities, Halton Region provided funding for this master planning process. Conservation Halton's *Limestone Legacy Plan* expressed the desire to create a superior system of regional parks, which would further Halton Region's cultural and recreational, economic development and stewardship goals. Local municipalities as well as Halton Region appreciate the natural beauty and recreation opportunities these lands afford them, as these natural areas enrich community life and guarantee unique experiences in a time of urban intensification.

2.3 Financial Benefits of Conservation Halton

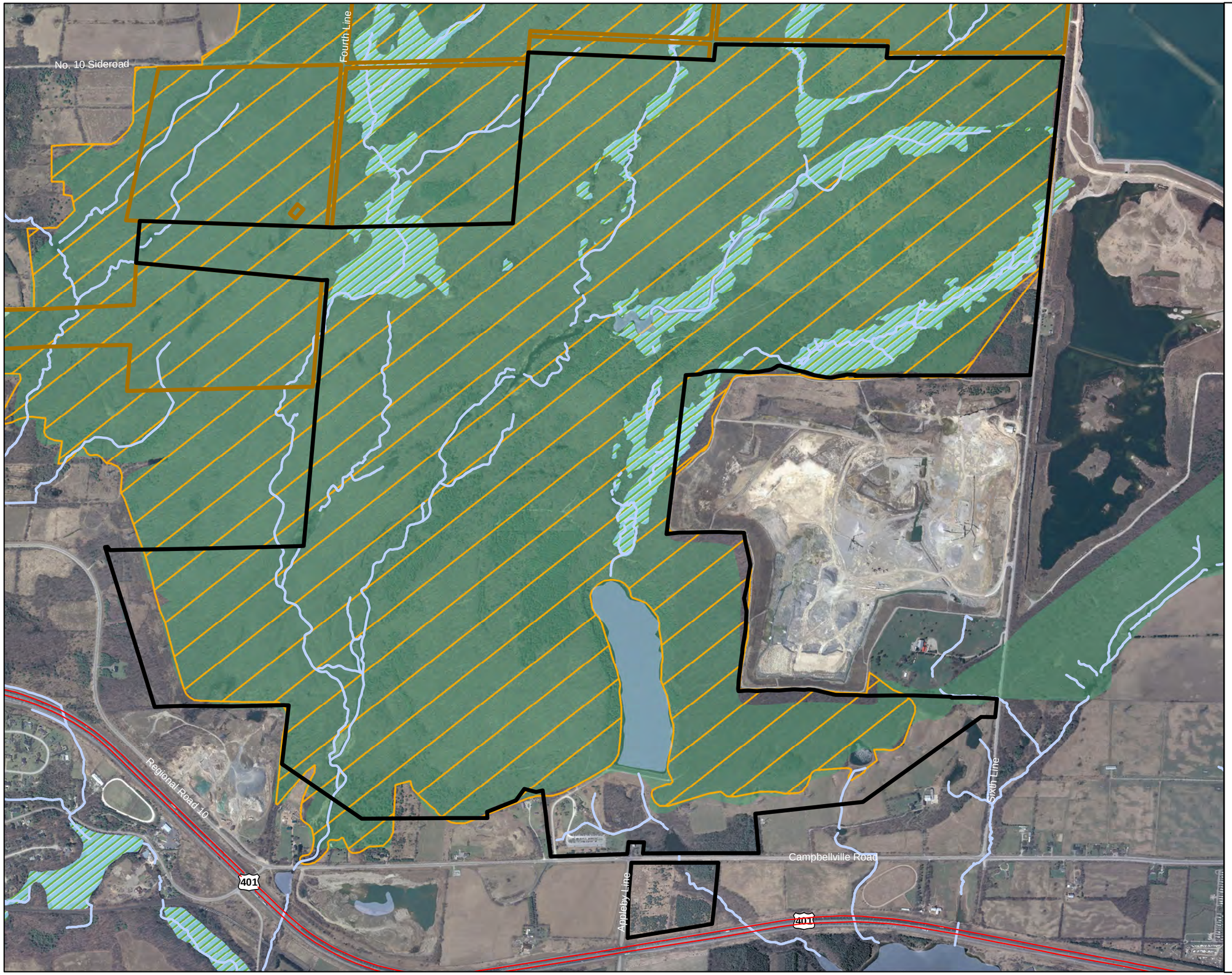
2.3.1 Ways in Which Conservation Areas Create Value

The *Stage One Report* for Hilton Falls Conservation Area contained an overview of the economic benefits that Conservation Halton's activities confer on its local community and Halton Region (EDA 2010a). Several ways Conservation Halton benefits the regional economy materially are:

- **Purchases of goods and services from the local area:** Conservation Halton is a large purchaser of goods and services from the region (including labour in the form of its employees). See section 2.3.2 for an estimate of the order of magnitude of these benefits.
- **Visitor attraction:** Conservation Halton conservation areas and facilities attract a large number of visitors from outside the community (as well as from outside the Greater Toronto Area) who spend money in the region, which in turn helps support local businesses.
- **Investment attraction:** Conservation Halton facilities and services increase the overall quality of life in Halton Region, and thus its attractiveness as a location for people to live and work, and as an area within which businesses can invest.
- **Contribution to a healthy community:** Somewhat more difficult to quantify, this aspect nonetheless has a very real value. By contributing greenspace to the community, and providing opportunities for individuals and families to have recreational and outdoor experiences, Conservation Halton helps Halton Region overall to offer healthy-living choices and opportunities for residents and visitors alike.
- **Value of ecosystem services:** The wetlands and forest areas preserved by Conservation Halton add tangible value to the community because they in effect provide filtration and cleansing services for air and water. If commercial prices were paid for these cleansing services, the costs would run into the millions of dollars. Estimating the value of these services that otherwise might have to be provided commercially, provides another measure of value of Conservation Halton's services. See section 2.3.3 for an estimate of the order of magnitude of these benefits.
- **Watershed protection:** The floodplain management activities of Conservation Halton protect communities within the watershed from ongoing damage such as erosion and spring flooding, as well as potential destruction in the event of storms and severe weather events.
- **Increased land value:** The values of residential and estate properties located adjacent or near to conservation area properties can increase by virtue of this proximity.
- **Educational value:** Finally, the provision of educational programs and services to the local and regional community can have an economic impact. An educated populace will understand and respect the purpose, values and activities of conservation organizations, and may be more likely to support their activities in future through tax support, donations and attendance at various events and programs.

Thus, a considerable range in the nature and type of economic benefits generated in Halton Region and area result from the existence of Conservation Halton. Further details relating to this conservation area can be found in the Stage One Report for Hilton Falls Conservation Area (EDA 2010a).

Figure 2-1: Core Conservation Lands



CONSERVATION HALTON

Hilton Falls Conservation Area
Core Conservation Lands
Figure 2-1

Legend

- Regulated Watercourse
- Waterbody
- Hilton Falls Conservation Area
- Halton Regional Forest Complex
- Provincially Significant Wetlands (PSW)
- Halton Forest South Provincially Significant Life Science Area of Natural andScientific Interest (ANSI)
- Hilton Falls Complex Environmentally Sensitive Area (ESA)

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2.3.2 Economic Impact of Conservation Halton Operations Overall

As mentioned, the *Stage One Report* for Hilton Falls Conservation Area contained an overview of the economic benefits of Conservation Halton's activities (Ibid.). Using the provincial economic impact model (TREIM) the expenditures both of Conservation Halton, and of visitors from outside the region, were modeled to determine the extent of these benefits. The *Stage One Report* contains all of the details in this regard. The chart below presents the summary of the impact of Conservation Halton's expenditures (based on Conservation Halton's 2010 budget). These estimates are of the economic impact of the entire authority's operations. At the level of analysis presented here, it is impossible to distill the results for any specific conservation area, because so many of the operations of Conservation Halton cannot be singled out and allocated to one conservation area as opposed to another.

Table 2-1: Total Impact of Conservation Halton Expenditures

Impact Variable	Impact in Halton Region	Impact in the Rest of Ontario	Total Ontario
GDP($)	$11,977,770	$10,666,436	$22,644,206
Employment (jobs – FTJE*)	274	195	469
Labour Income($)	$8,443,598	$7,581,634	$16,025,232
Federal Taxes ($)	$3,309,502	$2,637,956	$5,947,458
Provincial Taxes ($)	$2,350,365	$1,891,929	$4,242,294
Municipal Taxes ($)	$38,008	$105,356	$143,364
All Taxes ($)	$5,697,875	$4,635,241	$10,333,116

** full-time job equivalents*

The operations of Conservation Halton represent a positive return-on-investment for the community. The $20.670 million dollar budget of Conservation Halton generates $22.644 million in associated economic impact, measured in terms of additional GDP in the province overall. In other words, every dollar of operating budget spent by Conservation Halton is associated with $1.10 of GDP in the province. The operations of Conservation Halton are associated with 469 jobs province-wide, which are associated with labour income of approximately $16 million. Finally, the operations of Conservation Halton are associated with over $10 million of tax revenue accruing to the three levels of government.

In addition, the tables above show much of this economic impact occurs in and to Halton Region: nearly $12 million annually in terms of GDP. An even greater benefit to Halton Region is not accrued, perhaps because the Region is part of the highly interdependent Greater Toronto Area (GTA) economy, so necessarily there is some degree of leakage to areas outside the Region itself. For example, 48 % of the employees of the Conservation Halton live in the Region, implying that a majority – 52% - live outside Halton Region.

In summary, the activities of Conservation Halton confer significant economic benefits to both Halton Region and the Province of Ontario.

2.3.3 Value of Ecosystem Services

A recent report by the Suzuki Foundation (2008) presented a procedure to measure the value of 'ecosystem services' provided by large tracts of open space, forests and wetlands in Ontario's Greenbelt. (As mentioned above, this is a measurement of value based on what it would otherwise cost to provide filtering and cleansing services.)

The value of ecosystem services provided by Conservation Halton's holdings is just under $16 million per year, given Conservation Halton owns approximately 11,000 acres and the value of ecosystem services is $1,444 per acre on average (Ibid.)

An estimate of the total value of ecosystem services provide by Hilton Falls Conservation Area can be obtained by applying detailed information for the Suzuki report to specific types of land cover. The calculations are shown in Table 2-2.

Table 2-2: Hilton Falls Conservation Area – Value of Ecosystem Services

Land Cover Type	Value Per Hectare	No. of Hectares in Hilton Falls Conservation Area	Value of Corresponding Ecosystem Services
Wetland	$14,153	84	$1,188,852
Forest	$5,414	597	$3,232,158
Total Estimated Value of Ecosystem Services for Hilton Falls Conservation Area			*$4,421,010*

Value per hectare sourced from Suzuki Foundation 2008

To put this information into context, assume that the value of ecosystem services is equivalent to an income stream. If the value referenced above (i.e. $4,421,010) represented the income from an investment, generating a 5% return on capital, what would the size of that investment need to be to generate a return of this magnitude? Capitalizing the income stream reveals the value of investment that might be warranted in the conservation area in order for it to continue to provide ecosystem benefits of this magnitude.

Section Three: Goals, Objectives and Management Policies

3.1 Conservation Area Policies

3.1.1 Park Classification

The Niagara Escarpment Parks and Open Space System was set in place to protect: unique ecological and historical areas; to provide outdoor education and recreation; to provide public access to the Niagara Escarpment; to secure a route for the Bruce Trail; and to support tourism. Hilton Falls Conservation Area is a "Natural Environment" park under the classification system developed by the Niagara Escarpment Commission, within the Niagara Escarpment Plan (NEP, 2005) This designation is described as follow:

> *These lands are characterized by the variety and combination of outstanding natural features, historical resources and outstanding landscape.*
>
> *Natural Environment areas provide opportunities for the protection of important natural and cultural features. Activities may range from back-country hiking in the interior of these areas to car-camping and day use activities in the more developed or accessible areas.*
>
> *(NEP 2005)*

Rationale: The conservation area includes many natural features: forest interior, corridor linkage, significant geological formations, national and provincial species at risk, as well as globally and provincially rare vegetation communities.

Objectives for the conservation area: to protect and enhance important natural and cultural features; to provide access to the Niagara Escarpment; to provide high quality service and amenities; and to provide appropriate levels of recreational and educational programming

3.1.2 Vision Statement

To be one of Conservation Halton's regionally significant Niagara Escarpment Parks, protecting and sustaining the unique interior forest habitat and unique escarpment environment, while providing excellence in high quality educational and outdoor passive recreational experiences through enhanced facilities and amenities.

3.1.3 Goals

Under this master plan, Hilton Falls Conservation Area shall provide an appropriate range of passive recreational facilities and resource management programs to best meet regional needs in a sustainable, environmentally appropriate and fiscally responsible manner.

Therefore, the goals of this master plan are:

- To protect and enhance the significant natural heritage features and ecological functions of the conservation area
- To provide recreational opportunities and opportunities for the public to enjoy this spectacular area, appreciate its scenic beauty and cultural resources
- To implement program and development opportunities that capitalizes on the unique features of the area.

For Hilton Falls Conservation Area, the unique features include the falls and mill ruins, the spectacular forest and its many trails, sinkholes and seeps. In addition, an overall upgraded level of service and amenities is proposed by this master plan. This enhanced base level will enable this conservation area to meet visitors' expectations for a first-rate regional park in terms of arrival and accessibility, services, facilities and amenities, and quality of programming and environmental services.

3.1.4 Objectives

1) To protect and enhance all significant environmental features.
2) To comply with the established park zoning and management policies, in accordance with the Niagara Escarpment Plan (2005) and the *Niagara Escarpment Parks and Open Space Planning Manual* (MNR, 2012); this will then guide all future development and management operations.
3) To continue the development and implementation of a Visitor Impact Management program for recreational use so that visitors do not exceed the carrying capacity of the natural resource base.
4) To provide year-round group and individual recreational opportunities and facilities within the constraints of the site's natural features and carrying capacity in accordance with Halton Region's 'Healthy Living / Healthy Communities" model and Conservation Halton corporate goals.
5) To minimize any adverse effects of the area's use or development on surrounding properties through appropriate management techniques.
6) To operate the conservation area in a financially sustainable and self-sufficient manner with surplus revenues directed to other Conservation Halton programs.

3.2 Enhanced Base Level of Services

The proposed base level of conservation area facilities and services is meant to help Conservation Halton develop a standard of excellence within their conservation area system. This enhanced base level of service includes a range of measures that was developed in consultation with Conservation Halton staff, stakeholders and the public.

The proposed base level of service would be instituted at all Conservation Halton conservation areas and would include:

- Clear corporate branding

Consistent visual standards for all signage, facilities and buildings that establish each conservation area as part of the Conservation Halton portfolio.

- Arrival and accessibility

Consistent directional and identification signage including directional and orientation;

A fee collection system including a gated structure;

Organized, sustainably-designed parking and visitor amenities in the arrival area;

A public day use area;

A minimum level of universal accessibility with specifically identified areas that meet Facility Accessibility Design Standards (FADS) and *Accessibility for Ontarians with Disabilities Act* (AODA) built environment standards;

Controlled access to the natural heritage system.

- Services

Staff presence (augmented with volunteers) to collect fees, offer information, directions and some level of interpretation;

Visitor safety and security measures that include a modified entry control system.

- Facilities / amenities

Facilities that reinforce Conservation Halton's corporate identity program;

Clean, sanitary and accessible washrooms;

Consistently-designed interpretive signage;

A trail system that meets Conservation Halton standards and is constructed to protect the natural heritage system and provides amenities that may include benches, signage, mapping, identifier markers and trail etiquette rules;

Day-use facilities that may include benches, rest areas, picnic areas with potable water (if possible) and shelter;

Basic products for purchase (e.g. water, snacks, etc.).

- Quality assurance

A consistent and sustainable approach that demonstrates Conservation Halton's values and corporate mission;

High-quality management of the natural heritage system, species at risk and other features;

A Visitor Impact Management (VIM) program that includes positive reinforcement and education, monitoring of impacts and staff education and training;

High-quality sustainability standards in the design and construction of all buildings, features, facilities, site and landscape development such as Leadership through Energy and Environmental Design (LEED) and the American Society of Landscape Architects (ASLA) Sustainable Sites Initiative (SITES) – these are described in more detail in Section 2.3 of the *Stage Two Report* (EDA 2010b);

A consistently high level of maintenance and operations.

- Consistent interpretive themes

Conservation authority and watershed;

Niagara Escarpment;

Sustainable park use / Visitor Impact Management;

Cultural heritage.

3.3 Priority Protection Areas

The boundaries of the priority protection areas have been determined through a comprehensive process of inventory and analysis based on the practices of integrated landscape planning and natural heritage system strategies. The Priority Protection Areas were developed by means of prioritizing and

ranking all the features identified as natural heritage features together with the core conservation areas of ESAs and ANSIs'. The priority areas were then used as the basis for defining the boundaries of the park zoning system. Under the *Niagara Escarpment Plan*, (2005) zoning is stipulated as essential to the orderly planning, development and effective management of protected natural areas.

See Table 4-1 in Appendix I for a summary of the criteria evaluated and the rationale for the priority protection provided for each criterion. In many cases, multiple criteria overlap and it is the most restrictive of these that determined the priority level for any particular area. The primary features requiring management are highlighted below.

3.3.1 Priority Level 1

Priority Level 1's purpose is to provide for the long-term protection of all natural features deemed to be particularly sensitive to passive recreation or related infrastructure. Elements that fall under this category are: Provincially Significant Wetlands; Sensitive deep forest interior (≥200 m); coldwater and potential coolwater thermal stream classifications (30 m buffer ;) rare vegetation communities (G1 – G3 & S1 – S3); species at risk; globally and provincially rare species; seeps; vernal pools; bat hibernacula; municipal well head protection area (100 m radius), ancient eastern white cedars; forest monitoring plot, forest bird monitoring stations better(0-30 m); and escarpment face slope (45-80%).

3.3.2 Priority Level 2

Priority 2's purpose is to protect natural areas with high-quality attributes that contribute essential habitat or add essential components to the natural heritage system. Elements which fall under this category are; Provincially Significant Wetlands (<30 m buffer), potential coolwater and warmwater thermal stream classification (30 m buffer), Halton region rare species; Non-Provincially Significant Wetlands (>2 hectares + 30 m buffer); Non-Provincially Significant Wetlands (<2 hectares + 15 m buffer); municipal well head protection area (100 m to 2 year time of travel); floodplain hazard; vernal pool (30 m critical function zone); stable top of bank hazard component (15 m buffer), meander belt hazard component; EMAN plot, forest bird and fish monitoring station buffer (31-100 m); and talus and other slopes (8-25% & 25-45%).

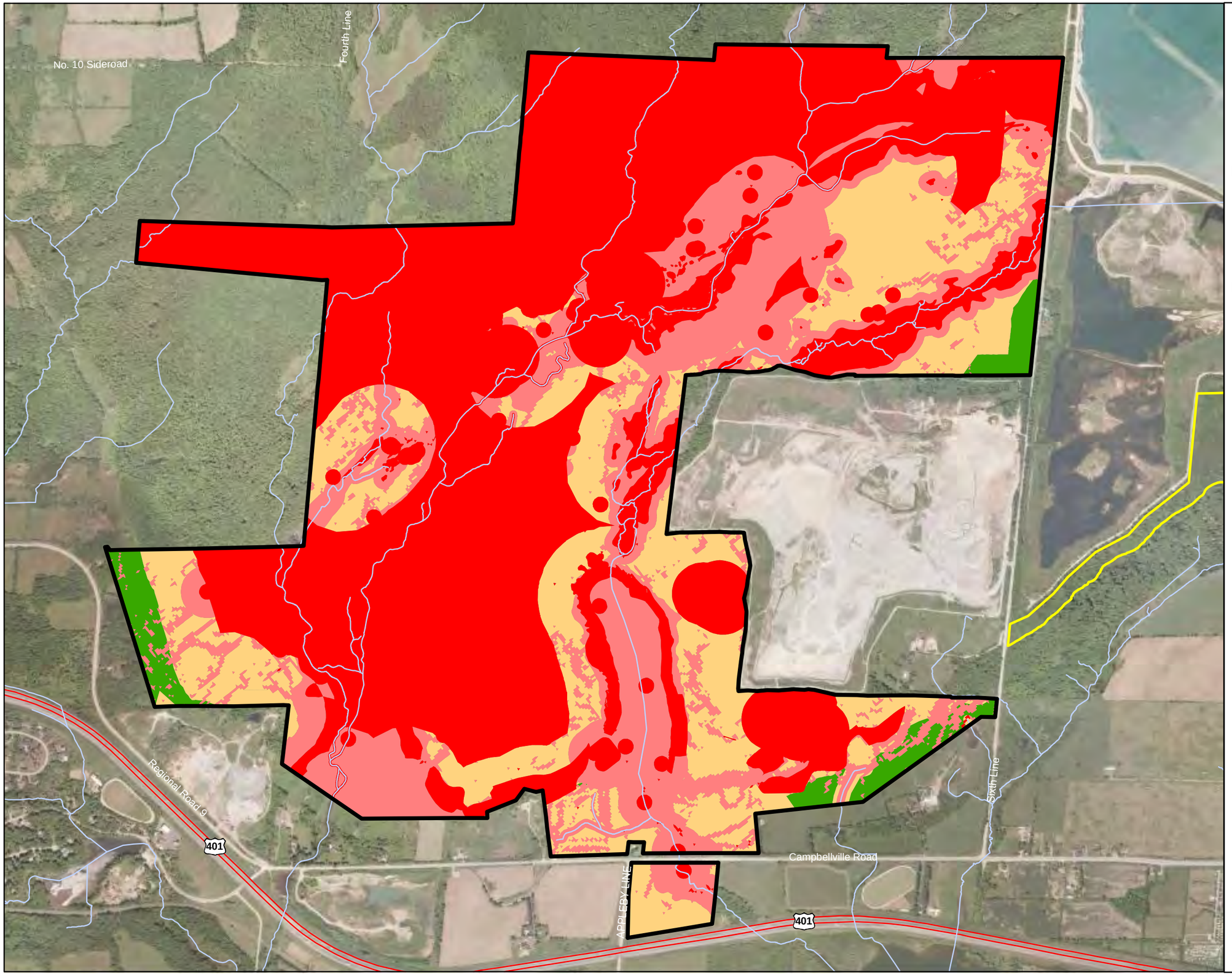
3.3.3 Priority Level 3

Priority Level 3 has a similar purpose to the above priority level but with a focus on protecting features that are typically more resilient to public access. Elements which fall under this category are; seeps (30 m buffer), floodplain (15 m buffer) veteran trees, environmentally sensitive areas(ESA); Area of Natural and Scientific Interest (Life Science); escarpment natural area; meander belt hazard component (15 m buffer) stable top of bank hazard component (15 m buffer); interior forest (≥100 - 200 m); municipal well head protection area (2 year to 5 year time of travel); watercourses' (15 m buffer;) and cultural heritage features.

3.3. 4 Priority Level 4

Priority Level 4's purpose is to recognize and protect areas that already provide a level of protection to some of the more sensitive natural features and their functions in the conservation area. Elements of the natural environment that fall under this category are; Areas of Natural and Scientific Interest (Earth Science); provincially significant wetland buffers (31-120 m); escarpment protection area; fringe forest

Figure 3-1: Priority Protection Areas



CONSERVATION HALTON

Hilton Falls Conservation Area
Priority Protection Areas
Figure 3-1

Legend

- Regulated Watercourse
- Hilton Falls Conservation Area
- Halton Regional Forest Complex
- Escarpment Resource Management Area

Priority Level

- 1
- 2
- 3
- 4
- 5 (N/A)

Jefferson Salamander habitat, as per the Habitat Regulations, has not yet been mapped for this conservation area and therefore it is not shown on the map. Further additional species at risk may also be present

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(<100 m); plantations, regenerating habitat, and hedgerows; warmwater forage fish thermal stream classification and a 15 m buffer; municipal well head protection area (25 year time of travel); Non-Provincially Significant Wetlands (>2 hectares + 31-120 m buffer); Non-Provincially Significant Wetlands (<2 hectares +16-30 m buffer); and Lookouts.

3.3. 5 Priority Level 5

Priority Level 5 is to provide protection for all remaining natural features that supports the ecological function for a greater variety of species and connections between the larger landscape matrix. Elements within this level are: escarpment rural area; agricultural fields and cultural meadows; existing facilities; and utility easements.

3.4 Park Operations Policies

Conservation area activities are subject to the *Conservation Authorities Act* (R.R.O. 1990, Regulation 116) and Ontario Regulation 365/88. In addition to these, the following general policies shall be adopted:

Trail use and any other recreational or educational activity permitted in the conservation area will be allowed to take place as long as:

- The capacity of proposed facilities is not exceeded;
- No significant environmental degradation of the natural resource base occurs; and
- The Visitor Impact Management (VIM) program is implemented to monitor impacts and provide management with a means to curtail recreational overuse and provide corrective measures.

Event activity areas will generally be restricted to the Development Zone of the conservation area with the exception of specialized activities that may require utilization of the trail system. Permitted events will only include those that are deemed compatible with the general nature and capacity of the conservation area without negatively affecting conservation area resources or users. Permits or bookings shall be negotiated and approved by customer service staff under the supervision of the conservation area manager.

Bookings for educational programs will be organized, delivered and invoiced by customer service staff. The staging or hosting of special, historic or tourism events shall typically be organized and operated by Conservation Halton staff as an integral component of natural and cultural education services. Additional special events will also be permitted by private groups or individuals at various locations subject to negotiation and issuance of a special-use permit by Conservation Halton. Additional special events permits shall be negotiated on a case-by-case basis.

3.4.1 Accessibility Policy

As a public agency, Conservation Halton has an obligation to make its resources and services available to all members of the public. Therefore, Conservation Halton shall, to the greatest extent possible, remove financial barriers to enjoyment of its conservation areas. In addition, Conservation Halton's will attempt to ensure that its infrastructure is consistent with *Accessibility for Ontarians with Disabilities Act* (AODA) built environment standards where possible.

3.4.2 Facility Sustainability Policy

As an agency entrusted with vast tracts of ecologically important lands, Conservation Halton shall provide, to the greatest extent possible, facilities and services that protect and enhance the natural heritage system. This entails building facilities, to the highest standard and siting them in non-sensitive areas. Moreover, all development should conform, to the greatest extent possible, to guidelines offered in the Leadership in Energy and Environmental Design (LEED) Green Building Rating System and the Sustainable Sites Initiative (SITES) Guidelines and Performance Benchmarks (2009). Such guidelines include best practices for managing onsite rainwater, the use of native vegetation in landscaping, high energy and water efficiency in building design, the use of alternative, 'green' sources of energy and reuse or recycling of existing materials. All development shall be kept to a minimum, conform to good site-planning standards and shall not conflict with the general landscape character. For trail sustainability guidelines see Trail Development, Use and Management in Section 3.4.4.

3.4.3 Niagara Escarpment Parks and Open Space System Management Zones

The *Master Plan for Hilton Falls Conservation Area* employs the zoning system of the Niagara Escarpment Parks and Open Space System (NEPOSS). This system consists of the following six standard park zones: Nature Reserve Zone, Natural Zone, Access Zone, Historical Zone, Development Zone and Resources Management Zone. The Special Protection Area has been used to better recognize and protect high quality or fragile resource areas within the Nature Reserve Zone.

Figure 3-2 illustrates the park management zones assigned to different portions of the conservation area. This section of the report sets out the management policies and permitted uses for each of these zones.

Park zones are intended to fulfill the following functions:

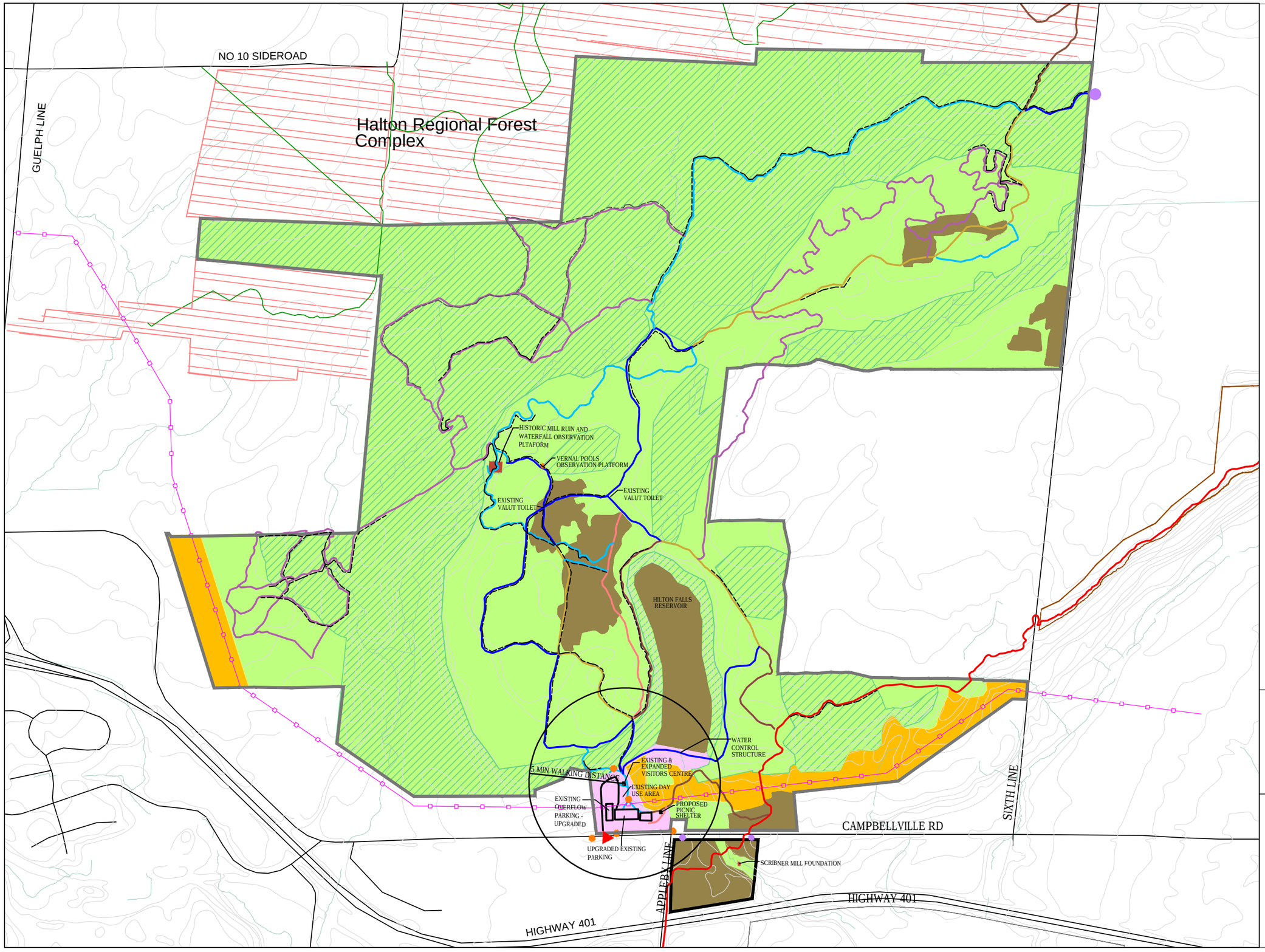
- Identify and provide recognition of the natural and cultural features and attributes of the conservation area;
- Delineate areas on the basis of their differing requirements for management; and
- Ensure park users get the most out of the individual conservation area, within environmental protection constraints.

This conservation area has no land designated as an Access Zone.

3.4.3.1. Nature Reserve Zone

Purpose:
The Nature Reserve Zones include significant natural features or areas that require careful management to ensure the long-term protection of their natural values (NEP, Section 3.1.5, 2005). The aim is to protect natural features that are sensitive to passive recreation or related infrastructure. The Nature Reserve Zone shall preserve and protect lands that serve important ecological functions with emphasis on their long-term protection and management. Some examples of features in this zone are; Escarpment features (brow, slope, toe, face,) ANSIs', interior forest and endangered or threatened habitats. This zone is comprised of approximately 576 hectares or 88% of the total area at Hilton Falls.

Figure 3-2: Master Plan with Park Zones



CONSERVATION HALTON

Hilton Falls Conservation Area

Figure 3-2

Master Plan with Park Zones

Legend

- Conservation Area Boundary
- Other Conservation Area
- Road
- Contour 5m intervals
- Watercourse

Conservation Halton Trails

- Single Track
- Single Track -Preferred Biking
- Medium Service Trails
- High Capacity Trails

Bruce Trail Conservancy

- Main Bruce Trail
- Side Bruce Trail (Single Track)
- Side Bruce Trail (High Capacity)
- Nature Reserve Zone
- Special Protection
- Natural Zone
- Historical Zone
- Resource Management Zone
- Development Zone

Symbols

- Utility line
- Proposed Trail Management
- New Signage
- Halton Regional Forest Trails
- Existing Structure
- Historical Structure
- Halton Regional Forest Complex
- Public Access
- Service Access

0 250 500Meters

W N S E

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Permitted Uses:
Generally this zone should preclude activities except those deemed appropriate for environmental stewardship purposes. Limited visitor usage may be considered where it has been established that there will be minimal negative impacts for the proposed uses. Activities will be restricted to passive and low intensity recreation including hiking, environmental scientific research, wildlife and forest management practices that contribute to the sustainability and/or enhancement of the natural system. Current uses within this area (i.e. cycling and hiking) will be maintained so long as environmental impacts on the natural features are minimal to none. There will be no intensification of mountain biking within the Conservation Area and Conservation Halton is committed to re-routing and/or decommissioning trails if negative environmental impacts are observed. Development is generally restricted to trails, signage, temporary research facilities and conservation practices. Public access to these areas should be managed carefully through the Visitors Impact Management Program.

Special Protection Area:

The purpose of the Special Protection Area (as proposed by Conservation Halton Staff) is to provide a higher level of protection to unique or endangered natural features than normally provided within the policies of the Nature Reserve Zone. The Special Protection boundaries are located within the Nature Reserve Zone, and further identify core areas that warrant special management strategies. Areas assigned to this are mainly areas of steep slope, wetlands, sensitive vegetation communities, interior forest and areas where rare species and/or globally rare vegetation types are known to occur; this area encompasses approximately 363 hectares of the Nature Reserve Zone.

Permitted uses will be restricted to environmentally appropriate scientific research, interpretation and limited forest management services such as hazard tree removal and invasive species management. General public access will be restricted; however, current environmentally appropriate uses (i.e. hiking and cycling) within this area will be maintained if they are shown to cause no further encroachment or negative effects on the natural heritage feature. Certain activities and infrastructure may be decommissioned and/or rerouted on a case-by-case basis.

3.4.3.2 Natural Zone

Purpose:
To protect natural areas and high-quality attributes that contributes to essential habitat and essential components to the natural heritage system. This zone is to serve as a buffer between the Nature Reserve Zone and the Development Zones. The areas assigned to this designation at Hilton Falls are mainly within the hydro corridor and are meadows or open green space. This zone is comprised of approximately 27 hectares or 4% of the total area at Hilton Falls.

Permitted Uses:
Natural zones include aesthetic landscapes in which a minimum of development is permitted to support low- to moderate-intensity recreational activities (NEP, 2005). Recreational uses should be restricted to defined areas and the public should be educated about the impacts of off-trail use. Some activities which will be permitted in this zone are; hiking, nature viewing, interpretive facilities, and day uses activities. Development should be restricted to the minimum necessary to support low to moderate recreational activities. The types of development permitted in this zone are trails, interpretive facilities, signage and restoration works.

3.4.3.3 Resource Management Zone

Purpose:
Resource Management zones are defined as;

- Certain public lands that are managed primarily to provide resource related benefits, such as; harvesting forests products, demonstration plots, and wildlife habitat.
- Re-established previously disturbed sites, such as old agricultural fields, to natural vegetation
- Land which has traditionally been managed under long-term forms of tenure or agreements. (E.g. Forest Management Agreements or agricultural leases.)

At Hilton Falls the Resource Management Zones are previously disturbed sites undergoing natural regeneration (old agricultural fields) or sites having long term resource agreements, (managed forest tax incentive program). This zone is comprised of approximately 44.5 hectares or 6.8% of the total area. Resource Management Zones should not be established in Nature Reserve Parks or in life science ANSIs' with the exceptions noted in Policy 3.1.5 of the NEP (2005).

Permitted Uses:
Intensive resource management activities such as; forestry, natural area restoration, agriculture and low to medium recreational activities, (trails, service roads and interpretive facilities,) will be allowed in this zone. Resource Management Zones permit the continuation or implementation of historical and traditional activities such as sustainable forestry and agriculture that may not be permitted in other parts of the system. Resource Management Zones shall be actively managed under a prescribed forestry management plan or restoration plan as prepared by Conservation Halton staff.

3.4.3.4 Development Zones

Purpose:
To provide protection for all remaining natural features that support the ecological function for a greater variety of species and connection within the larger landscape matrix. This zone provides the main access to the park, open space, facilities and services to support recreational activities (NEP, 2005.) This zone accommodates existing infrastructure which facilitates visitor use to the conservation area. At Hilton Falls, this designation has been assigned to the current day use area and includes the picnic areas, open spaces, visitors centre, and parking areas. This zone is comprised of approximately 7 hectares or 1% of the total area.

Permitted Uses:
The Development zone is usually orientated to the provision of recreational opportunities that are suited to the natural character of the park. This zone accommodates the facilities, infrastructure and staging areas necessary to support recreation and the conservation associated activities. The development zone consists of the public access to the park including the roads, gatehouse, kiosk and parking lots. The picnic area, pavilions, and visitors centre, are all supporting facilities to the park and are to be included in the Development zone. All development shall be kept to a minimum, conform to good site-planning standards and shall not conflict with the general landscape character. The development of the facilities must have minimal negative effect on natural, cultural and heritage features and must be undertaken in a way to minimize the environmental impact.

3.4.3.5 Historical Zone

Purpose:
Historical Zones include significant archaeological or historical features or areas which require management that will ensure the long-term protection of the significant values (NEP, Section 3.1.5.) The area at Hilton Falls which is identified as the historical zone is the Mill ruins, falls, and stream bed. The mill ruins, falls and surroundings comprise approximately 0.43 hectares or 0.07% of the total area at Hilton Falls.

Permitted Uses:
Low to moderate activities are permitted within the historical zone at Hilton Falls. Current activities such as trails, viewing platforms, and interpretive facilities will be permitted as long as there is no sign of degradation to the historical features. Development shall generally be restricted to trails, fencing interpretive, educational, research and management of facilities. Maintaining the condition of historical feature and restoring or reconstruction heritage features will also be permitted within this area.

3.4.4 Trail Development, Uses and Management

Trail construction and management policies include:

- Trails will be located and designed to avoid, wherever possible, steep slopes, wetlands, erosion-prone soils and ecologically-sensitive areas such as species at risk habitat and rare vegetation communities.
- Recreational uses should not exceed the carrying capacity of a site or area.
- Where an existing trail is in a location that causes environmental deterioration, relocation to a less critical location is encouraged.
- Trail design, construction and management should ensure the safety of trail users.
- Permitted trail uses will be indicated on trail signage in the Conservation Area.
- Trails will be located and designed in consultation with appropriate Watershed Management Division staff.
- Trails design shall be appropriate to location, zoning and uses (i.e., trail width and surface treatment).
- Where necessary, management plans should allow for temporary trail closure.
- Where needed, closure of trails shall be actively restored using native vegetation.

3.4.4.1 Trail Classification Objectives and Carrying Capacity

Conservation Halton has adopted a three-level trail-classification system that describes the type of visitor experience that is desired as well as some of the physical properties of each class of trail. This classification system will assist in determining trail development, use and management practices. Each of these trail categories has been assigned a social carrying capacity. Carrying capacity is a theoretical model for estimating the number of people who can travel on a trail at any one moment in time and experience a qualitative natural experience without feeling overcrowded. This is separate to the physical or biological carrying capacity of the trail which varies under weather and seasonal conditions and which will be managed under our Visitor Impact Management System as described in the following section. See Section 4.3.1 and Appendix I for further discussion of the conservation area's social carrying capacity.

Table 3-1: Trail Classification System

Trail Type	Width	Social Carrying Capacity per 1500 m	Existing Length	Surface	Experience
Single-Track	No more than 1.2 m wide	5 groups of 2 people Cycling: 3 bicycles	11,445 metres + 13,000 metres = 24,445 metres	soil, vegetation or bedrock	A sense of being immersed in a natural landscape
Medium Service Nature Trail	No more than 2 m wide	10 groups of 2 people	994 metres	natural, though modified, surface featuring indigenous materials such as wood chips	Some resource modifications are evident, but they harmonize with the natural environment. Few recreation facilities are provided, and those that exist are minimal and rustic.
High Capacity / Service Access Trail	No more than 3 m wide	20 groups of 2 people	9,560 metres	natural surface of packed limestone chips and may be designed for universal accessibility	These are intended to be high use trail corridors that access prime conservation area features and that provide emergency access as required. Resources are modified for essential visitor and conservation area operation needs, but they are changed in a way that harmonizes with the natural environment.

Single Track Trails Management Considerations: Use of these trails may be discouraged by not advertising any interpretive or viewing opportunities on them. They may also be closed in wet seasons given the natural surface treatment. In this conservation area, approximately 13 kilometres of single-track trail is used by cyclists. Conservation Halton is in the process of decommissioning some trails in conjunction with the Regional Foresters of the Halton Regional Forest Complex. Delineation of these trails is required where braiding has occurred. In addition, in the process of upgrading the trails in the area, some trails may be decommissioned if they have been sited inappropriately or if they are negatively impacting any natural heritage features. Conservation Halton works with the cycling community (i.e. GORBA & IMBA) to encourage proper trail use including reducing further installation of unauthorized trails.

Medium Service Nature Trail Management Considerations: Small service vehicles (gator, golf cart or quad) can be used on these trails. (No public vehicles on trails)

High Capacity/ Service Access Trail Management Considerations: Authorized service vehicles and emergency vehicle can be used along these trails. (No public vehicles on trails)

3.5 Visitor Impact Management

Conservation Halton will develop and implement a thorough Visitor Impact Management Program as detailed in section 4.3. This will necessitate designating one additional staff person to coordinate Visitor Impact Management activities at Mount Nemo, Rattlesnake Point, Hilton Falls and Crawford Lake Conservation Areas. This program will be implemented by staff and may involve a public committee for oversight and the encouragement of park visitors to act as monitors. This is an adaptive management process, meaning that monitoring and applying management actions will be followed with a reassessment of impacts and management actions. Sub documents such as the trail impact monitoring program will be created as an additional guide to Visitors Impact Management Plan.

3.6 Cultural Heritage Management

One archaeological site has been registered within Hilton Falls Conservation Area (Figure 5-5 in *Stage One Report*, EDA 2010a). The **Hilton Falls site (AjGx-66)** consists of the remains of a circa 1840 sawmill. The site was registered by ASI in 1991.

Table 3-2: Heritage Value Evaluations for Registered Sites within the Conservation Areas

Hilton Falls Conservation Area			
Hilton Falls (AjGx-66)	Euro-Canadian Saw Mill	Subject to test excavation only	High: Mitigations required prior to any development

3.6.1 Archaeological Potential Zones within Hilton Falls Conservation Area

The identification of zones of archaeological potential within the conservation area is based on the predictive model developed for the *Master Plan of Archaeological Resources of the Regional Municipality of Halton* (Archeological Services Inc. 1998, 2008). The predictive model is based on the analysis of the locations of known archaeological sites across the landscape, the past distribution of natural resources, the changes to the environment through time, Aboriginal and Euro-Canadian land use patterns, settlement and subsistence practices, as wells as other factors. A more detailed discussion of the modeling process is provided in Appendix II of the Stage One Report (EDA, 2010a)Based on the model, approximately 466 hectares within Hilton Falls Conservation Area are deemed to exhibit potential for the presence of archaeological resources (Figure 5-6, in *Stage One Report*, EDA 2010a). These lands comprise approximately 67% of the overall conservation area property. The primary determinants of potential within the conservation area are Sixteen Mile Creek and its associated water bodies.

3.6.2 Other Cultural Heritage Resources

Only preliminary investigations have been carried out on the prehistory of the area and to date there has been no archaeological finds related to First Nations. The only documented archaeological site in the conservation area consists of the ruins of the 1840s mill at the falls.

3.6.3 Cultural Heritage Management Guidelines

Conservation Halton shall avoid, wherever possible, the disruption or disturbance of known archaeological sites or areas of archaeological potential within any of its properties.

Table 3-3 outlines the general types of land uses that may be expected in the context of lands managed for recreational purposes that may have negative effects on cultural heritage resources,

unless preceded by impact assessments completed to the standards identified in the Ontario Ministry of Culture, Sports and Tourism 2009 final draft of the Standards and Guidelines for Consultant Archaeologists.

Table 3-3: Typical Land Use Activities that may Impact Archaeological Resources

General Activity	Specific Activities	Impacts
Road Construction	Cutting, filling, borrow pits, bridge and culvert construction, ditching, etc.	Loss or degradation of resource base in absence of prior assessment and mitigation
Tourism	Interpretive centre and ancillary facility (e.g., servicing, comfort stations, scenic lookouts, etc.) development/construction	Loss or degradation of resource base in absence of prior assessment and mitigation
Outdoor Recreation	Access point parking facility development, trail system development and maintenance, camp/picnic site development and maintenance	Loss or degradation of resource base in absence of prior assessment and mitigation

3.6.4 Niagara Escarpment Commission Policies on Historical Artifacts

The Niagara Escarpment Plan (2005) also suggests that:

> *"Where new development involves a heritage feature it should express the feature in some way. This may include one or more of the following:*
>
> *a) Preservation and display of fragments of the former buildings' features and landscaping;*
>
> *b) Marking the traces of former locations, shapes and circulation lines;*
>
> *c) Displaying graphic verbal descriptions of the former use; or*
>
> *d) Reflection of the former architecture and use in the new development." (NEP, 2005, Section 2.12)*

This policy would be applicable to some of the pioneer-era heritage artifacts, such as the Hilton Falls Mill. In is intended that some interpretive programming will be developed around the pioneer use of this land.

3.7 Natural Resource Management

The purpose of the natural resource management section of the master plan is to identify key recommendations for management of the conservation area. This section and its recommendations should guide the protection of the natural heritage system for the long term, using an adaptive management approach that may involve both active and passive management. In some cases, resource management recommendations will require the collection of additional information or the development of guidance material prior to their full implementation.

3.7.1 Land and Water Management

The landform and landscape character of Hilton Falls Conservation Area together with the natural hydrological regime shall be protected to the highest level while still providing compatible opportunities for recreation. Conservation area operations and development shall comply with the following:

- Any works proposed in areas regulated by Conservation Halton under Ontario Regulation 162/06 will be reviewed by appropriate Watershed Management Division staff. An internal review process shall be followed that will result in the issuance of a clearance letter from the Watershed Management Division once it has been demonstrated that the proposed works meet all Conservation Halton regulatory requirements. No works shall take place until such time as the clearance letter is received to ensure all works follow the appropriate protocols.
- Any works proposed within fish habitat shall be reviewed by appropriate Watershed Management Division staff in accordance with Conservation Halton's Level II Agreement with the Department of Fisheries and Oceans.
- Any grading shall be restricted to approved components of the master plan.
- No soil or fill material shall be imported onto this site unless in conjunction with an approved component of the master plan and accompanied with certificate of fill quality from a certified laboratory.
- Surface and groundwater shall be protected from any pollution or contaminants.
- Waste consisting of natural materials shall be reused or composted within the park where feasible and appropriate. Otherwise, all solid waste shall be removed from the park for recycling or disposal.
- Source Water Protection: Conservation authorities are responsible for conducting technical studies that will be used to develop source water protection plans for their watershed. Source Water Protection Committees have been formed to undertake the technical studies for Source Water Protection Areas, including potential development constraints upon wellhead protection areas, which in most of the cases cover the boundaries of more than one conservation authority area. The Halton-Hamilton Source Water Protection Committee has completed a *Source Protection Area Assessment Report*, which is to be used to prepare the *Drinking Water Source Protection Plan*. This *Source Protection Plan* will be applied to specific wellhead protection areas that include portions of Hilton Falls Conservation Area (see Figure 3-10 Significant Natural and Cultural Features in *Stage One Report* (EDA 2010a).

3.7.2 Vegetation Management

The proper protection and management of vegetation communities is essential to the health and well-being of Hilton Falls Conservation Area and the larger Conservation Halton watershed natural heritage system. Efforts shall be taken to conserve and, where possible, restore viable populations of indigenous plant species, with a focus on protecting species at risk and their habitats within the conservation area;

3.7.2.1 Forest Management and Sustainability Policy

Management of Conservation Halton forest resources requires a cohesive strategy that prioritizes forest health, regeneration and conservation of the ecology of forest communities over timber production. A cornerstone to achieving this is the establishment of a new forest management plan to implement sustainable forest management practices that are adaptive and rely on the most current forest information and silvicultural techniques. The forest ecosystem should be viewed as green infrastructure in all management decisions. Forest sustainability should incorporate the following principles:

- Large, healthy, diverse and productive forests and their associated ecological processes and biological diversity should be protected and restored;
- Long-term health and vigour of forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational and heritage values;
- Assess and prioritize forest unit protection needs, identify an appropriate management regime for areas with different sensitivities (e.g. provincially rare vegetation communities) and management requirements (e.g. passive management, active management, etc.);
- Incorporate global warming information into management plans including documenting the role Conservation Halton forests play as sinks for greenhouse gasses;
- Assess and manage invasive species, forest pests and disease;
- Promote species at risk recovery and conservation, where appropriate;
- Assess appropriate forest fire management;
- The White-tailed Deer (*Odocoileus virginianus*) carrying capacity of conservation areas should be evaluated to determine the optimal size of deer population that may be sustained. This evaluation should assess browse impact on forest habitats and possible influence on the regeneration of young trees. This study should include all forest habitats in the study area, especially areas considered sensitive; and
- Improve and monitor habitat and biodiversity within managed forest landscapes in a manner that is consistent with the long-term protection of the conservation area's forest community.

Every forest operations prescription shall include descriptions of the following:

- Current structure and condition of the forest in the area to which the prescription applies;
- Forest renewal and maintenance activities to promote forest health, regeneration and biodiversity;
- The expected results and future structure and condition of the forest; and
- Standards or guidelines used in developing the prescription.

All prescription activities must be in compliance with good forestry practices as described in Halton Region Tree Conservation By-Law (Regional Municipality of Halton 2005), the Ontario Ministry of Natural Resources *A Silvicultural Guide to Managing Southern Ontario Forests* (MNR 2000) and the Niagara *Escarpment Plan* (NEC 2005). The forest management plan should demonstrate leadership in forest management by applying international standards for sustainable forestry practices as embodied by one of the three independent forest certification systems in Canada (e.g. Canadian Standards Association's Sustainable Forest Management Standard, the Forest Stewardship Council Standard and the Sustainable Forestry Initiative). This management system should also complement the restoration plans for the conservation area and where appropriate, refine the management of forest restoration areas in a manner that allows the development of mature forest communities found in the adjacent natural areas.

3.7.2.2 Forest Succession and Plantations

A few plantation areas occur in Hilton Falls Conservation Area, which have a variety of attributes and proposed management criteria. The management of these, as well as natural forest areas, should be guided by an updated forest management plan.

3.7.2.3 Dead and Hazardous Trees

Existing Conservation Halton protocols for the management of dead and hazardous trees will be implemented in Hilton Falls Conservation Area. Safety will be the largest factor in decisions for hazardous tree removal; however, the importance of dead tree material and downed woody debris to provide wildlife habitat must be considered. Dead tree falls and tip-ups may also be left in place to serve as important sites for mosses and fungi, germination areas for species requiring rotting wood as a rooting medium, and moist shelters for mammals and herptiles.

Hilton Falls Conservation Area has several records of Butternut trees that are considered *Endangered* under the provincial *Endangered Species Act*. If for safety reasons the removal of this species becomes necessary, the removal must conform to applicable laws, associated health assessments and permitting requirements (Ontario Regulation 242/08). Prior to removal, even dead Butternuts require MNR's approval of a Butternut Health Assessment conducted by a certified evaluator. Conservation Halton has several such evaluators on staff.

3.7.2.4 Plant and Seed Collection

Where existing vegetation may be lost due to development of trails, access roads, visitor centre, etc., plants may be transplanted for naturalization and restoration purposes within the conservation area. Seed may be collected for use in propagation and planting within the conservation area for restoration and naturalization purposes within the conservation area. Harvesting efforts should be spread throughout the conservation area and not concentrated on any one area. The amount of seed collected will be based on the species, as determined in consultation with Conservation Halton forestry and ecology staff. Generally, propagation areas will be discouraged due to the natural state of the conservation area and the fact that other areas may be more appropriate for this use.

3.7.2.5 Invasive Species

Invasive species removal should be an integral part of maintaining high quality ecological assemblages within Hilton Falls Conservation Area. The complete eradication of invasive species is not always realistic and, therefore, prioritization of effort is necessary. Introduced species should be evaluated for invasive tendencies based on appropriate federal, provincial or municipal guidance material. For example, invasive plants and their invasive tendencies are summarized in Priority Invasive Plants in Southern Ontario (Appendix 3 in Havinga *et al.* 2000). Monitoring and research should be directed to prioritize the threat posed by invasive species and the feasibility of effective control. Based on this threat analysis, a species-specific management protocol should be established for those species that pose the greatest threat and/or have a high success rate in relation to effort expended. Biological control appears to have limited application because there are few pests or diseases found in North America that have any significant impact on controlling invasive species.

Plant Species

Priority invasive plant species mapped within Hilton Falls Conservation Area include *Phragmites* in wetlands. Additional invasive plant species occur, but have not been mapped. A full list of exotic plant species can be found in the Table 3-6, Appendix I of *Stage One Report* (EDA 2010a). Dog-strangling Vine (*Cynanchum rossicum*), previously thought to occur only in the Halton Regional Forest Complex has spread in Hilton Falls Conservation Area and remains to be one of the biggest threats to native biodiversity. A proactive management plan for this species should be implemented.

Forest Pest Species

It is clear that threats, due to forest pest establishment, exist in the surrounding area. The potential for forest pests to occur in the conservation area is being monitored as part of the forest-health monitoring program as well as through other partnerships. Forest pest species of concern that should be monitored as part of the overall management of Hilton Falls Conservation Area include:

- Gypsy Moth (*Lymantria dispar*);
- Asian Long-horned Beetle (*Anoplophora glabripennis*);
- Emerald Ash Borer (*Agrilus planipennis*);
- Two-lined Chestnut Borer (*Arrilus bilineatus*);
- Fall Cankerworm (*Alsophila pometaria*); and
- European Wood Wasp (*Sirex noctilia*).

3.7.2.6 Forest Diseases

Forest diseases that should be recognized and monitored in the conservation area include Butternut Canker, the decline indices of Oak, Ash, Maple, Red Pine and Beech bark disease.

3.7.2.7 Herbicides, Pesticides and Suppressants

Biological controls will be employed wherever possible. Manual and mechanical methods of invasive species control are the preferred management option, where possible.

Chemical herbicides, pesticides and suppressants will not be used for any vegetative management purposes except for the eradication of non-native species, establishment of native plantings where other methods with less residual impacts are not feasible, or for the control of noxious plants in publicly accessible areas. Areas left devoid of vegetation should be planted with hardy native species in an effort to prevent re-establishment and to improve the floristic quality of the site.

3.7.2.8 Vegetation – Cutting, Injury, Destruction and Removal

Under Ontario Regulation 365/88 it is a prohibited activity for the public to cut, remove, injure or destroy a plant, tree, shrub, flower or other growing thing in a conservation area of Conservation Halton.

3.7.2.9 Ancient Eastern White Cedars

White Cedars were not surveyed during the NEATA Project at Hilton Falls Conservation Area. Surveyed sites were targeted to cliffs where the threats to Ancient Cedars were the greatest (rock climbing and proximity to urban centres) and were previous records indicated old trees. Given the

similar cliff communities at Hilton Falls Conservation Area, ancient White Cedars likely remain undocumented. Further studies should be carried out.

3.7.3 Fisheries Management

Overall, stream habitat within Hilton Falls Conservation Area is typical of wetland headwater streams originating on the Niagara Escarpment. The expansive protected lands within the conservation area help to maintain the streams' biological integrity making them suitable for locally rare and endangered species. Although numerous barriers to fish migration exist throughout the conservation area, the mitigation of such barriers should be done on a priority basis with sensitive species in mind. However, it is important to note that these barriers also help to maintain the unique habitat features found within the conservation area and all ecosystem components should be considered.

The aquatic and fisheries resources associated with the conservation area are highly significant and should be protected. The appropriate separation of facilities from riparian areas is important for the protection for this resource. Retaining high quality riparian areas will maintain water temperatures, food supply and filter nutrients, contaminants and sediments entering the water. The establishment or repair of any infrastructure within or adjacent to watercourses/lake shall be in accordance with the federal *Fisheries Act* with said works timed to occur within an approved instream construction window.

Redside Dace currently resides below the waterfalls to the southern edge of the conservation area. Also, historical records of Redside Dace have been identified in the watercourse below the reservoir, north of Campbellville Side Road. This area is open and to some degree maintained in an old-field / meadow habitat state. It may be important to better secure adjacent lands from encroachment and increased recreational use.

Fisheries management practices at Hilton Falls Conservation Area will predominantly deal with habitat protection. Under Section 35 of the *Fisheries Act,* no harmful alteration, disruption or destruction of fish habitat (HADD) is permitted unless authorized by the Department of Fisheries and Oceans Canada (DFO). Any in-water works should first be screened by conservation authority staff to determine if the proposed works has a likelihood of causing a HADD. In addition, timing of these works should be confirmed with the Ontario Ministry of Natural Resources (MNR).

3.7.4 Wildlife Management

Wildlife management practices at Hilton Falls Conservation Area will predominantly deal with habitat protection and to a lesser extent habitat improvements/restoration.

Under Ontario Regulation 365/88 it is a prohibited activity for the public to kill, trap, pursue or disturb a wild bird, reptile or animal in a Conservation Halton conservation area.

3.7.5 Species at Risk Monitoring Strategy

Twelve species at risk were documented as occurring within Hilton Falls Conservation Area, including Butternut, Cerulean Warbler, Least Bittern, Louisiana Waterthrush, Eastern Milksnake, Eastern Ribbonsnake, Jefferson Salamander, Western Chorus Frog, Snapping Turtle, Monarch, West Virginia White, and Redside Dace.

The habitats of *Threatened* and *Endangered* species receive varying degrees of protection under the *Endangered Species Act* as well as the *Species at Risk Act*. Where possible, recovery actions will be implemented in the conservation area in a manner that is consistent with recovery strategies or management plans that have been developed for the particular species. The conservation area also

contains several species and vegetation communities that are considered provincially rare. The appropriate management and monitoring of these species should be encouraged through the development of specific management plans. In some cases, it may be beneficial to consider their management as an assemblage. Where possible, recovery actions will be implemented in the conservation area in a manner that is consistent with recovery strategies. The monitoring strategy for each species at risk is discussed below.

Recovery projects, as they arise, are not included in the 10-year monitoring budget. Provincially rare species are identified below and should be examined in more detail to establish appropriate protection/management protocols.

As part of management considerations, Conservation Halton should continue to educate visitors on species at risk and how people can contribute to their protection.

3.7.5.1 Butternut

Monitoring of this species should be directed at identifying additional Butternut trees in the conservation area and monitoring the health, regeneration and survivorship of the species following the guidelines set forth by the Forest Gene Conservation Association in the *Butternut Health Assessment in Ontario* manual.

It is estimated that five days of work every third year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $6,600.)

3.7.5.2 Cerulean Warbler

Forest bird monitoring, which tracks the number of breeding pairs in areas known to be of higher quality is recommended for monitoring this species over time. Although the Forest Bird Monitoring Program will help monitor this species, specific effort is required in other areas that have established territories year after year. Where possible, and in an unobtrusive manner (e.g. observation from a distance), the success of nests (e.g. fledge young) should be monitored. Habitat associations should be mapped and managed for the recovery of the species.

It is estimated that one day of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $4,400.)

3.7.5.3 Least Bittern

A species-specific survey protocol using Least Bittern calls has been developed by the Canadian Wildlife Service to improve detectability and obtain information on distribution and abundance across its range. Known locations for this species should be monitored on an on-going basis. New potential breeding sites with a high likelihood to attract this species in the surrounding area should be monitored opportunistically and habitat protected accordingly. It is estimated that one day of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $4,400.)

3.7.5.4 Louisiana Waterthrush

This species should be monitored opportunistically to assess reoccurrence in the area. If discovered, detailed monitoring to determine breeding status and success should be completed. Fallen trees should be left along shorelines whenever possible and activities such as mowing, removing brush, trees, use of herbicides or insecticides should be avoided in areas known to support nesting waterthrushes (MNFI, 2007). (Monitoring for this species will be in conjunction with that for the bird species above; therefore, no further costs will be accrued.)

3.7.5.5 Eastern Milksnake

Monitoring for this species during warm days during April to June and October to November should be considered. The emphasis of monitoring should be to locate either hibernacula or egg laying sites. Random or wandering transect methods could be used for surveys. Surveys can be completed on an as available basis. Consideration should be given to constructing hibernacula as in key areas, as part of the restoration efforts.

It is estimated that three days of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $13,200.)

3.7.5.6 Eastern Ribbonsnake

The management plan for the Eastern Ribbonsnake falls under the Thames River Ecosystem Recovery Plan. The aim of the recovery is to enhance or restore water quality and aquatic habitat by reducing siltation, nutrient loadings and toxic contamination as well as reducing impacts of altered water flow. Monitoring for this species during warm days during April to June and October to November should be considered. The emphasis of monitoring should be to locate either hibernacula or egg laying sites. Random or wandering transect methods could be used for surveys. Surveys can be completed on an as available basis. Consideration should be given to constructing hibernacula as in key areas, as part of the restoration efforts. (Monitoring for this species will be in conjunction with that for Eastern Milksnake above; therefore, no further costs will be accrued.)

3.7.5.7 Snapping Turtle

A management plan is being prepared for the Snapping Turtle's recovery by the Ontario Ministry of Natural Resources. In the interim, Conservation Halton has recommended a 10-metre buffer around all waterbodies that provide Snapping Turtle habitat.

Nesting areas, where observed, should be documented and protected. No specific monitoring for this species is recommended.

3.7.5.8 Jefferson Salamander

The habitat of this species is protected by the *Endangered Species Act* through Ontario Regulation 436/09. The Ontario Ministry of Natural Resources (MNR) has developed a GIS protocol to assist in delineating Jefferson Salamander habitat for the purposes of the regulation. The Ontario Ministry of Natural resources (MNR) has determined priority levels of wetland, pond or vernal pools that provide suitable foraging, dispersal, migration or hibernation conditions for the Jefferson Salamander. The habitat of this species will be protected based on the results of the MNR modeling. Key habitat areas of this species should continue to be monitored and the potential for others should be assessed. It

would also be valuable to understand the upland movements of the local population, to identify areas of higher utilization.

It is estimated that ten days of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $44,000.)

3.7.5.9 Western Chorus Frog

It is likely that this species is very secure in Hilton Falls Conservation Area and will remain so provided appropriate measures are taken to protect core habitat areas. Areas where this species has been documented should continue to be monitored. Species occurrence and general abundance can be monitored using the Marsh Monitoring protocols.

It is estimated that two days of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $8,800.)

3.7.5.10 Monarch

No specific monitoring for this species is recommended.

3.7.5.11 West Virginia White

Areas of Toothwort (*Dentaria diphylla; Dentaria X maxima*) known to occur in Hilton Falls Conservation Area should be monitored during the spring season to assess the occurrence and general abundance of this species from year to year. Food plants should be protected from recreational activities.

It is estimated that two day of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $8,800.)

3.7.5.12 Redside Dace

In keeping with recommendations contained within the recovery strategy, Conservation Halton recommends a minimum 30-metre buffer on each side of the meander belt of watercourses where Redside Dace occurs. This species is highly susceptible to local extinction resulting from changes in sunlight, temperature or oxygen as a result of land cover changes. Maintaining or establishing vegetated riparian buffers is important for protecting the Redside Dace as well as maintaining natural flow regimes.

This species and habitat should be monitored as part of the regular sampling of the fish monitoring stations.

3.7.6 Globally and Provincially Rare Species

Globally and provincially rare species (G1-G3, S1–S3) observed in or immediately adjacent to Hilton Falls Conservation Area are identified in Table 3-4. These species should be investigated further to establish appropriate protection/management protocols.

An observation for Puttyroot (*Aplectrum hyemale* – S2) in Hilton Falls Conservation Area was noted. Never before recorded in the Conservation Halton watershed, the population was first discovered by Madeline Austen. It consists of 71 stems, of which 7 were flowering in 2009. Currently, this species is

being assessed by COSEWIC to determine if it is 'at risk'. This population is the only known record in Halton and in the greater GTA, and is situated between the two remaining core areas for this species (Norfolk County and Simcoe County) (Finney 2010).

Specifically noted for management planning would be Green Violet (Hybanthus concolor) which grows in vegetative colonies. Within the Conservation Halton watershed, the second largest population of this species occurs within Hilton Falls Conservation Area, totaling approximately 1.7 hectares. In consideration of this, specific management guidelines and practices should protect this species from harm. Decommissioning trails that cross vegetative colonies should be explored.

Table 3-4: Globally and Provincially Rare Species

Common Name	Scientific Name	Halton Region Status	GRANK	SRANK	Source
Plants					
Green Violet	*Hybanthus concolor*	Uncommon	G5	S2	CH 2008, CH 2009, NHIC 2004
Languid Poa	*Poa languida*	Rare	G3G4Q	S3	McIlveen 2004
Long-styled Canadian Sanicle	*Sanicula canadensis var. grandis*	Rare	G5T3T5	S2	CH 2009
Puttyroot	*Aplectrum hyemale*	*Not Ranked (Proposed Rare)*	G5	S2	CH 2009
Amphibians					
Jefferson Salamander Unisexual Complex	*Ambystoma jeffersonianum-laterale*	Uncommon	HYB	S2	NHIC 2004, CH 2009
Invertebrates					
Black Dash	*Euphyes conspicuus*	Uncommon	G4	S3	McIlveen 2004
Dion Skipper	*Euphyes dion*	Uncommon	G4	S3	Halton NAI
Giant Swallowtail	*Papilio cresphontes*	Rare	G5	S3	CH 2008
Hickory Hairstreak	*Satyrium caryaevorum*	*Not Ranked*	G4	S3	McIlveen 2004, CH 2009, Halton NAI
Painted Skimmer	*Libellula semifasciata*	Rare	G5	S2	BVR personal odelep database
River Bluet	*Enallagma anna*	Rare	G5	S2	CH 2008, CH 2009

**Additional species at risk may be located within the conservation area. Please contact Conservation Halton ecology staff for comprehensive information.*

3.7.7 Globally and Provincially Rare Vegetation Communities

Five Ecological Land Classification communities in the conservation area are considered *Very Rare* (G2) *to Uncommon* (G3) globally; these are identified in Table 3-5. Nine vegetation communities are considered provincially *Vulnerable* (SRank - S3) and one is likely to be ranked as *Imperiled* (*S2*). A summary of these communities is provided below in Table 3-6.

Table 3-5: Globally and Provincially Rare Vegetation Communities

ELC Unit	Name	GRank	SRank	Number / Area
CLT1-1	White Cedar Treed Carbonate Cliff Type	G2Q	S3	
SWD1-2	Bur Oak Mineral Deciduous Swamp Type	G2G3Q	S3	1 polygon 0.4 hectares
FOD5	Sugar Maple on Bedrock Forest	G3G4	SNR	3 polygons 14.4 hectares
TAT1-3	Dry - Fresh White Birch Carbonate Treed Talus Type	G3G5	S3	1 polygons 2.3 hectares
TAT1-4	Fresh - Moist Sugar Maple Carbonate Treed Talus Type	G3G5	S3	7 polygons 14.6 hectares

White Cedar Treed Carbonate Cliff Type is also located at Hilton Falls Conservation Areas but was not mapped during this master plan. Presence of this community was small and scattered in composition.

Table 3-6: Provincially Rare Vegetation Communities

ELC Unit	Name	GRank	SRank	Number / Area
TAT1-5	Fresh - Moist Basswood - White Ash Carbonate Treed Talus Type	GNR	SNR *Likely S2?*	4 polygons 3.3 hectares
TAS1-2	Mountain Maple Carbonate Shrub Talus Type	G?	S3	1 polygons 0.08 hectares
TAT1-2	Dry - Fresh White Cedar Carbonate Treed Talus Type	G?	S3	2 polygons 1.7 hectares
CLO1-1	Cliffbrake - Lichen Carbonate Open Cliff Type	G5	S3	4 polygons 0.24 hectares
CLO1-2	Bulblet Fern - Herb Robert Carbonate Open Cliff Type	G5	S3	14 polygons 0.17 hectares
FOD6-2	Fresh - Moist Sugar Maple - Black Maple Deciduous Forest Type	G?	S3?	4 polygons 4.8 hectares
FOD7-5	Fresh - Moist Black Maple Lowland Deciduous Forest Type	GNR	S3?	2 polygons 1.5 hectares
SWC1-2	White Cedar - Conifer Mineral Coniferous Swamp Type	G?	S3S4	1 polygon 2.1 hectares
SWT2-9	Gray Dogwood Mineral Thicket Swamp Type	G5	S3S4	1 polygon 0.3 hectares

These vegetation communities should be protected and maintained. If necessary, a vegetation management plan should be prepared to investigate appropriate management protocols for each community.

3.7.8 Forest Bird Monitoring Station

The Forest Bird Monitoring Program (FBMP) began in Ontario in 1987 to provide information on population trends and habitat associations of birds that breed in forest interior. Sites tend to consist of three to five stations in woodlands, which are monitored by volunteers. Sampling consists of 10-minute point counts at each station twice between late May and early July. Six FBMP survey sites occur in Hilton Falls Conservation Area and an additional seven occur in areas immediately adjacent the conservation area. It is estimated that 1 days of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $4,400). These costs are incurred by tax-supported means as part of the watershed Long-Term Environmental Monitoring Program.

3.7.9 Marsh Monitoring Program

The Great Lakes Marsh Monitoring Program (MMP) provides long-term monitoring of marsh-dependent birds and anuran (frog and toad) species in marsh habitats within the Great Lakes basin. The program is administered by Bird Studies Canada in partnership with Environment Canada. Conservation Halton conducts the MMP program at two locations at Hilton Falls Conservation Area. It is estimated that 4 days of work per year will be required to carry out this monitoring task (the costs are calculated based on $440 per person day; therefore, over the 10-year period this items will cost $17,600). These costs are incurred by tax-supported means as part of the watershed Long-Term Environmental Monitoring Program.

3.7.10 Research

Appropriate research activities will be encouraged and will conform to the conditions stipulated in any Permit to Conduct Research issued by the Watershed Management Division, Ecology Department. Prior written permission will be required and reports upon completion of the study will be shared with Conservation Halton.

Section Four: Elements of the Master Plan

4.1 Introduction

In a regionally significant system of publicly-accessible natural areas, every area should meet a high standard of amenities and services. For Conservation Halton's conservation areas, this will become the proposed base level of service described in Section 3.2. While each of the conservation areas should add something unique to the overall system; many of the conservation areas will provide similar services and amenities such as hiking trails in order to meet the anticipated large increase in demand for passive recreational activities.

For Hilton Falls Conservation Area, the unique features included the historic mill ruin, interesting natural heritage features such as vernal pools and sinkholes and the 35 kilometre multi-use trail system in a large tract of forest, which is a high-value feature that provides opportunities for recreation and interpretive programming that aids in the understanding of these features.

The concept plans presented in the *Stage Two Report* offered distinctly different approaches for Hilton Falls Conservation Area, ranging from offering an upgraded base level of services to becoming a regional destination (EDA 2010b). All of the concept plans were based on an "environment first" approach where the natural heritage features are protected and / or restored to the maximum extent possible. The differences are in the degree of intervention and investment necessary to accommodate educational, interpretive and programmatic elements.

The first option, Concept A, placed an emphasis on conserving and protecting the natural environment while offering some opportunities for recreation and education; the second, Concept B, defined a balanced approach between environmental preservation and public enjoyment; the third, Concept C, sought to promote the site to regional destination status while still protecting the environment to the maximum extent possible and offering a strong educational and recreational component for the community.

Through the consultation process with the community, Conservation Halton staff and the Technical Advisory Committee, Concept B was selected as the preferred approach for development of the area.

- Provide special opportunities to experience key features of the site:

The escarpment: sinkholes, crevice caves, falls, mill, etc.;

The site with 35 active trails for hiking, cycling and cross-country skiing/lessons (or snowshoe).

- Provide enhanced day use facilities: expanded parking, picnicking including a picnic shelter and open spaces, etc.
- Expand and remodel existing visitors centre
- Investigate additional land acquisition.

The *Master Plan for Hilton Falls Conservation Area* provides for the enhanced basic level of amenities and services, plus interpretive and recreational day use facilities. Figure 4-1 offers a close-up view of the development area.

4.2 Physical Components

As part of the corporate branding work being undertaken by Conservation Halton, park furnishings and architectural features, including picnic shelters, should be custom designed such that all Conservation Halton conservation areas exhibit a 'signature design.' Design guidelines should specify the use of natural stone and timber. All facilities and furnishings should be designed to be in harmony with the natural environment, but should also be vandal resistant.

The proposed range of facilities is intended to provide appropriate accessibility, development, programming and educational opportunities in Hilton Falls Conservation Area, consistent with the site constraints and opportunities.

The master plan identifies the need for some basic facilities in public arrival areas that include directional signage, a picnic pavilion, various site furnishings, a gatehouse and kiosk, a main trailhead as well as two smaller trailheads. Figure 4-2 shows examples of such structures.

4.2.1 Facilities and Amenities

The facilities and features of the master plan include the following approximate specifications, Please not that some of the proposed development may be exempted from requiring a Niagara Escarpment Development Permit in accordance with section 5.41 of Ontario Regulation 828/90.

4.2.1.1 Visitors Centre Renovation and Expansion

- Recreational Equipment for Rental
  - Expand cross country ski rentals to 200 sets
  - Rentals of GPS, personal media players, compasses, binoculars
- Washroom renovation
- Education Programs
  - Enlarge multi-purpose space
  - Add meeting or classroom space for various groups
- Expand office space
  - Ensure the offices in the existing temporary portable can be incorporated into visitors centre.

The existing 117 square metre visitor centre is not particularly functional as most of it is being used as office and storage space. It has washrooms that are badly in need of renovation and one multi-purpose space with some interpretive displays and rows of wooden benches to sit on. This master plan calls for a 200 square metre addition, which will be used as a rental facility, and class or meeting room. Activities that might be supported include cross-country skiing, snowshoeing, geocaching, and orienteering. It could also serve as a meeting space for volunteer stewards.

4.2.1.2 Enhanced Interpretive Facilities

- Using the existing footprint re-develop observation platform, stairs and interpretive signage at the falls /mill area - 50 square metres (signs included above)

4.2.1.3 Accessibility Upgrades

Rest rooms, parking lots, buildings, pathways and ramps should be carefully designed to ensure universal access, wherever possible. At least 900 mm of level, cleared space should be provided to the side of benches for wheelchairs. Plenty of space at should be provided at scenic overlooks for people to watch and listen. Safety rails must be carefully located to ensure that the sight line of persons in wheelchairs is not blocked.

4.2.1.4 Signage

Signage Program Hierarchy

Trail signage is an important element that enhances the trail experience and provides guidance to the user. Signs provide four major functions - information, direction, interpretation and regulations; these are described below.

Informational

Informational signage provides detailed information about the use and identity of the trail and adjacent features. This is usually conveyed using maps as components of the signboard. This type of signage also indicates trail conditions, such as steep slopes and trail amenities such as safety features, washrooms and look out areas.

Directional

Directional signage should be used to indicate the trail route, including changes in direction and / or straight portions of the trail, at determined intervals. This type of signage can also be used off trail, in open space indicating the route to nearby trail access points, at trail intersections or any point where a decision must be made by the user. At these points, information as to trail length, average duration and destinations or points of interest are important to note to allow users to make decisions as to the route to follow.

Interpretive

Interpretive signage provides information regarding natural, geological, cultural and historical features significance along the trails. These signs should be site specific and located at major interpretive nodes or at particularly exceptional viewpoints, with a surfaced viewing area between trail edge and sign. The information included on these signs should be concise, easy to understand for all age groups, and should ultimately improve user awareness and promote enjoyment of the trail and immediate area. Interpretive signs should be spaced out to enable the trail user to absorb the ideas and information provided. The educational / interpretive signage program at this conservation area is an important component of the VIM plan. Visitors will be educated about the importance and fragility of natural features; this type of education has proven effective in improving compliance with trail use guidelines.

The master plan has proposed an initial 20 interpretive signs (other than those located at trailheads); however, should it be decided in the future that more interpretive nodes or benches will be beneficial, the addition of such amenities is not prohibited by this plan. At the same time, it should be noted that Conservation Halton intends to increase the amount of digital interpretive material made available to its visitors. This would include downloadable audio tours available in several languages.

Regulatory

Regulatory signage provides trail users with the rules and regulations regarding trail use. This includes one-way and do not enter signs, among others.

Elements

All signage should be designed to suit the character of the natural surroundings and must relate to approved park activities, interpretive and recreational programs of special events within the conservation area. Third party signs of commercial billboard or signs for businesses are not permitted.. NEPOSS and the World Biosphere Reserve logos and information will be represented on trailhead signage and other places deemed appropriate

- Entrance signage: main entrance sign and Conservation Halton conservation areas directional and cross marketing signage.
- Interpretive signage:

Interpretive programs at Hilton Falls Conservation Area are meant to educate visitors about the unique natural heritage features. Programs are to show the respective natural areas and the importance of preserving them, including guidelines for low impact recreational activities.

Minimum of twenty interpretive signs: lookouts, ancient cedars, falls and mill, sink holes and vernal pools, general history and the natural heritage of the conservation area.

Language outreach upgrade.

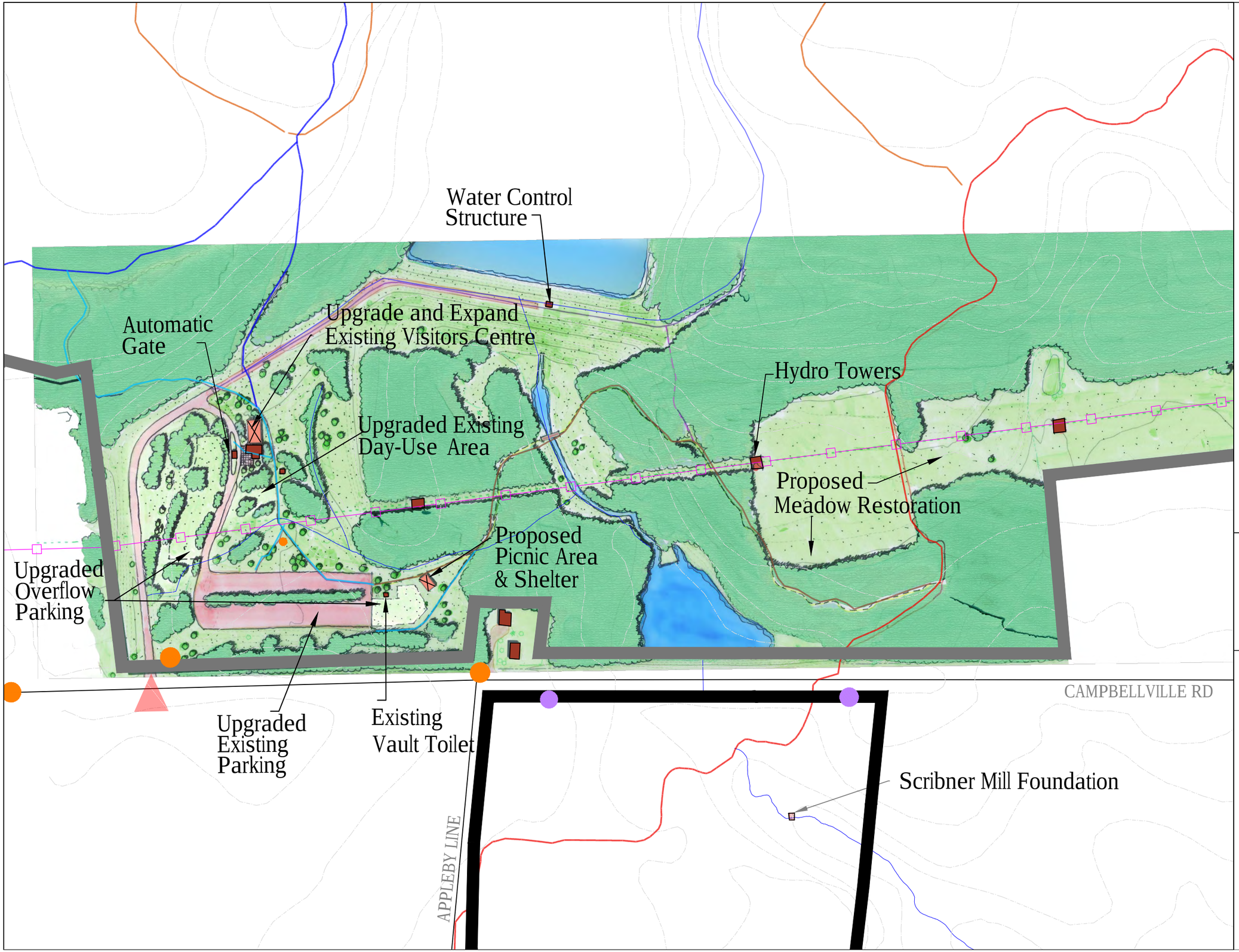
4.2.1.5 Roads and Parking

- Automated gate with payment.
- Improved existing access road:
    - Stone chip surface - 2610 square metres.
    - Bioswales - 500 linear metres
- Improved, sustainable 175-car existing parking area:
    - Stone chip surface - 4400 square metres.
    - Bioswales - 365 linear metres.
    - Shade tree planting - 35 caliper trees.
- Upgrade, 100 car overflow parking areas
    - Stabilized surface with grass paver system- 2500 square metres
    - Bioswales - 275 linear metres.

Road and parking lot upgrades include testing the base to be sure it is able to hold up under traffic. Where it is found to be weak, it can be excavated and rebuilt with appropriate layers of compacted gravel. In all areas, grading will be carried out to ensure a smooth surface with appropriate slopes for drainage. Bioswales are vegetated ditches that surround the parking lot and roadway such that any pollutants will be filtered out near the source before rainwater or snowmelt disperses in the natural environment.

Large native species trees (80 mm caliper) will be planted near the main parking lots to shade parked vehicles on hot, sunny days. Smaller trees will be used in overflow parking areas and protected with fencing until they reach a size that is unlikely to be damaged by drivers.

Figure 4-1: Master Plan Detail



CONSERVATION HALTON

Hilton Falls Conservation Area

Figure 4-1

Master Plan Detail

Legend

- Conservation Area Boundary
- Other Conservation Area
- Road
- Contour 5m intervals
- Watercourse

Conservation Halton Trail

- High Capacity Trail
- Single Track

The Bruce Trail Conservancy

- Main Bruce Trail
- Side Bruce Trail
- New Signage
- Existing Structure
- Proposed Structure
- Public Access
- Service Access
- Hydro Line and Towers

W N S E

0 50 100 metres

SCALE 1:3,000

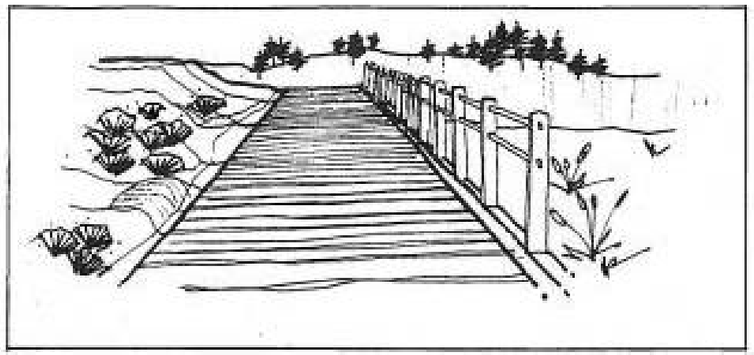
Figure 4-2: Amenities

CONSERVATION HALTON

Parks Master Planning

Amenities

FIGURE 4-2



Board walk Conceptual Sketch

Interpretive Node

Bench

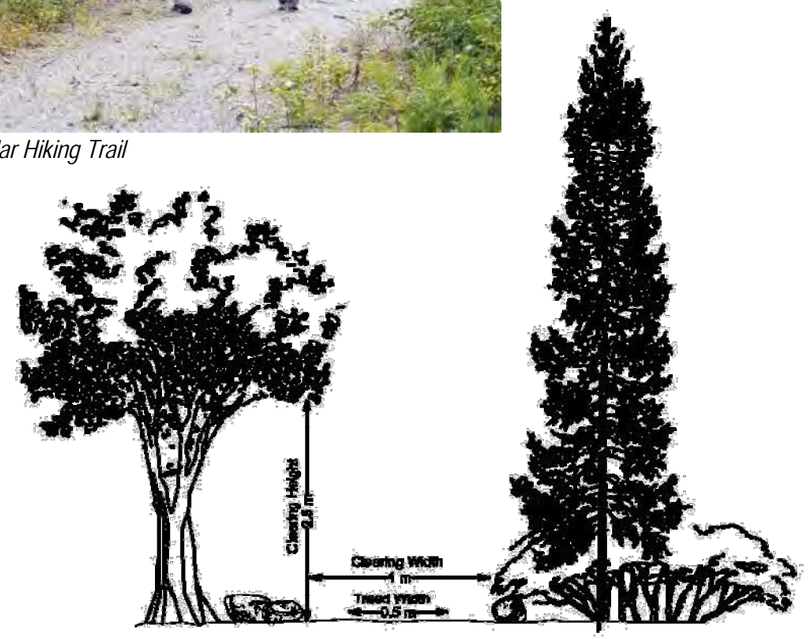
Boardwalks through Sensitive Areas

Surface for Overflow Parking

Granular Hiking Trail

Bridge

Picnic Shelter



Trail Construction

4.2.1.6 Picnic Facilities

- Open air picnic shelter - 100 square metres, available to rent
- Additional picnic area (20 picnic tables).
- Site furnishings such as bicycle racks, garbage receptacles and benches.

All site furnishings should be purchased at the same time in styles compatible with each other and with the natural scenery.

4.2.1.7 Other Infrastructure Development

- Upgraded toilets: 3 new standard units.
- Site servicing upgrades; septic and potable water
- Site technology upgrades; surveillance and telephone

4.2.2 Trail System

As the population base in the region ages, participation in pleasure walking in natural environmental settings (hiking) is expected to be one of the fastest growing segments of outdoor recreation over the next 20 years. Therefore, Conservation Halton can expect their trail system to be in high demand.

Proper trail construction is one of the most important factors in accommodating visitors without environmental degradation.

Therefore, a key component of this master plan is to upgrade the trail systems so that damage to adjacent features will be minimized. Drainage issues will be addressed and trails delineated with logs or other natural materials. Select areas will be provided with elevated boardwalks. Such measures have been proven to keep the majority of visitors from straying off the designated trail. Seasonal or temporary trail closures will also be implemented as needed for added protection during sensitive periods of a species' life cycle, for regeneration of vegetation or to prevent erosion. The mountain biking trails within the Hilton Falls Conservation Area are contiguous with the adjacent mountain biking trail network in the Halton Regional Forest. Combined with difficulties in enforcing specific trail uses, phasing out mountain biking entirely from the Conservation Area would be extremely difficult to impossible. However, there will be no intensification of mountain biking within the Conservation Area and Conservation Halton is committed to re-routing and/or decommissioning trails if negative environmental impacts are observed

The trails at Hilton Falls are multi-use (hiking, cycling and cross country skiing) and preferred/single use trails (hiking or cycling). The trails are a mixture between medium/high use or single track trails. Single-track trails (narrow, substrate trails) are generally in less accessible areas and used mainly by dedicated hikers such as Bruce Trail members; these people are well versed in the 'Leave No Trace' approach to experiencing nature. Approximately 13 kilometres of single-track trails are used by cyclists. The majority of hikers or skiers would be encouraged to travel along major (medium or high capacity) trails rather than single-track trails through strategic use of interpretive programming, mapping, and establishing and advertising places of interest. Additionally, as part of the trail upgrading proposed under the master plans, Conservation Halton will be assessing the risk to natural resources posed by trails being in Nature Reserve Zone. Trail delineation, including the use of boardwalks, as well as rerouting some trails will be possible management responses. The action to be taken on the Bruce Trails in these areas will be discussed with representatives of the Bruce Trail Conservancy.

Currently, all Conservation Halton trail maps (pamphlets and signage) have trail regulations or trail etiquette guidelines printed on them. In addition, new interpretive signage will stress the value of the natural heritage features of the areas and encourage people to pursue recreational activities in low-impact ways. Increased trail use does not necessarily lead to increased degradation, insofar as the social stigma of disobeying trail use guidelines will discourage people from misbehaving. Volunteer stewards may be marshaled to patrol the trails on very busy days.

Where trails cross intermittent swales, streams or wetland areas, boardwalks, bridges or culverts are proposed. Boardwalks, bridges, and other water control measures will be constructed in such a way as to minimize impact on the natural features and in accordance to Conservation Halton regulatory requirements. Boardwalks should have a minimum width of 1.5 metres and be constructed of non-pressure treated timber materials. The exact location and length of bridges and boardwalks will be determined during the implementation phase based on site conditions.

4.2.2.1 Trail Accessibility Upgrades

Hiking trails often can be made accessible to persons with physical disabilities. The types and needs of disabled persons should be recognized before designing such a trail. Conservation Halton staff will work closely with potential future users and local groups representing persons with disabilities when designing or upgrading trails.

For wheelchairs, crushed stone that has been rolled and compacted may be used. Visually handicapped persons can use natural trail treads with guide ropes or definite edges such as logs or other natural materials. Although accessible trails usually are located on level terrain with grades rarely exceeding 5 percent, acceptable grades will vary depending on the abilities and expectations of trail users. Regular rest stops should be provided on steep slopes.

Loop trails with cut-offs are desirable. Although trail lengths of less than 1.2 kilometres are often provided, a variety of trail lengths is needed to accommodate different abilities and expectations. Identify routes with a variety of different sights, sounds, odours and objects. Trails should follow a logical sequence to prevent the user's loss of direction.

4.2.2.2 Cycling Trails

Cycling trails cannot be eliminated at Hilton Falls as the adjacent Halton Regional Forest Track, to which we share a property boundary with, allows cycling, this cycling spills over into Hilton Falls. Also at Hilton Falls, cycling is an established permitted use. Currently Conservation Halton works with Guelph Off-Road Bicycling Association, (GORBA) International Mountain Biking Association (IMBA) Ontario Cycling Association (OCA) and the Region of Halton to decommission and monitor trail impacts at Hilton Falls.

Cycling trails are typically rugged, off-road trails. The hallmark of cycling trails is the "single track," which is a narrow pathway with many hills and sharp turns. Such trails can vary greatly in difficulty. A well designed cycling trail should cause minimal damage to the surrounding landscape and require minimal maintenance overall.

Due to the potential dangers involved in bicycle passing, single direction cycling trails should be favoured. Loop or linear destination trails often are used. Many cyclists are willing to shuttle vehicles in order to use high quality linear trails. These trails are less expensive to maintain, but must be carefully located and their use monitored to protect the environment.

The preferred surface for cycling trails is compacted earth. Soil testing can help identify the trail route for erosion-prone and impact-resistant soils. Without proper drainage, cycling trails may become severely eroded. Cycling trails should be cross-sloped at 3 to 5 percent. On bicycle trails, utilize grade dips and rubber water deflectors over potentially dangerous water-bars.

Culverts, bridges or boardwalks should be used to cross waterways. Bridges and boardwalks should be covered with smooth planking oriented at a 45 to 90 degree angle to the direction of travel. Gaps between planking oriented in the direction of travel may trap bicycle tires and endanger trail users. Bridge approaches should be straight, level and at least 30 metres in length.

Delineation of these trails is needed where braiding occurs. Some sections may also be decommissioned because they were sited incorrectly and are impacting natural heritage features. Conservation Halton will continually work with the cycling community to reduce further installation of unauthorized trails.

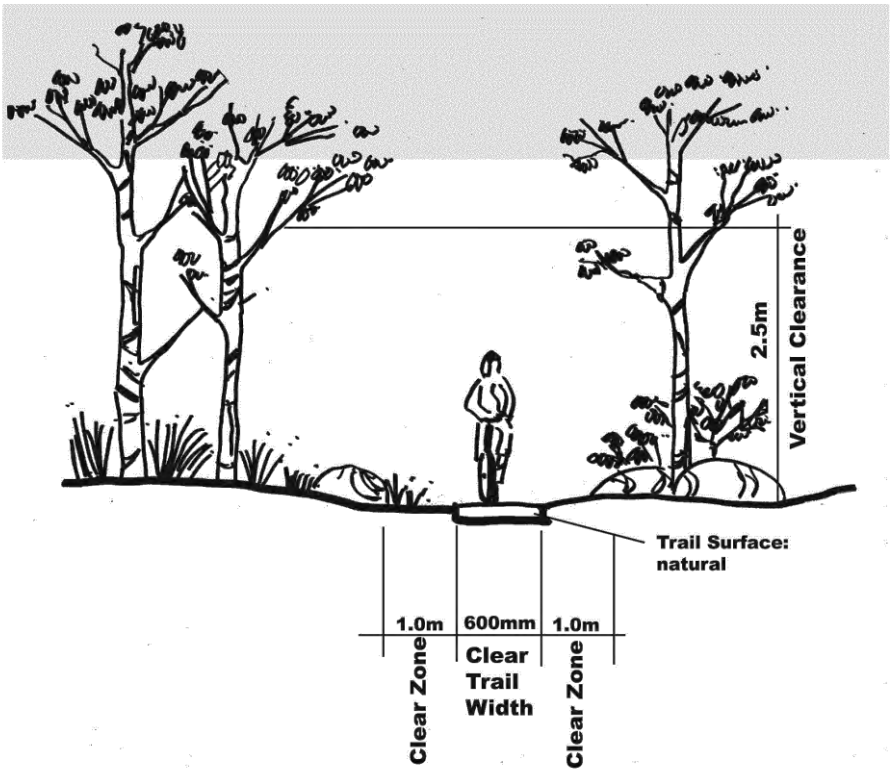


Figure 4-3: Cycling Trails

4.2.2.3 Trail Improvement

There will be no expansion of the cycling trails at Hilton Falls; however adjustments, re-routes and upgrades will be made to ensure that minimal impact on the natural environment is occurring.
Trail Infrastructure improvements for the trail system proposed by this master plan include:

- Re-route multi-use / cycling trails - 1000 linear metres*.
- Decommission unauthorized trails (i.e. block entrances) - 10*.

- Upgrade existing trail system to avoid ponding and braiding - 1000 linear metres*.
- Upgrade existing trail signage, blazing and mapping – minimum 10 medium size signs and 40 directional signs.
- Boardwalks or bridges - 600 square metres*.
- Delineation along sensitive trail areas - 1000 linear metres* (x2 sides).
- Interpretive programming and equipment – GPS, personal media players, compasses, binoculars.

** The figures provided throughout the concept descriptions are rough estimates. Actual lengths/numbers will need to be determined through detailed site analysis at the implementation phase.*

4.2.2.4 Trailheads

Trailheads will include a trail information sign at the entrance that should inform users about the length and difficulty of the trail and the locations of rest stops, cut-offs and potential hazards. To accommodate certain physical disabilities, the sign should be mounted within easy reach of the trail at a height of 750-1000 mm and use raised or routed letters.

Further policies on trails are presented in Section 3.4.4. Figure 4-2: Amenities shows examples of appropriate trail construction.

4.3 Visitor Impact Management Program

The Visitor Impact Management (VIM) program is a multiple step monitoring process developed for site managers to protect and enhance the natural resources and infrastructure components of a property. These processes usually involve substantial public participation, which may empower local residents, reduce conflicts between interest groups, expose multiple perspectives related to natural resources management and improve the quality of decisions. Public participation also increases visitor compliance with management strategies.

One element of the VIM plan will be to track visitation rates and monitor for impacts on the resources. Social theoretical carrying capacity levels have been determined for the various recreational activities allowed in Hilton Falls Conservation Area. It should be noted, however, that the term social carrying capacity no longer refers to an absolute number or formula-based decision. Rather, it refers to the desired visitor experience and resource conditions that are to be sustained (limits of acceptable change). Therefore, by managing to stay within desired resource and social conditions, the area is being managed within the "carrying capacity." Emphasis is on protection and enhancement of the natural environment and the visitor experience as opposed to accommodation of unlimited numbers of visitors. This is not a finite or absolute science – there are social values and judgments that enter into the equation; management actions also influence the ability of the facilities to accommodate visitors. Furthermore, adopting a carrying capacity is not a one-off exercise, but requires a continuing commitment to monitoring and decision-making.

This approach to social carrying capacity is based on identifying daily capacity of facilities rather than annual numbers. Visitor Impact Management programs are required to ensure that impact to the site is minimal. See Appendix I for further discussion of carrying capacity.

4.3.1 Provisional Social Carrying Capacity Levels

Until enough data has been gathered to reassess these numbers, the following provisional carrying capacity levels will be assumed for Hilton Falls Conservation Area. At this time, theoretical carrying capacity for environmental considerations and conditions is subject to further data collection and implementation of the VIM program.

Appendix I shows in detail how the peak day capacity was derived. These carrying capacity levels have been calculated assuming the following conditions have or are being met:

- Trails have been rationalized – avoid sensitive areas;
- Visitor Impact Management program is in place (includes trail closure when necessitated by adverse weather conditions and when environmental degradation is observed);
- Trails have all been upgraded – correctly constructed to avoid ponding, creation of social trails, etc. during the first three years of the plan period;
- Impacts will be monitored and if unacceptable, remedial measures will be taken.

It must be emphasized that at this point the defined levels are theoretical and must be validated by on-site monitoring. See the discussion of carrying capacity in Appendix I. Moreover, carrying capacity numbers are based on the social carrying capacity under ideal conditions and these numbers will periodically fluctuate downwards as required under the VIM program and weather conditions to ensure that the natural resource base remains ecologically sustainable. Subsequently, comfortable carrying numbers cannot simply be extrapolated into sustainable attendance numbers without the application of a modifying or "utilization" factor, which considers weather, market demand and so on.

Given a comfortable density of hikers, which varies by trail classification, it was determined that the area can accommodate 664 hikers and 124 cyclists on a peak day. These numbers were determined by Conservation Halton staff and the consulting team, and through extensive background research.

With the addition of some picnic tables and a picnic shelter, it is expected that the area can accommodate 250 picnickers on a peak day based on social constraints.

4.3.2 Visitor Impact Management Model

The Visitor Impact Management program created for Hilton Falls Conservation Area is modeled on the *Master Plan for Kelso Conservation Area* Visitor Impact Management plan. The nine steps described in the Kelso model are a suitable starting point for all Conservation Halton holdings and should be expanded to include monitoring, reporting and implementation steps that actively involve volunteers and Conservation Halton staff (see Table 4-1).

Table 4-1: Visitor Impact Management Model

VIM Step	VIM Action	Description of VIM Action	Examples
1	Baseline Review	Stage One - Inventory and Analysis, which details the existing conditions of Hilton Falls Conservation Area. To be continuously reviewed as indicated by Step 9 - Continuous Improvement Committee.	Species at risk, rare species, veteran trees, invasive species, hydrology, vegetation communities.
2	Goals and Objectives	List of area objectives. Statement of Conservation Halton mandate.	Preservation, restoration, limited recreation.

3	Impact Indicators	List of specific physical indicators of impact and measures to be used during step 5 Monitoring.	Unauthorized access, trail closure success, restoration success, off-trail use, erosion of trails, visitor garbage, sensitive species success / survival rate, rare vegetation success / survival rate, invasive species.
4	Limits of Acceptable Change	Establish limits of acceptable change in addition to visitor threshold number / individual amenity capacity number.	Restoration efforts: Effect on existing communities, inspection / maintenance visits, visitor occurrence, trail use, refuse.
5	Monitor	Field conditions monitored by volunteers and Conservation Halton staff, supervised and led by Conservation Halton staff.	Monthly inspection or annual review.
6	Analysis	Analysis of field reports and surveys.	Inspection survey analysis.
7	Mitigation	Determine impact mitigation strategies using Conservation Halton matrix.	Trail closures, signage, surface trails, boardwalks.
8	Implementation	Implementation done by CH staff, assisted by volunteers.	Limited access for medium projects i.e. trail repair, boardwalks, bridges
9	Continuous Improvement	Continuous review of goals and objectives by Working Committee. Recommendations to Step 1 to update process	Conservation Halton staff and community representation.

4.3.3 Implementation

In the *Stage Two Report* (EDA 2010b), it was demonstrated how students and volunteerism have played an important and often key role in many parks in addressing specific issues related to the sustainable development and management of natural resources and visitor experience. By revisiting the nine-step VIM model and introducing volunteerism through project initiatives in the monitoring and implementation steps the lack of money and staff that are major obstacles to adopting the VIM process are mitigated. Visitor Impact Management programs are not without costs, however. It is estimated that one additional employee and associated transportation costs will be required to administer the program at Mount Nemo, Rattlesnake Point and Hilton Falls Conservation Areas (see Section 8.3.4).

The management plan must have an information technology (IT) component that informs the management team. Software models are available to provide more rapid analysis and evaluation, often in hours rather than days. Conservation Halton has recently upgraded to a new Point of Purchase (POP) software system providing information in real time and can now inform staff of capacity thresholds in all properties simultaneously. This will allow staff to direct visitors to properties that are receiving less traffic. Even social network sites and communication tools should be used to provide information and connect with volunteers.

Finally, the management plan will create a Continuous Improvement Working Committee of Conservation Halton staff (operations, information technology, public relations and science) and may include the rotation of select leadership from active environmental advocacy and naturalist groups, the Bruce Trail Conservancy, Trout Unlimited, assistance organizations such as Halton Multi-Cultural Council and local outdoor, hiking or recreation clubs. The committee would be tasked with setting specific goals and objectives that are aligned with the Conservation Halton mandate and other planning objectives including this master plan.

A VIM matrix, Table 4-2 in Appendix II, outlines the indicators to be monitored for each activity permitted in Hilton Falls Conservation Area as well as identifies potential management actions to ensure sustainability of the activity. A budget of $60,000 each year will be provided to cover the products and implementation of these actions recommended through the VIM monitoring program. The budget will be divided between four parks; Mount Nemo, Hilton Falls, Rattlesnake Point and Crawford Lake in accordance to need.

4.4 Environmental Management and Restoration Plan

4.4.1 Rationale

Hilton Falls Conservation Area is in a relatively high quality natural state. The forest area is fairly contiguous as is evident by Figure 3-7 of the Stage One Report (EDA 2010a). Larger scale habitat restoration would have limited ability to improve forest size, interior space or overall habitat quality. Wetland and riparian areas appear to be in fairly good condition and contained within large areas of natural vegetation. As a result, limited habitat restoration is proposed and should be directed towards improving habitat in key areas for targeted species, advancing the natural succession of plantation forests and curtailing the spread of invasive species.

4.4.2 Estimate of Management and Restoration Costs

A cost structure for undertaking restoration of proposed restoration areas is provided below. For invasive species and forest succession and plantation restoration, specific recommendations have been made in other sections of this report regarding the need for additional planning in order to appropriately target resources and assign costs (e.g. invasive species, forest management plan, etc.). Therefore, costs provided below are preliminary estimates. The total cost for the measures described below is estimated to be $789,300. There will be an additional $85,800 over 10 years for the Species at Risk Monitoring Program set out in Section 3.7.5.

4.4.2.1 Riparian Planting

Historical records identify Redside Dace in the watercourse below the reservoir and within the vicinity of Campbellville Side Road. This area is open and to some degree maintained in an old-field meadow habitat state. It may be important to better secure adjacent lands from encroachment and increased recreational use. To do this, it is proposed that riparian vegetation comprised of a mixture of shrub and tree species be restored within at least 15 m of the main watercourse bank exiting from the reservoir as well as the branch which originates to the west. Combined, the length of the watercourse riparian area to be restored is approximately 240 m at a cost of approximately $117,000. This assumes approximately 50% of intensive coverage of the restoration area closest to the watercourse bank, with the average cost of restoration diminishing as you move away from the bank.

4.4.2.2 Hydro Corridor Habitat Creation

Opportunities exist to restore over 11 hectares of land currently under cultivation. The area, currently cultivated for hay, is located east of the visitor center mainly along the hydro corridor right-of-way. The area would provide suitable restoration opportunities to increase the representation of meadows and thicket communities in the natural area. As meadow communities are in decline, this area could provide valuable habitat creation opportunities for wildlife See Section 6.4 in *Stage One Report*, (EDA 2010a).

4.4.2.3 Plantation Patch Planting

A few plantation areas exist in Hilton Falls Conservation Area with a variety of attributes and proposed management criteria. The total area of plantation in the conservation area is approximately 29 hectares. The management of these, as well as natural forest areas, should be guided by an updated forest management plan. This would contribute to the health of the overall forested area and help promote increased biodiversity in the plantation areas while maintaining the health of natural forest that experiences visitor traffic.

As resources are available, and prior to the preparation of a new forest management plan, it would be beneficial to plant mid-tolerant to shade-tolerant native tree species and appropriate ground layer plants within plantation areas to speed the transition to a mixed forest canopy that is capable of supporting greater diversity.

The restoration plan will involve cutting some canopy trees to allow light penetration, preparation of planting areas, including ripping of soil structure, application of mycorrhiza and fertilizers. Plantings will consist of mid-tolerant to shade tolerant hardwood species with appropriate herbaceous plants typical of the more diverse forest environments surrounding the plantation. The plantation patch planting is estimated at $652,500. This assumes approximately 5% of coverage of plantation areas. These plants will spread naturally from surrounding areas if the invasives are kept under control.

4.4.2.4 Invasive Species

Costs for undertaking invasive species removal should be based on the threat analysis and specific management needs identified. To provide the master plan with a preliminary cost, the following work plan has been assumed: threat analysis, invasive species removals every year for the first five years, invasive species removal every second year for the next five years. Total estimated cost for invasive species management over 10 years is $19,800.

4.4.3 Trailhead Closures

There are areas where unauthorized access to the conservation area is occurring; the adjacent landscape in the immediate area needs to be rehabilitated to discourage entry. It will also be necessary to close existing unsanctioned trails in the conservation area. Trail closures form an important mitigation measure for protecting the natural features of the conservation area, which should reduce unauthorized access and access to pre-existing trails prior to the implementation of the master plan. Trail closures are to be completed during the first ten years of the plan; the cost for this work is included under the trails costing.

The restoration plan will consist of a limited amount of equipment use to source and install large fallen logs, boulders and gated structures. The trail closures will allow restoration of interior portions of the trail to progress naturally. Detailed design at the implementation stage will determine the specific design details. Trailhead closures, gate installations, fencing and vegetation planting will be executed by qualified Conservation Halton operations staff.

Trailhead closures are estimated at $2,500 per closure.

4.4.4 Rationale for Restoration Costs

Cost per hectare pricing has been derived from the environmental consultant's unit price schedule (Table 5-15 in Appendix II). These costs are based on historical supply and installation pricing for the

estimated quantities of materials known at this preliminary stage. Each cost per hectare is a combination of three main factors including:

- General earthworks (e.g. clearing and grubbing, blade and grade or excavation);
- Re-vegetation (and bioengineering supply costs); and
- Management (e.g. invasive species, plant replacement, etc).

Exact quantities of cut, fill and materials handling are not available at this stage. Assumptions of the area to be covered are based on standard contractor outsourcing costs related to recent smaller scale projects. These assumptions provide a budget framework on which the detailed design can be based and refined during the implementation stage. Substantial savings through the application of different restoration techniques may be achieved (i.e. volunteers, lower densities, smaller stock, etc.).

Table 4-3 (in Appendix I) reflects the cost per hectare for a contractor's supply and install pricing using certified nursery grown plant materials. These materials would be specified at a size that provides an established root system and gives the plant its best chance for long-term survival. The costs would be significantly lower if bare root, field-sourced, or dormant harvest cuttings (live stakes) were specified. These types of cost saving measures are often used in situations where the restoration site is remote, qualified personnel familiar with these restoration planting techniques particular to these plant materials are available and where project schedules allow for dormant harvest and bare-root material to be used.

General earthworks and re-vegetation costs represent the cost of establishing the restoration treatment onsite. The way that this cost is implemented over time can be scheduled based on funding and staff availability. Recent project cost examples for comparison are provided in Table 4-4 (in Appendix I).

The preliminary estimate provided reflects real costs associated with contractor installation and are for budgetary purposes only. This estimate represents an idealized budget for the purposes of providing a suitable restoration plan which maximizes the potential of each dominant habitat type of the conservation area. The installation costs noted here should be considered the upper end of pricing that would normally be submitted during the competitive bid process. Costs can be reduced through refinement of restoration methodology at the implementation stage, selecting additional areas for natural regeneration as the primary restoration technique or through Conservation Halton internal programming. Should Conservation Halton complete restoration using internal resources, one could expect that costs could be reduced by up to two thirds. This reduction in cost is estimated based on possible volunteer effort and historical labour and equipment costs known to Conservation Halton.

All contracted restoration projects should be performed by qualified restoration personnel. One-year warranty is assumed for contracted planting. Typical design or contract administration fees are not included in the estimated costs. Monitoring of restoration efforts are recommended with site inspections at a variety of milestone dates to determine success and potential need for adjustments.

4.5 Potential Land Acquisition

Conservation Halton has a land securement program which identifies land across its watershed which would be of interest to the Authority should they become available for acquisition. Lands identified within the Niagara Escarpment Plan *(2005)* are included as priorities, as are lands adjacent to Authority existing land holdings. Acquisition would also focus on lands that serve as natural corridors or provide linkage between core areas notably along the Niagara Escarpment, Limestone creek tributary and connection to adjacent conservation areas. Partnership purchase with the Bruce Trail Conservancy and the Optimum Trail Route are properties that would contribute to the objectives of NEPOSS by

securing a permanent route for the Bruce Trail on public lands and are included as priorities. Partnership with other partners also raises priority level for securement. Conservation Halton works closely with the Region of Halton (and others) in the Regions Greenland Securement policy and identifies priority lands in this program as well. When possible, in a willing seller – willing buyer scenario, Conservation Halton will seek funding in partnerships to secure additional lands based on these priorities. However, Conservation Halton does not have identified budgets for acquisition, nor does the Province provide support for this at this time. Currently, in the absence of funding, Conservation Halton is not actively pursuing property purchase, but can and does work with owners in securing lands such as through the Ecological Gifts Program where opportunity to do so presents itself. Land Acquisition was included within the Master Plan to help provide strategic context in line with the Securement program for future land acquisition should funding or the opportunity to acquire new priority properties become available.

Section Five: Financial Considerations

This section presents the financial analysis of the *Master Plan for Hilton Falls Conservation Area*.

All dollar figures quoted are in terms of 2010 dollars. There are two fundamental economic assumptions on which this master plan is based:

- ***Modest economic growth provincially and nationally:*** The first assumption underlying this overall analysis is that there will be slow to moderate economic growth over the 10-year development plan of the site. The recent financial uncertainty - since 2008 - will likely have stabilized, but expectations for overall economic growth are modest when compared to the 1990 – 2008 period. Therefore, companies and institutions will be very conscious of receiving value for money in any transaction. For this development plan, expectations are that partnerships will need to clearly demonstrate a 'win/win' aspect with clear benefits articulated.
- ***Significant local population growth:*** A second key assumption, fully documented in the *Stage One Report* for Hilton Falls Conservation Area (EDA 2010b), is that there will be quite high population growth in Halton Region relative to that anticipated for the province overall (over the 2001 – 2006 Census period, Halton Region grew at a rate almost 3 times that of the province overall - 17.1% compared to 6.6%). This higher growth rate is projected to continue over the planning period. By itself, this would mean significant additional attendance at the conservation area. As well, Conservation Halton intends to adopt a more aggressive and pro-active marketing stance, and this too will lead to increased attendance numbers.

The attendance and revenue figures projected in this report take both these assumptions into account.

5.1 Capital Costs of Site Development

5.1.1 Allocation of Costs over the Development Period

The capital cost of the overall development plan for the *Master Plan for Hilton Falls Conservation Area* over a 10-year period (measured in 2010 dollars) is just over $5.94million. Assumptions relating to the pace of this development in terms of the specific projects that are anticipated over this period are shown in Table 5-1 in Appendix II.

Conservation Halton will endeavour to complete the proposed works at Hilton Falls Conservation Area in a phased and orderly manner as funds permit. Certain variances may occur due to funding availability or changed circumstances. It is recommended that all the upgrades necessary to bring Hilton Falls Conservation Area up to the enhanced base level of services and amenities (see Section 3.2 above for further details) called for by this master plan be done in the first three years of the 10-year development program. In the mid-term phase of the project, the larger infrastructure items should be constructed or installed. The final phase will incorporate items that are not a high priority. Table 5-2 in Appendix II shows the specific amount of capital expenditure expected in each year.

It should be noted that in the *Stage One Report* for Hilton Falls Conservation Area (Ibid.), some $165,900 in deferred capital maintenance related to gatehouse expansion, comfort stations, and road and parking resurfacing. All of these deferred projects have been captured in the site development plan presented here.

5.1.2 Labour Component of Development Costs

This capital cost budget implies a significant labour component. The development cost outlined here assumes that all activity is contracted out. Assuming that half the development costs are for labour and that the average construction worker income plus benefits is approximately $50,000 per year, a development cost of $5.94 million for Hilton Falls Conservation Area would imply on the order of 57 person-years of labour being involved in the construction and development activities outlined.

5.2 Attendance and Revenue Forecast

5.2.1 Attendance Forecast

Currently, the average annual attendance at Hilton Falls Conservation Area is estimated to be 53,000 (over the 2005 to 2009 period).

The attendance projections developed for this conservation area are based upon recognition of four contributing factors. These are:

- Population growth;
- Marketing;
- Shorter vacations, closer to home; and
- Major development.

5.2.1.1 Population Growth

The population growth projections (as obtained from local planning departments) assume significant annual growth in most of the municipalities comprising the immediate market area that Conservation Halton serves, and from which most visitors come. Growth in these source markets will naturally result in an increase in attendance. Specific growth projections from these immediate source markets are shown in Table 5.3.

Table 5-3: Anticipated Population Growth Rates in Key Source Markets

Municipality	Anticipated Annual Population Growth Rate (to 2021)[3]
Burlington	4.53%
Oakville	2.28%
Milton	6.19%
Halton Hills	1.48%
Mississauga	3.89%
Hamilton	0.71%
Other GTA	1.17%

[3] Obtained from municipal Official Plans.

For this conservation area, a weighted population growth rate of 4.72% was calculated (based upon the estimated proportion of total attendance from each individual municipal source market – see the *Stage One Report*, EDA 2010a).

5.2.1.2 Marketing

Conservation Halton intends to adopt a more aggressive and proactive approach to promoting its facilities to local, regional and potential tourism markets, through increased signage (e.g. Tourism-Oriented Directional Signage), social media marketing, more packaging, etc. This more proactive approach can be expected to result in greater levels of attendance than population growth alone would deliver. A conservative increment of 2% over what would otherwise be the attendance has been assumed to account for this factor.

5.2.1.3 Closer to Home and Shorter Vacations (so-called 'Staycations')

A major recent impact on tourism has been the recession of 2008 and stagnant to slow economic growth since then (which is foreseen to continue over the coming decade). This has caused Canadians to tend to spend leisure and vacation time on shorter trips that are closer to home, and that are thus less costly. This has been exacerbated by tightened United States border restrictions that make it more difficult for Americans to come to Canada and more difficult and problematic for Canadians to visit the United States. The result, somewhat paradoxically, has been an increase in the propensity of Greater Toronto Area residents to visit GTA-based attractions[4]. A conservative increment of 1% over what would otherwise be the attendance (i.e. from population growth alone) has been assumed to account for this factor.

5.2.1.4 Major Development

Within the development plans for certain conservation areas, there are major facilities being proposed that can be expected to have some influence upon overall attendance. For Hilton Falls Conservation Area this is the major expansion and renovation of the visitor centre anticipated in Year 8 (2019).

5.2.1.5 Caveat

This forecast is based upon an estimate of what the utilization of facilities and services at this conservation area **could be**; the market will deliver the level of attendance as estimated here. The revenue and cost estimates presented in this section are based upon this estimate of attendance. However, should Conservation Halton decide that allowing this level of use might damage the environmental integrity of the conservation area; it could limit attendance through a variety of strategies (higher pricing; closing the park at certain periods; limiting attendance on peak days; etc.).

Table 5-4 in Appendix I shows the attendance growth projection for Hilton Falls Conservation Area.

[4] For example, the total number of visitors to Conservation Halton facilities increased from approximately 568,000 in 2007 (all conservation areas plus Glen Eden) to 748,000 in 2009. This represents an annual growth factor of about 9.6% per year over this period. The 'population growth factor' described above would account for only about half of this growth rate. The remainder would be a combination of increased marketing (of which there had been some) and the 'staycation' factor as described here. Clearly, this factor can be significant.

5.2.2 Revenue Projection

At present, the revenue per visitor realized at Hilton Falls Conservation Area is:

Table 5-5: Hilton Falls Conservation Area Budgeted Revenue Projection

Total Budgeted Revenues, 2010	$252,587
Average Annual Visitation (based on 2005 – 2009)	53,000
Average Revenue per Visitor	$4.77

Note that this shows average **direct** revenue from visitors to Hilton Falls. Revenues that accrue to Conservation Halton as a result of annual membership passes (and that are thus not directly attributable to Hilton Falls Conservation Area) are not included here (although of course the visitors coming to the park using these passes are reflected in the utilization figures shown above). This is, therefore, a low (conservative) estimate of the total revenue generation potential of the park.

Most of this revenue (93%) comes from the entry fees, and the remainder from concession fees and other miscellaneous sources.

Going forward, the proposed revenue strategy for Hilton Falls Conservation Area will be follows:

- To increase per person gate fees to $5 on average (reflecting the higher demand for the facility, as well as the higher value provided to users)

Thus, revenue generation estimates for Hilton Falls Conservation Area will be in the order of $5 per visitor for the initial period of development of the conservation area. In the latter part of the development period (years 7 through 10) this average revenue per visitor will increase slowly by 50 cents per year through a combination of increased admission prices, and a greater profit margin on goods sold[5].

Table 5-6 in Appendix II shows the attendance and revenue generation estimates for Hilton Falls Conservation Area under these assumptions.

5.3 Operating Costs of Site Development

The operating and maintenance costs associated with the operation of the site are estimated as follows:

- The current operating budget for the conservation area is assumed to continue;
- Additional salary costs for added staff for maintenance, security, visitor impact management and interpretation associated with this new development are added in;
- Additional maintenance costs associated with the new capital development is factored in;
- The incremental costs of an enhanced standard of care for trails and forest management are considered;
- An estimate of species management and monitoring costs for the park over its 10-year planning period is developed; and
- An increased marketing budget.

[5] This level of revenue generation per visitor is quite realistic: Black Creek Pioneer Village operated by the Toronto Region Conservation Authority generated revenue of over $20 per visitor in 2009.

Each of these costs is discussed separately.

5.3.1 Continuation of Operating Budget of Conservation Area

Table 5-7 (contained in Appendix II) presents the current 2010 operating budget for Hilton Falls Conservation Area (showing expenditures and revenues). As shown, current expenditures are approximately $223,000, most of which is wages, salaries and benefits. It is assumed that over the 10-year period these costs will continue.

5.3.2 Additional Staff

Use of the facilities will increase due to overall population growth in Halton Region and in neighbouring jurisdictions. This would be true even if no additional facilities or services were developed at the site. Additional services and facilities will require additional staff. These additional staff will be employed directly at the conservation area, in primarily maintenance, visitor management and interpretive activities.

The current staff utilization at Hilton Falls Conservation Area is approximately 2.91 staff (measured in terms of full-time job equivalents - FTJE). It is possible to estimate the additional staff complement under the new attendance forecast scenario as follows:

Table 5-8: Staffing Projections

Current Estimated Staff Complement (FTJE)	2.91
Percentage Growth in Visitors, to 2021[6]	86%
Growth in number of FTJEs to 2021	2.51
Total number of FTJEs at Hilton Falls Conservation Area, 2021	5.42

The current average salary and benefits per position at Conservation Halton is $76,000[7] . Multiplying this by the estimated growth in the number of FTJEs to respond to increased demand (i.e. the 2.51 positions referred to above) yields an estimate of the total additional wages and salaries required.

Table 5-9 (in Appendix II) shows the staffing projections associated with the development plan for the site.

5.3.3 Additional Capital Maintenance Costs Associated with Development Scenario

An additional expenditure category for the conservation area is the maintenance costs associated with the new development on the site. On average, annual maintenance and replacement costs associated with the physical infrastructure developed are estimated to be approximately about 2 to 5% of the original capital development costs. This percentage would cover a wide range of specific cost elements as well as global corporate service support costs such as security, minor construction and maintenance, general ecosystem monitoring, ecosystem maintenance, etc. Because these will all be relatively new facilities, maintenance costs as the lower end of this range are reasonable. Accordingly,

[6] I.e. from the 2005 – 2009 average of 53,000 visitors annually to the anticipated level of 99,000 visitors in Year 10.
[7] Communication from Marnie Piggot, Conservation Halton, February 8 2011. The average salary shown here is high because currently all employees have been with Conservation Halton for more than 15 years and are in supervisory or management positions. There are no full-time general labour positions at this time, which could have been used as a basis for this calculation.

2% of the cumulative development budget that year has been assumed as the additional maintenance and replacement cost[8].

Table 5-10 (in Appendix II) shows the calculation for the maintenance costs associated with the new development in Hilton Falls Conservation Area. As shown, this is expected to rise to nearly $115,000 per year by the end of the development period.

5.3.4 Enhanced Standard of Care for Trails and Forests

In addition to the expected maintenance costs, an enhanced standard of care, relative to current levels of treatment, shall be implemented. Costs associated with this enhanced standard include monitoring and maintenance of the forest area for hazard tree removal and the cost for enhanced maintenance on trails. Hazard tree removal is estimated to cost approximately $39 per hectare and enhanced trail management is estimated at $1,000 per linear km. As the size of the conservation area is set, 655.5hectares, this budget item will be fixed. The annual costs of this enhanced standard of maintenance are as shown below.

Table 5-11: Hilton Falls Conservation Area Enhanced Standard of Care Budget

Enhanced Standard of Care Element	Unit Cost	Number of Units at Hilton Falls (constant over planning period)	Total Annual Cost
Hazard tree Removal	$39 per hectare	655.5 Ha.	$25,565
Enhanced Trail Maintenance	$1,000 per linear km.	34.6 kilometers	$34,600
Total Annual Cost for Enhanced Standard of Care			$60,165

5.3.5 Marketing Budget

The current estimated marketing budget for Hilton Falls Conservation Area is $25,000[9], (excluding the provincial directional signs to the site – see below). However, in future, Conservation Halton wishes to move to a more active marketing stance where out-of-pocket marketing costs are funded as a percentage of overall direct revenues generated at the conservation area. This is the approach currently in place at Glen Eden Ski and Snowboarding Centre, where the marketing budget is set at 2.5% of total direct revenues. However, taking this approach at Hilton Falls Conservation Area now would imply a diminution in the total marketing budget. Accordingly, in the forecast of costs, flat marketing cost of $25,000 has been assumed until the increase in direct revenues from all sources is sufficient to bring this marketing budget above this threshold (which actually does not occur over the development period.) Added to these costs is the annual fee for participation in the provincial signage program.

5.3.5.1 Provincial Signage Program (TODS)

Another key element of the marketing budget is the cost of participation in the Tourism-Oriented Directional Signage (TODS) signs, which permits qualified tourism operators to place their business

[8] Actually, the maintenance cost is estimated as 2% of the cumulative new development costs to the *previous* year (no maintenance costs are assumed for new development in its initial year). So, for example, in Year 7, maintenance costs would be assumed for new development only up until Year 6 – development in year 7 is not assumed to need any maintenance until Year 8.

[9] Based upon communications with Hassaan Basit, Director, Communications Services, Conservation Halton.

signs along Provincial roadways. Offered jointly by the Ministries of Tourism and Transportation, the TODS program provides directional information to travelers throughout the Province of Ontario. Signs on the freeway display the business name and icon or logo. There is an annual fee per sign to participate in the signage program.

Specific assumptions relating to the deployment of TODS signs for Hilton Falls Conservation Area are as follows:

- Four freeway regular attraction destination signs will be placed on Highway 401 @ $600 each
- One 'high speed' trailblazer sign @ $153

Accordingly, $2,600 (rounded) has been added to the marketing budget in each year for these costs.

5.3.6 Estimate of Species Management and Monitoring Costs

Table 5-12 in Appendix II shows the costs associated with species management and monitoring (as outlined in Sections 3.7.5 and 4.4). Over the ten-year period of this master plan nearly $20,000 will be spent on control of invasive species, and just over $90,000 on monitoring activities.

5.3.7 Total Operating Costs

Table 5-13 in Appendix II outlines the total operating costs for the 10-year development timeframe of Hilton Falls Conservation Area, summing each of the foregoing six components. At the outset of the development period, operating costs are estimated to be $342,000 annually; by year ten, they are estimated to have risen to just over $626,000 annually.

5.4 Net Operating Position

Table 5-14 in Appendix II shows the net financial position of Hilton Falls Conservation Area at the end of the 10-year development period, under the various assumptions outlined here. Hilton Falls Conservation Area is a small 'profit centre' for Conservation Halton; the development plan presented here shows that it's potential as a revenue generator could be threatened over most of the development period.

An alternative management approach would be to target a certain level of revenue generation per visitor each year in order to overcome the anticipated shortfall. Table 5-15 in Appendix II shows only an additional $1.50 per visitor (on average) would be required in order to eliminate the shortfall in the years showing the highest deficit. This could be undertaken through an increase in the admission fee, or the annual membership fee (which permits access to all conservation areas) or possibly through more aggressive pricing for specific services and programs. The price-sensitivity of the offerings at the conservation area would need to be examined; however, pricing could be one way to adjust attendance levels if it were thought that attendance levels were exceeding the capacity of the conservation area.

Another related consideration would be whether or not pricing levels (in particular, admission fees) consistent with fees charged at other conservation areas was a desirable policy position. If so, then an average surcharge target for a group of parks would need to be considered. These management considerations will need to be addressed and adjusted periodically over the development period.

5.4.1 Portfolio Approach to Management for Rattlesnake Point, Mount Nemo and Hilton Falls

Conservation Halton treats the Rattlesnake Point, Mount Nemo and Hilton Falls Conservation Areas as a single management unit. This approach could make sense in terms of a pricing / revenue generation and business model for the three conservation areas.

The analysis for each of the three parks on its own has shown that each will incur a deficit at some point over their 10-year development timeframe. The specific situation for the three combined conservation areas is shown below:

Table 5-16: Cumulative Deficit

Year	Total Revenues *(all three parks combined)*	Total Costs *(all three parks combined)*	Surplus / Deficit *(all three parks combined)*
Year 1	$793,095	$739,704	$53,391
Year 2	$829,917	$866,464	($36,547)
Year 3	$868,454	$1,003,000	($134,546)
Year 4	$908,787	$1,112,128	($203,341)
Year 5	$951,001	$1,172,563	($221,562)
Year 6	$1,039,939	$1,241,040	($201,101)
Year 7	$1,136,753	$1,331,729	($194,976)
Year 8	$1,308,318	$1,394,235	($85,917)
Year 9	$1,494,928	$1,478,154	$16,775
Year 10	$1,695,438	$1,529,566	$165,872

This deficit per visitor is shown in Table 5-17 below.

Table 5-17: Cumulative Deficit Offset

Year	Total Deficit *(all three parks combined)*	Total Visitors *(all three parks combined)*	Deficit per Visitor
Year 1	$0	151,189	$0.00
Year 2	$36,547	158,251	$0.23
Year 3	$134,546	165,643	$0.81
Year 4	$203,341	173,382	$1.17
Year 5	$221,562	181,484	$1.22
Year 6	$201,101	194,382	$1.03
Year 7	$194,976	203,471	$0.96
Year 8	$85,917	212,987	$0.40
Year 9	$0	227,481	$0.00
Year 10	$0	237,910	$0.00

In years two through eight when the combined operations show a deficit, the deficit per visitor ranges up to a high of $1.22 (Year 5). In other words, in Year 5, if each visitor were to generate an additional $1.22 (gross) in that year, the combined conservation areas would not incur a deficit and would instead break even. If each visitor were to generate additional revenue over the entire planning period, then the three conservation areas together would not only 'pay their way' but also generate a surplus for the Conservation Halton.

This study recommends that a pricing study review be undertaken within the next year to determine how Conservation Halton can raise net revenues by $1.00 to avoid projected operating deficits or, alternatively, proceed with an admission rate increase of $1.00. If such a pricing structure were put in place at the outset of the development period, a significant surplus could be generated in each year.

5.4.2 Rationale for Additional Investment in Conservation Halton

Conservation Halton creates significant direct economic benefit in the community. The operations of the Conservation Halton, plus the expenditures of visitors who come to the region to utilize the programs and services offered, create nearly $12 million of additional gross domestic product (GDP) in Halton Region alone. This is associated with 274 jobs in the Region, $8.4 million is wages and salaries and $5.7 million in additional taxes paid. If this were a single business or industry, it would easily be recognized as a significant component of the economic base of the Region. Beyond Halton Region itself, there are further economic benefits accruing across the Province of Ontario. Conservation Halton is a significant presence creating economic benefit in the community.

Beyond these positive economic impacts, Conservation Halton provides a valuable service to the community in terms of 'ecosystem services' – the value of the impact of the forest and wetlands maintained by Conservation Halton in terms of filtering and cleaning water and air. This is a measurement of the cost of having to do this commercially as opposed to having Conservation Halton lands provide these benefits 'for free.' The estimated savings to society from these services provided by all the Conservation Halton's holdings are nearly $16 million annually.

In addition, Conservation Halton parks provide a growing population with access to abundant, natural green space for leisure and recreation, a significant value for residents opting to live or work in Halton Region. More specifically, these spaces offer opportunities that contribute to healthy living through physical activity and exercise, and in the process support Halton Region Health Department's physical activity objectives. By keeping costs low, Conservation Halton parks strive to offer accessibility to all residents while supporting culturally and socioeconomically diverse communities. As significant regional destinations, in addition to local residents, the parks also serve to attract tourists to the area.

Clearly, then, Conservation Halton creates valuable economic benefits, and provides significant value-added services, to the region. In order to enable Conservation Halton to continue to provide and generate these benefits (and indeed, to increase the value of these benefits to the region), on-going investment in the authority's conservation area facilities and programs will be required.

5.4.3 Financial Sustainability Strategy

The master planning process, it has become abundantly clear that:

- While a prime focus of the Conservation Halton parks has been and will continue to be protection and enhancement of the natural heritage resources, it is also imperative that there be a concern for the social and economic components of the sustainability model;

- As growth in visitation inevitably increases, so must the amount of investment in infrastructure, amenities, related facilities and on-going visitor impact management that is required to protect and enhance the natural heritage features and thereby achieve and maintain the necessary balance between protection and usage;
- Protection of natural heritage requires key investments in:

Enhancements to existing facilities, infrastructure and amenities;

New facilities - educational, recreational and interpretive;

On-going funding and revenue generation to support protection and enhancement initiatives.

An annual base level of financial support should be sourced through Halton Region (and / or the Province of Ontario, local municipalities, etc.) as the main recipient(s) of the benefits provided by these conservation areas. This should result from the quite significant population growth occurring in the region, which by itself will place a heavier demand upon usage of Conservation Halton's areas and facilities. This would require that a new and different business model be developed for Conservation Halton, one that acknowledges the significant economic benefits conferred upon the region by the Conservation Halton, and that recognizes the pressures placed upon it by population growth.

Consequences of not providing adequate on-going capital funding would result in the need to implement one or more of the following actions:

- Raise admission fees at specific parks;
- Raise membership fees across the board;
- Charge differentially at peak times;
- Limit visitation;
- Limit access to certain parks;
- Cut back on some of the programs and services currently offered; and / or
- Cutback or extend the proposed capital development program beyond the projected 10 year program with subsequent increases in cost.

It is likely that even with additional capital infusion, some combination of the above factors will be necessary.

5.5 Fundraising Considerations

5.5.1 General Orientation to Fundraising at Hilton Falls Conservation Area

The development plan outlined here for Hilton Falls Conservation Area offers the potential to solicit support for capital projects. The largest single capital item in the development plan for Hilton Falls Conservation Area is the addition to the existing visitor centre (costed at $1 million [in 2010 dollars] and to be developed in Year 8 of the plan [i.e. the year 2018]). As a focal point for this very popular and well-used conservation area that will receive extensive use by the public (including school groups) this should be a highly desirable item for sponsorship.

Conservation Halton will need to specify a fundraising target for this project: for example, for a $1 million project, it might be reasonable to specify a fundraising target of $670,000. (The logic underlying this approach is that Conservation Halton would put up 1/3 of the capital (approximately) and other parties the remainder.)

A general preliminary rule of thumb for public projects of this type is 'the rule of thirds': 10 donors account for the first third of funds raised; the next 100 account for the second third of funds raised; and the final third is raised from smaller amounts by all remaining donors. For a $670,000 fundraising project, then, Conservation Halton would be looking for $20,000 to $25,000 each from 10 major donors, $2,000 to $3,000 from 100 smaller donors and the final third ($233,000) from many smaller donors. Of course, were an 'angel' corporate sponsor or foundation to step in, or the federal or provincial governments agree that this project met certain funding programs or public policy priorities, the targets above could be considerably altered.

The specific fundraising message and potential targets will need to be gauged closer to the timeframe of the actual project. Elsewhere in this report, recognizing that fundraising at Hilton Falls Conservation Area is just one of several fundraising projects that Conservation Halton will be undertaking over the next decade, we suggest a specific fundraising office to work collaboratively with the Conservation Halton Foundation towards these targets.

5.5.2 Potential Sources of Support

5.5.2.1 Organizations and Foundations

Conservation Halton has a history of working closely with a number of partners: municipalities and municipal agencies; provincial government departments and agencies; and various environmental and related foundations and agencies. These partnerships are expected to continue.

In addition to approaching these traditional sources in terms of development projects and support for programming activities, there are additional foundations and funding sources that could be considered. A small sample of possibilities includes GLOBE Foundation, TD Friends of the Environment Foundation, David Suzuki Foundation, The Evergreen Foundation, Harmony Foundation and Unilever Canada Foundation.

Deciding which of these foundations might be the appropriate ones to approach for sources of support will be dependent on the specific development plans prepared for each of the conservation areas.

5.5.2.2 Corporate Sponsorship Potential

Given Conservation Halton's situation in a growing region with increasing demand, the fact that it has several sites with high visibility and profile, and its conservation mandate places it directly 'on trend' with the increasing interest in the environment, it has significant potential to develop partnerships with the corporate sector. Even though this may be difficult in the short term, given the current economic situation, over the long-term timeframe of the plan developed here, corporate sector sponsorship should be a real possibility.

A number of potential corporate sector partners for Conservation Halton should be considered. Generically, these will include:

- Major employers in Halton Region (e.g., any company with over 100 employees);
- Companies with a track record of supporting local activities and events ;
- Companies who have previously supported or been associated with Conservation Halton (for example, those who have advertised in *Focus on Conservation*);

- Major consumer-oriented companies whose target markets are young families, active individuals, etc. (e.g., running-shoe makers, sporting goods manufacturers); and
- Companies throughout the GTA producing 'environmental' products or services (or companies that wish to position themselves as having an environmental or 'green' focus).

The importance of this last point cannot be over-emphasized. Given the growing awareness of, interest in, and concern about environmental issues, companies increasingly will wish to be perceived as environmentally friendly and 'green.' Association with Conservation Halton, a well-recognized leader in environmental and conservation issues, will be a logical route to developing immediate credibility and legitimacy in this regard. Other organizations with conservation mandates – for example the World Wildlife Fund – have been very successful in exploiting this route.

The kinds of sponsorship possibilities that could be considered include:

- Sponsorship of admission for some period (e.g., this free weekend admission at Hilton Falls Conservation Area brought to you courtesy of…);
- Sponsorship of specific programs or activities (which may be oriented towards conservation projects such as species protection or public programs such as specific lecture series, interpretive tours, etc.);
- Sponsorship of outreach programs for schools, community groups, etc.;
- Sponsorship of festivals and events;
- Major donations for capital facilities such as visitor centres (which could involve naming rights); and
- For major innovative projects, public-private partnerships (PPP) could be considered.

There is a wide range of potential benefits to potential corporate sponsors that should be stressed in any approaches made. These include:

- Positive exposure to the hundreds of thousands of annual visitors to Conservation Halton's facilities;
- Positive exposure in the various print and web-based promotional and informational publications of Conservation Halton;
- Depending upon nature and location of projects supported, significant exposure along major transportation corridors;
- Potential benefits for employees of corporate sponsors (e.g., discount admissions, reduced-fee memberships, access for company picnics, etc.); and
- Positive publicity and public relations.

A strategic implication for Conservation Halton is that they may need to develop or refine their policy regarding the solicitation and identification of potential partners and sponsors to ensure that only those partners who are strategic, serious and long-term about their commitment to the environment and will reflect well on Conservation Halton's own image and identity, are eligible.

The following evaluation considerations must apply to the selection of partners and sponsors for any given initiative:

- Ability to contribute materially to a needed program or service (either in-kind or financially);

- Their commitment to the overall operation according to the same standards adopted by Conservation Halton;
- Overall image and reputation as a good employer;
- Overall positive image as good corporate citizen;
- Operation in the watershed;
- Willingness to participate with Conservation Halton on a longer-term basis; and
- Willingness to become involved in other projects.

Just as Conservation Halton will scrutinize potential partners and sponsors using these criteria, so, too, will the potential sponsor evaluate Conservation Halton. Accordingly, it is imperative to maintain a positive brand and identity throughout the watershed and beyond.

5.5.3 Next Steps

The implementation of the development plan for Hilton Falls Conservation Area will not be undertaken in isolation from other Conservation Halton projects. On the contrary, Conservation Halton will have several major development projects underway simultaneously over the next decade. Each of these has capital elements (although, as noted, in Hilton Falls Conservation Area these are relatively small-scale in nature) and operating support possibilities. In approaching potential sources of support, it will be important to adopt a consistent and coordinated approach to the market.

Accordingly, after the development plans for all of the conservation areas subject to this master planning process have been approved, a specific fundraising plan should be designed to assess the amount of funding that could be raised (capital and operating) and the most appropriate approach to be taken to potential sponsors (matching the nature of the projects requiring support to the needs of potential sponsors). As well, once this plan has been developed, Conservation Halton will likely need to retain assistance to manage the many activities that will be involved such as event organizing and sponsor contacts.

The fund raising program must consider three key areas:

- Creation of an authority-wide **fundraising plan**, to coordinate all of the various fundraising initiatives, both capital and operating, that will need to occur. This effort must be coordinated – each conservation area cannot go out fundraising on its own – the overall effort needs to be managed properly because, in total, it will be a big 'ask.'
- A **pricing review**, again authority-wide, to look at the potential to increase prices and to raise additional revenues through more intelligent pricing, packaging, timing and membership combinations. Similar reviews at other public offerings have shown that gross revenues can often be increased by 10% or more simply through differential pricing strategies.
- Creation of a **new business model** for Conservation Halton that examines different, and fairer, ways and means of generating revenues from municipal participants and other users.

Ongoing monitoring of the progress of the master plan implementation should be addressed through adoption of an annual reporting procedure that identifies key projects and tasks including existing initiatives, new initiatives and assessment of overall progress relative to established targets.

Section Six: Sustainability Evaluation

Table 6-1 presents the evaluation structure used to assess the master plan (more information on this matrix can be found in *Stage Two Report* (EDA 2010b)). Within each of the three domains of environment, social and economic, the evaluation methodology lists several specific criteria to consider.

Table 6-1: Evaluation Criteria

Environmental
Avoidance of impacts and encroachment on very high and high priority protection areas (PPAs)
Avoidance of impacts on natural heritage functions such as spread of invasive species, trampling, loss of natural cover, habitat fragmentation, noise and increased imperviousness
Potential to restore or improve natural features and natural heritage systems, diversity and connectivity,
Achieve long-term ecological function and native biodiversity
Conformity to national, provincial, regional or local plans with respect to natural heritage objectives
Social
Accessibility – physical, visual, transportation, affordability
Provision of educational opportunities / facilities
Provision of outdoor recreational opportunities
Access to views, quiet spaces, contemplative areas
Conformity to provincial, regional & local recreational plans
Economic
Capital costs (cumulative over 10 year period)
Operating costs
Direct revenue generation potential
Sponsorship or partnership potential
Potential for positive economic impact upon the community

6.1 Environmental Sustainability Evaluation

This section provides an evaluation of the master plan and its ability to protect the natural heritage system for the long term. The evaluation of potential impacts integrates relevant policies of the *Species at Risk Act* (Government of Canada 2002), *Endangered Species Act* (Province of Ontario 2007), *Provincial Policy Statement* (Ministry of Municipal Affairs and Housing 2005), *Niagara Escarpment Plan* (Niagara Escarpment Commission 2005), *Regional Official Plan* (Regional Municipality of Halton 2006) and *Town of Milton Official Plan* (Town of Milton 1997). In line with the above documents, some of the items considered during the evaluation include the master plan's intention to:

- Protect natural features and areas for the long term;

- Maintain natural features and natural heritage systems (e.g. diversity and connectivity) and their long-term ecological function;
- Restore the natural heritage systems, where necessary;
- Not propose any development or site alteration in significant habitats (e.g. PSW, etc.);
- Maximize the overall benefit to the natural features or their ecological functions (e.g. woodlands, significant wildlife habitat; ANSIs', ESAs and natural heritage system);
- Ensure that proposed development and site alteration on adjacent lands does not impact significant natural heritage features;

The summary of the impact evaluation is provided in Table 4-1 in the *Inventory and Analysis: Stage One Report* (EDA 2010a).

6.1.1 Avoidance of Impacts and Encroachment on Nature Reserve Zone

The main infrastructure of Hilton Falls Conservation Area occurs within areas designated as Development Zone. However, the Nature Reserve Zone is associated with existing infrastructure as a direct result of the steep slopes (i.e. 8-25%) and riparian buffer areas. Provided expansion of new parking areas, visitor centre and day use area occur outside of high priority natural features to the north and east, limited to no impacts are anticipated to the Nature Reserve Zone. The proposed restoration of adjacent riparian areas of the watercourse in these areas will also help to curtail visitor impacts. The addition of upgraded toilets and signage in areas of Nature Reserve Zone will not affect the protection of natural features, provided micro siting of these are completed in consultation with Conservation Halton ecology staff.

The building of a new day use picnic shelter east of the current parking lot is proposed to be in Natural Zone and will not affect Nature Reserve Zone features.

6.1.2 Avoidance of Impacts on Natural Heritage Functions

Hilton Falls Conservation Area is part of one of the largest remaining public owned natural areas in Southern Ontario. As such, it forms a core habitat area for vegetation and wildlife. Positioned within the Niagara Escarpment and within the northern portion of Sixteen Mile Creek watershed, Hilton Falls Conservation Area maintains strong connections to other natural areas of the watershed. These connections are more prevalent to the northwest and southwest. Good corridor connections to areas south of Highway 401 are constrained by this large transportation feature.

The master plan provides for strictly controlled trail routes with delineation, fencing, boardwalks and some rerouting / decommissioning of trails to avoid areas of higher priority improving the existing protection of the natural features of the conservation area. In addition, the higher standard for amenities and service (e.g. trail maintenance) will help reduce localized impacts from visitor use. These proactive steps should help curtail the spread of invasive species, as well as trampling and loss of natural cover. Parking and other hard surfaces will be constructed with pervious material therefore, will not prevent infiltration.

6.1.3 Potential to Restore or Improve Natural Features

Hilton Falls Conservation Area is in a relatively high quality natural state and the forest area is fairly contiguous. Larger scale habitat restoration would have limited ability to improve forest size, interior space or overall habitat quality. Wetland and riparian areas appear to be in fairly good condition and

contained within large areas of natural vegetation. Grassland area in the conservation area is low but appropriate given the natural state of surrounding landscape. As a result, limited habitat restoration is proposed or warranted.

The limited habitat restoration that is proposed will be directed towards improving habitat in key areas for targeted species, advancing the natural succession of plantation forests, and curtailing the spread of invasive species. The implementation of these restoration plans will improve natural features for the long-term. Restoration being planned will not influence the connectivity of Hilton Falls Conservation Area with other natural features.

Given the large size and extent of the natural heritage system within and adjacent to Hilton Falls Conservation Area, additional land acquisition is likely to affect minimal improvement on the natural heritage system and its connectivity with other features.

6.1.4 Achieve Long-term Ecological Function and Native Biodiversity

The conservation area is made up of 67 distinct Ecosite and/or Vegetation Types. Of these various communities, five ecological land classification (ELC) communities are considered *Very Rare* (G2) *to Uncommon* (G3) globally (Table 3-3 and Figure 3-7 in the *Stage One Report* (EDA 2010a). Five vegetation communities documented in the conservation area are considered provincially *Vulnerable* (SRank - S3) and one is likely to be ranked as *Imperiled (S2)* (Table 3-4 and Figure 3-7 (ibid.). Several *Rare* and *Uncommon* and one *Endangered* plant species occur. In addition, several wildlife species occur in the conservation area including some that are *Rare*, *Uncommon* or species at risk.

The master plan is based around the protection of sensitive communities, species and maintaining corridor connections are paramount concerns in this master plan. As a result, the protection of the long-term ecological function and native biodiversity is also ensured. However, the amount of active trail use and other recreational activities does increase the potential for impacts to occur. These impacts will likely be local in nature and affect vegetation in areas of higher use. It will be particularly important to manage/monitor the use of interior forest areas in order to prevent impacting sensitive species and vegetation units.

6.1.5 Conformity to National, Provincial, Regional and Local Plans

The master plan conforms to national, provincial, regional and local plans.

6.2 Social Sustainability Evaluation

6.2.1 Accessibility

The master plan offers improved physical access insofar as the trails, roads and parking areas are improved and many features made accessible to people with disabilities. It also improves physical access by increasing parking and picnic facilities. It will also make interpretative materials more available to people whose first language is not English.

6.2.2 Education Opportunities

The master plan offers opportunities for natural and cultural heritage education and interpretation, whether informal (potentially web-based), through schools or universities or through programs offered by Conservation Halton. The visitors centre will expand Conservation Halton's ability to offer organized tours for school and other groups at this conservation area.

6.2.3 Recreation Opportunities

Recreation opportunities will be similar to what currently exists at the conservation area; however, enhanced Visitor Impact Management will allow the area to accommodate an increase in visitors. The expanded visitor centre may improve access to trail activities training and teaching to be respectful of natural heritage features.

6.2.4 Open Space Functions

The master plan fulfills open space functions and provides visual relief from the urban landscape. It also offers access to quiet spaces and views.

6.2.5 Conformance with Policy

Conservation Halton Strategic Plan 2009-2013

The master plan conforms to the *Conservation Halton Strategic Plan 2009-2013* to a great degree. A summary of the relevant themes and objectives from the *Strategic Plan* are provided below.

> ***Parks***
>
> *Build awareness of Conservation Halton parks as regional destinations;*
>
> *Promote healthy lifestyles by providing access to green spaces for quality year round recreation experiences;*
>
> *Significantly enhance the amenities at Conservation Halton's parks to ensure an enjoyable experience for visitors;*
>
> *Demonstrate leadership in environmental management of Conservation Halton properties;*
>
> ***Education***
>
> *Deliver innovative and curriculum linked experiential education programs;*
>
> *Offer outdoor education and interpretive programs that promote lifelong learning experiences;*
>
> *Deliver strong community stewardship programs to promote watershed health;*
>
> *Create awareness of climate change and water conservation within the watershed community and encourage social change among watershed residents;*
>
> ***Community***
>
> *Offer a variety of volunteer and community engagement opportunities to enhance the natural environment in the watershed;*
>
> ***Governance***
>
> *Provide quality full-time, seasonal and part-time employment to enhance economic activity in the watershed.*

Over and above ample recreational opportunities, the *Master Plan for Hilton Falls Conservation Area* includes interpretive, educational and volunteer opportunities that will help Conservation Halton achieve the above objectives. Moreover, the LEED and SITES standards as well as the Visitor Impact Management program demonstrate leadership in environmental management.

Niagara Escarpment Parks and Open Space System (NEPOSS)

The objectives of the Niagara Escarpment Parks and Open Space System are:

To protect unique ecological and historical areas;

To provide adequate opportunities for outdoor education and recreation;

To provide for adequate public access to the Niagara Escarpment;

To complete a public system of major parks and open space 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 UNESCO World Biosphere Reserve Designation through sustainable park planning, ecological management, community involvement, environmental monitoring, research and education.

The master plan fulfills the objectives of the NEPOSS in preserving valuable ecological resources and providing adequate public access to them and the unique recreational opportunities they afford. All of Conservation Halton's six conservation area parks contribute greatly, especially with the commitment to bringing an enhanced level of services to visitors to all parks and by having consistent signage promoting the Niagara Escarpment as a precious natural heritage resource. All of Conservation Halton's six conservation areas contribute greatly to the public system of major parks and open space and other of the NEPOSS objectives, especially with the commitment to bringing an enhanced level of services to visitors to all parks and by having consistent signage promoting the Niagara Escarpment as a precious natural heritage resource.

Halton Region Official Plan

In the regional context, the *Regional Official Plan* (2006) Part 4 - Healthy Communities: Cultural and Recreational Services includes the following:

161. The objective of the Region is to support the provision of a diverse range of accessible cultural and recreational facilities and services.

162. It is the policy of the Region to:

162(2) Encourage the coordination of recreational services in Halton between the Conservation Authorities and Local Municipalities to avoid duplication and to increase diversity in programming.

The master plan meets the criteria as unique recreational opportunities, in a natural environment, are made available in addition to more picnic facilities.

Town of Milton Official Plan

In the local context, this master plan contributes to the *Town of Milton Official Plan* objectives as cited below:

2.5.2.1 To provide and maintain a system of parks, open space and leisure facilities for both active and passive pursuits, with a diversity of recreational experience for special use groups. [. . . .]

2.5.2.2 To develop an open space system which incorporates a full range of environmental, open space and recreation facilities, recognizing that extensive recreation

facilities are also provided by the Conservation Authorities which serve the residents of the Town, as well as the Greater Toronto Area.

(Section 2.5 Community and Cultural Services, 2.5.2 Objectives).

Conservation Halton is uniquely positioned to offer recreational experiences in a natural environment.

In summary, the plan offers many social and cultural benefits to the community as well as being strongly geared towards environmental protection.

6.3 Economic Sustainability Evaluation

6.3.1 Capital

Over the 10-year development period for Hilton Falls Conservation Area, total development costs are estimated to be approximately $5.94 million. As has been pointed out, relative to the capitalized value of the conservation area as a generator of economic and ecosystem benefits, this proportionately represents quite a small investment with significant payback potential.

6.3.2 Operating Costs

As shown, Hilton Falls Conservation Area is currently a 'profit centre' for Conservation Halton (enabling the Conservation Halton to subsidize operations in other areas). The development plan presented here shows that the conservation area has the potential to become so again towards the end of the development period. A more aggressive pricing policy (that would charge visitors an additional amount over the assumed admission fee each year), the conservation area could break even on an annual basis.

6.3.3 Direct Revenue Generation Potential

There is significant potential for Hilton Falls Conservation Area to generate direct revenues. Attendance will increase significantly as a result of three factors: natural population growth within the area; increased amenities and services within the conservation area to attract users; and a significantly enhanced and focused marketing orientation. This significantly increased visitation, with a higher admission fee reflecting the enhanced amenities and services, has the potential to generate enhanced revenues.

6.3.4 Sponsorship or Partnership Potential

Hilton Falls Conservation Area has great potential to develop corporate, foundation and individual sponsorship and support for both the capital and operating costs of this project. (See Section 5.5 for a more in-depth discussion of fundraising considerations.)

6.3.5 Potential for Positive Economic Impact upon the Community

There can be no doubt that insofar as Hilton Falls Conservation Area will attract and serve even more visitors than it has in the past, and that these additional visitors will all spend time and money in the area, it will help Conservation Halton overall become an even more powerful economic engine in the community and region.

Section Seven: Recommendations and Implementation

7.1 Infrastructure Development

Conservation Halton will endeavour to complete the following works at Hilton Falls Conservation Area in the following phased and orderly manner as funds permit. Certain variances may occur due to funding availability or changed circumstances.

It is recommended that all the upgrades necessary to bring Hilton Falls Conservation Area up to the enhanced base level of services and amenities called for by this master plan (see Section 3.2 above for further details) called for by this master plan be done in the first three years of the 10-year development program. These upgrades, meant to help Conservation Halton develop a standard of excellence within their conservation area system, include entrance and directional signage, trail upgrades and delineation and site furnishings.

It is especially necessary for Conservation Halton to complete the trail management improvements in preparation for welcoming larger numbers of visitors. In the mid-term phase of the project, the larger infrastructure items, most notably the visitor centre, should be constructed. Leaving these items to the later years 4, 5 and 6 allows Conservation Halton enough time to raise the funds and complete any design studies and public consultation necessary for these larger projects. The final phase will incorporate items that are not a high priority

Table 7-1: Short, Mid and Long Term Capital Costs

Short Term Years 1 through 3	Mid Term Years 4 through 6	Long Term Years 7 through 10	Total
Main entrance and directional signage Trails directional signage Trailheads Road and parking upgrades with bioswales and trees Site furnishings Upgraded toilets Automated gate Decommissioned, fenced or delineated, and upgraded trails Open picnic shelter/pavilion Accessibility upgrades Restoration Visitors Impact Management System *	Site services Site technology upgrades Overflow parking, Interpretive signage with language outreach upgrades Re-develop existing observation platform at falls Visitors Impact Management System *	Upgrade and addition to visitors centre Trails recreational rental equipment Visitors Impact Management System *	
$3,594,165	**$606,125**	**$1,735,500**	**$5,938,790**

* The Visitors Impact Management Plan has allotted $60,000 per year to be divided between the four parks (Hilton Falls, Rattlesnake Point, Mount Nemo & Crawford Lake) based on need. For budgeting purposes $15,000 has been allotted for each park per year.

For detailed costing over the 10-year development program, see Table 5-2 in Appendix II.

7.2 Critical Path

In order to implement this master plan, Conservation Halton will need to undertake the following:

- Review and revise the Visitor Impact Management plan including appropriate recreation management plans for activities including cycling, hiking and cross country skiing; involve the public in this process;
- Set standards for VIM indicators, form an action committee, recruit volunteers and designate a VIM coordinator;
- Begin monitoring visitor impacts, carry out necessary management actions and periodically review carrying capacity guidelines;
- Finish writing all resource management plans such as for species at risk, forestry and invasive species and then ensure operations are brought into conformance with them;
- Develop design guidelines for facilities and site furnishings;
- Develop an interpretive program, identifying specific topics and places to install signage;
- Develop a marketing and tourism promotion plan;
- Develop a fundraising plan and hire a fundraising advisor;
- Define strategies and priorities for use of such funds as can be obtained; and
- Hire an architect to design the visitors centre in consultation with stakeholder groups.

7.3 Plan Approvals and Review

Following approval of this master plan, certain additional approvals will still need to be obtained from the appropriate agencies as shown in Table 7-2, including NEC Development Permit, Milton Building Permit, Milton Site Plan Approval or Site Alteration Permit and Conservation Halton Internal Review.

Certain works are automatically exempt from the requirement of obtaining a Development Permit under Ontario Regulation 828/90 including maintenance of lands, buildings structures, maintenance renewals or repairs of septic systems connected to public utilities, tree planting and trail development on Conservation Halton lands.. The master plan components that are exempted from the development permit process are set out in the "Master Plan Approval Only" column of Table 7-2.

Typical development components such as buildings, roads and picnic shelters may be exempted from the requiring a Niagara Escarpment Permit if the requirement under section 41 of Ontario 829/90 are met.

Section 41 of Ontario Regulation 828/90 states that development permits in Parks and Open Space Systems are exempted if:

> *"The construction of buildings, structures, facilities and related undertakings identified in a Parks and Open Space Plan as defined in the Niagara Escarpment Plan (2005) for a park or open space area listed in Appendix 1 of the Niagara Escarpment Plan if: (i) The plan has been approved by the Niagara Escarpment Commission and Ontario Ministry of Natural Resources under Part 3 of the Niagara Escarpment Plan after coming into force of Regulation 423/13 (Note: Regulation came into force*

on January 1, 2013); (ii) The plan has specifically identified and detailed the buildings, structures, facilities and related undertakings that are to be exempted under this section. (iii) The construction and installation of buildings, structures and facilities and related undertakings occurs within 5 years of the approval of the master plan under subparagraph i."

Proposed water distribution works and sewage disposal or treatment works will also require approval under the *Ontario Water Resources Act* as administered under the Ministry of the Environment (MOE) and through which additional public input will be available.

Depending on the location and component of the master plan, a permit for activities with conditions to achieve overall benefit to species at risk may be needed from the MNR. Under Ontario Regulation 230/08 of the *Endangered Species Act*, 2007 (ESA), habitat protection is granted under subsection 10(1) (a) for Threatened and Endangered species.

Any works proposed in areas regulated by Conservation Halton under Ontario Regulation 162/06 will be reviewed by appropriate Watershed Management Division staff through the internal review process as detailed in Section 6.4.1.

Table 7-2: Approvals and Review

7.3.1 Phase One

Master Plan Component	Master Plan Approval Only	NEC Dev. Permit	Milton Bldg. Permit	Milton Site Plan Approval or Site Alteration Permit	CH Watershed Internal Review Process
Main entrance and directional signage	X				
Trails directional signage	X				
Trailheads	X				
Road and parking upgrades with bioswales and trees		X		X	X
Upgraded toilets	X				x
Automated gate	X				
Decommissioned, fenced or delineated, and upgraded trails	X				X
Site furnishings	X				
Open picnic shelter/pavilion		X	X		x
Accessibility upgrades	X		?	*X*	*x*
Ecosystem restoration	X				X

7.3.2 Phase Two

Master Plan Component	Master Plan Approval Only	NEC Dev. Permit	Milton Bldg. Permit	Milton Site Plan Approval or Site Alteration Permit	CH Watershed Internal Review Process
Overflow parking	X	X		X	x

Trail recreation rental equipment	X				
Redevelop existing observation platform at falls			X	X	X
Site services		X	X	X	x
Interpretive signage with language outreach upgrades	X				

7.3.3 Phase Three

Master Plan Component	Master Plan Approval Only	NEC Dev. Permit	Milton Bldg. Permit	Milton Site Plan Approval or Site Alteration Permit	CH Watershed Internal Review Process
Visitors Centre		X	X	X	X

7.4 Plan Review and Amendment

This master plan shall be the prevailing policy document for the planning and development of Hilton Falls Conservation Area for the next ten years from signed approval. Periodic review may be undertaken as required with amendments processed under the following means:

- A major amendment would involve any change that would represent a marked departure from the plan's original intent and direction. Such changes could have significant impacts on the conservation area's environment, affect users of adjacent lands or result in significant public reaction. Major amendments will require an application to the Ontario Ministry of Natural Resources with full public consultation
- A minor amendment would involve administrative or housekeeping changes that would not alter the plan's intent, affect the conservation area's objectives or its ability to meet those objectives, or have any significant impacts on the conservation area's environment. Any minor amendments will be processed simply as a Development Permit under the *Niagara Escarpment Plan (2005).*

7.5 Niagara Escarpment Development Control

Subject to prior consultation with the Niagara Escarpment Commission, the following development may be exempted from requiring a Niagara Escarpment Commission Development Permit upon approval of the Hilton Falls Conservation Area Master Plan provided that the Niagara Escarpment Commission is satisfied that the developments are in accordance with Section 5.41 of Ontario Regulation 828/90:

- **Automated gate:** This gate will be located adjacent to the kiosk building, which will allow pass holders to swipe and enter the park.
- **Access Road**: Improve 2610 m² existing access road. The road will be re-graded, compacted and resurfaced.
- **Existing Parking Lot:** Improve existing parking area 4400 m² (175 car). Re-grade, compact and resurface parking lot.

- Overflow parking Areas: Add a 2500m² grass paver system to the existing overflow parking areas.
- Picnic Shelter- 100 m² : an open picnic shelter to be available to rent to large groups
- Visitors Centre Expansion and Renovation (increase from 117 m² to 317 m²): Expand the Visitors Centre by 200m², which will results in a 317m² building footprint. The addition this will include a larger multi-purpose space, an education space and a space for rental equipment (i.e. cross-country skis, snowshoes, GPS, personal media players, compasses, binoculars).The renovations to the existing building will include an interior redesign, resulting in additional office space and a washroom upgrade including septic upgrades.
- Toilets: Upgrade three standard vault toilets

ACRONYMS

ESA	Environmentally Sensitive Area
MNR	Ontario Ministry of Natural resources
NEC	Niagara Escarpment Commission
NEP	Niagara Escarpment Plan
NEPOSS	Niagara Escarpment Parks and Open Space System

GLOSSARY OF TERMS

Adjacent Lands: Those lands bordering Hilton Falls Conservation Area.

Area of Natural and Scientific Interest (ANSI): Areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.

Bruce Trail Corridor: The Bruce Trail Conservancy is committed to establish a public footpath along the Niagara Escarpment in order to protect its natural ecosystems and to promote environmentally responsible public access to this UNESCO World Biosphere Reserve. The corridor includes Main and Side Bruce Trails as well as the optimum route.

Conservation Halton: In 1956, the Sixteen Mile Creek Conservation Authority was formed followed by the formation of the Twelve Mile Creek Conservation Authority in 1957. In 1963, these conservation authorities amalgamated to form the Halton Region Conservation Authority [Conservation Halton]. The concept of conservation authorities was developed at a conference in Guelph, Ontario in the early 1940's. At that time, it was noted that extensive quarrying was taking place in escarpment areas and there was a risk of losing many significant natural sites. In fact, it was a quarry operation at Mount Nemo in 1958 that contributed to the formation of the Twelve Mile Creek Conservation Authority, which acquired 88 acres at Mount Nemo as their first action.

Development: As it pertains to the *Planning Act*, *Provincial Policy Statement*, *Greenbelt Plan* and *Conservation Halton Land Use Planning Policies* (Section 4) is defined as the creation of a new lot; a change in land use; or the construction of buildings and structures, requiring approval under the *Planning Act,* but does not include: (a) activities that create or maintain infrastructure authorized under an environmental assessment process; (b) works subject to the Drainage Act.

Development: As it pertains to the *Conservation Authorities Act,* is defined as:

- the construction, reconstruction, erection or placing of a building or structure of any kind,
- any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
- site grading, or
- The temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.
- The temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

Ecological Function: The natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include hydrological, biological, physical, chemical and socio-economic interactions.

Ecological Land Classification (ELC): The Ontario Ministry of Natural Resources defines ecological units based on bedrock, climate (temperature, precipitation), physiography (soils, slope, and aspect) and corresponding vegetation, creating an Ecological Land Classification (ELC) system. This classification of the landscape enables planners and ecologists to organize ecological information into logical integrated units to enable landscape planning and monitoring.

Endangered Species: Species listed or categorized as an "Endangered Species" on the Ontario Ministry of Natural Resources' official species at risk list or on the COSEWIC list of endangered species, as updated and amended periodically.

Endangered Species Act: A provincial Act with three distinct purposes including: to identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge; protect species that are at risk and their habitats, and to promote the recovery of species that are at risk; and to promote stewardship activities to assist in the protection and recovery of species that are at risk in Ontario.

Hydrologic Function: The functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relation to living things.

Natural Heritage Features and Areas: These features and areas, including significant wetlands, significant coastal wetlands, fish habitat, significant woodlands, significant valleylands, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscape of the area.

Natural Heritage System: A system made up of natural heritage features and areas, linked by natural corridors necessary to maintain biological and geological diversity, natural functions, viable populations and indigenous species and ecosystems. These systems include lands that have been restored and areas with the potential to be restored to a natural state.

Negative impacts: In regard to natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which and areas is identified due to single, multiple or successive development or site alteration activities.

NEPOSS: The Niagara Escarpment Parks and Open Space System is a linear system of over 140 parks and open spaces owned / managed by public agencies or conservation authorities. The System is based on public lands acquired to protect significant areas and features along the Niagara Escarpment, the majority of which are linked by the Bruce Trail. Park managers are required to develop management / master plans that are not in conflict with the objectives and policies of the NEP.

Niagara Escarpment Commission (NEC): An agency of Ontario's Ministry of Natural Resources, the NEC works to preserve the Niagara Escarpment as a continuous natural landscape and a vital corridor of green space through south-central Ontario.

Ontario Ministry of Natural Resources (MNR): This Ministry manages and protects Ontario's natural resources for wise use across the province, contributing to the environmental, social and economic well-being of Ontario.

Provincially Significant Wetlands (PSW): Provincially Significant Wetlands are wetlands that, in the opinion of the Ontario Ministry of Natural Resources contain habitats of critical importance to fish or wildlife, have a significant hydrologic role in the watershed in which they exist, provide significant social or economic benefits and have unique or provincially significant features. Development is not permitted in Provincially Significant Wetlands.

Species at Risk (SAR): A federal Act for the purposes of preventing wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.

Threatened Species: As defined by the Ontario Ministry of Natural Resources, a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

Visitor Impact Management (VIM): This tool covers a range of processes and techniques for managing visitors, their activities and their impacts, in a specific area. It is a key aspect of tourism management by both private and public organizations, especially in natural areas with special values that need protection.

Watershed: An area that is drained by a watercourse and its tributaries.

Wetland: As defined in the Provincial Policy Statement (2005) are lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens.

Wildlife: All wild mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae, bacteria and other wild organisms.

Wildlife Habitat: Areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas important to migratory or non-migratory

Woodlands: Treed areas that provide environmental and economic benefits to both private landowners and the public, such as erosion protection, hydrological and nutrient cycling, provision of clean air, provision of wildlife habitat, outdoor recreational opportunities and the sustainable harvest of a wide range of woodland products. These include treed areas, woodlots or forested areas and can vary in their level of significance at the local, regional and provincial levels.

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Master Plan for Hilton Falls Conservation Area

Stage Three Report
Appendix I:
Natural Resource Management

TCI Management Consultants
DILLON CONSULTING
EDA Collaborative Inc.

Appendix I: Resource Management

Approach to Carrying Capacity Calculations

- Understanding of **carrying capacity**
  - The term carrying capacity no longer refers to an absolute number or formula-based decision.
  - Rather, it refers to the desired experience and resource conditions that are to be sustained (limits of acceptable change).
  - By managing to stay within desired resource & social conditions, the area is being managed within the "carrying capacity."

- Emphasis is on protection and enhancement of the **natural environment** and the **visitor experience** as opposed to accommodation of unlimited numbers of visitors.
  - This is not a finite or absolute science – there are social values and judgments that enter into the equation;
  - Management actions and weather conditions also influence the ability of the facilities to accommodate visitors.

- **Method of Computation**
  - "People-at-one-time" carrying capacity (PAOT) for each activity such as:
    - Trails,
    - Picnicking,
    - Climbing areas;
  - Extrapolation to annual sustainable use based on traditional patterns of percentage of use in a particular period (peak season, shoulder season and off-season, for example).
  - Comparison with market projections:
  - The results:
    - Too many people / can't accommodate the numbers, whether due to environmental or social considerations – adjust downward;
    - Within acceptable limits or room to grow - no adjustment required.

- **On-going management and budgeting commitment**
  - Confirm and adopt Visitor Impact Management program;
  - Provide adequate operational budgeting to support VIM programs and ongoing monitoring and mitigation programs;
  - Continue to refine established indicators (see Visitor Impact Management Matrix)

Adopting a recreational carrying capacity approach is not a one-off exercise, but requires a continuing commitment to monitoring and decision-making.

Desired Conditions / Objectives

Trails

Management Considerations: Recent site inventory has revealed that some trails are currently in the level 1 priority protection areas. Conservation Halton will review these sections of trail during the trail upgrade process (years 1-3 of the plan) and will decide on a case-by-case basis whether to close or re-route these trails, or if delineation and signage are adequate measures. If any of these trails are designated Bruce Main or Side Trails, management options will be discussed with the Bruce Trail Conservancy.

Trail Upgrades

This will include regrading, resurfacing, drainage control and potential re-routing of trails.

Trail Delineation

This will consist of natural materials such as rocks or logs lining the trail. In some cases, boardwalks or fences may be required.

Interpretive Signage

The intention is for signs to alert visitors to the presence of a natural heritage feature and explain why it is necessary to stay on the designated trail.

These measures have shown to be very effective in garnering cooperation from park users (Marion and Reid 2007).

People At One Time (PAOT) – Assumptions

The following assumptions are applicable to the PAOT calculations that are summarized below:

Trails: Number of people at one time per 1500 m of trail

- All groups are assumed to be 2 people;
- If more people per group, time between encounters will be greater;
- Frequency of encounters depends on whether traffic is going two directions and from how many trailheads;
- Turnover is 2 times per day;
- A day is considered to be 6 hours, given 80 – 85% of usage is traditionally within this period.

Single-track Trail

- 5 groups per 1500 m of trail = 300 metres, or 3.6 minutes, between groups (if all are going one direction)

Medium Service Nature Trail

- 10 groups; assume they are going TWO directions and evenly spaced over the trail – there is still 300m or 3.6 minutes between groups

High Capacity / Service Access Trail

- 20 groups, 75 metres between groups
    - If going two directions as above – 150 m between encounters = 2 minutes.
    - If viewshed is assumed to be 100 m – at some moments, you won't see anybody.

- Within earshot, 10 m
- Again, larger groups would be more infrequent, if daily capacity remains the same.

Picnicking

Calculated for 54 peak days per year (weekends + one long weekend over 6-month peak season)

- *Tables or Grass* – (turnover 2 times a day)
  - Mount Nemo Conservation Area – current capacity, 10 people
- *Shelters* – assume capacity is 50 people (no turnover)

Washroom Facilities

- 4 stalls each male and female, assume 10 persons at one time
- Turnover 50 times per day (~7 minutes)
- = 500 per day per 'comfort station' or visitor centre
- Vault toilets have not been factored in. On above peak days and for special events, portable toilets are rented to augment supply.

Cycling

- 3 bikes per 1500 m
- Turnover 4 times per day

Management Consideration: Currently cycling at Hilton Falls Conservation Area is at very low levels compared to the calculated carrying capacity. However, if monitoring ever indicates that usage is becoming unsustainable, Conservation Halton will revert to issuing day passes specifically for bicycle trail use and cap that usage and / or close trails as necessary.

Extrapolating to Get Peak-Day and Annual Sustainable Visitation Figures

The site's "total at-one-time recreational capacity" figure will be the sum of the figures for each of the activities. Knowledge of visitors' length of stay at the site or the area (= turnover) will allow a calculation of the "peak day number." It is important to realise that this number is not scientifically reached and is only a starting point for the exercise.

From these "at-one-time capacity" and "peak day numbers," it is possible to derive a sustainable annual visitation rate by applying a percentage of the peak day capacity figure to different days of the year, depending on the known temporal distribution of tourism and recreational activity (see table below). Peak season was assumed to be 6 months for walking trails. Peak days are assumed to be 9 days per peak month (weekends, including one long weekend per month).

Peak day rates are better than yearly figures to use for management decisions and may vary according to weather conditions.

Management Consideration: It is understood that there are a few days per year, up to five, when visitation is beyond the peak acceptable levels given here. Past practice has been to limit the number of people at one time based on parking capacity. These 'above-peak' days have not proved to cause a noticeable increase in damage to the facilities.

The following table shows the method of calculation of annual sustainable use, distributed according to current attendance patterns. It is shown to illustrate how yearly sustainable levels were derived in the spreadsheet (*sample only*). It assumes that the peak day capacity for the trails is 100 people.

Months	Days	Estimate	
(assume 12 months at 30 days each)		**Percentage of calculated capacity**	**Total**
Peak Season 6 months	54 weekend days in peak months (9 per month x 6 months = 54)	100% = Peak Day (total of all trails) **Sample figure 100**	54 x 100 PAOT = 5400
	126 weekdays in peak months (21 per month)	60%	126 x 60 = 7560
Shoulder Season 3 months	27 weekend days in shoulder season	60%	27 x 60 = 1620
	63 weekdays in shoulder season	40%	63 x 40 = 2520
Off Season 3 months	27 weekend days in off-season	30%	27 x 30 = 810
	63 weekdays in off-season	10%	63 x 10 = 630
Yearly Total			**18,540**

Summaries of calculations for this conservation area based on current and proposed facilities are provided below; spreadsheet follows.

PAOT = People at One Time

1. Current Facilities

Trails – results of computations based on trail classifications - Peak Day 664; Annual Sustainable Use 123,083 (calculated using the percentage table shown above)

Single-track Trail – Peak Acceptable Loading

# of groups	Total people per 1500 m	length of trail 8927 m	PAOT	Total peak day rounded
5	10	multiplier 5.95	59.5	119

Explanation: If the comfortable carrying capacity for single-track trails is 5 groups of 2 people at one time per 1500 metres of trail (as in assumptions listed above) and Hilton Falls Conservation Area has 8927 metres of single-track trail, these trails can accommodate 59.5 people at one time. With an assumed turnover rate of twice a day, the Total Peak Day carrying capacity for these trails is 119.03 people.

Medium Nature Trail – Peak Acceptable Loading

103 m – inconsequential so added to table below.

High Capacity / Service Access Trail – Peak Acceptable Loading

# of groups	Total people per 1500 m	length of trail 10,216 m	PAOT	Total peak day rounded
20	40	multiplier 6.81	272.43	545

Cycling – Peak Day 124, Annual Sustainable Use 18,823 (using percentage table shown as example in assumptions section above)

Peak Day Capacity: 3 bikes per 1500 m; 15,518 metres of bike-only trail (multiplier 10.3) turnover 4 times a day = 124

Yearly Sustainable Use: 4 months peak season, 3 months shoulder season, 5 months off-season = 18,823

Picnicking- Peak Day 100, Annual Sustainable Use 5,400

Assumed current capacity 50, turnover twice a day = 100 peak day x 54 = 5,400

Visitor Centre Existing - Peak Day 30, Annual Sustainable Use 1620

Multi-Use Room could accommodate 30 people – 1620

Total of trails, picnicking and visitor centre = 148,027

Proposed Facilities

Trails and Cycling Trails – Peak Day 788, Annual Sustainable Use 130,499

Potentially add 1000 m Medium Service Nature Trails = 40 people per day

Picnicking – Peak Day 250, Annual Sustainable Use 13,500

Assume double current usage due to addition of picnic tables = 10.800

Add one picnic shelter 100 m2; capacity 50 x 54 = 2,700

Visitor Centre Expanded – Peak Day 140, Annual Sustainable Use 7,560

Multi-Purpose Room	Rentals and Gift Shop	Display Area	Total
50	45	45	140

The primary function of this visitor centre is to allow Conservation Halton to rent recreational equipment such as cross-country skis, and to offer recreational instruction. It may also serve as a clubhouse for some recreational groups.

Location of new built features: ELC None – manicured/farmed, Development Zone and Natural Zone (along hydro corridor), Priority Protection Level 3

Total of trails, picnicking and visitor centre = 170,383

3. Results

Sustainable Annual Visitation Rate

With Current Facilities – Peak Day 918, Annual Sustainable Use 148,027

With Proposed Facilities– Peak Day 1081, Annual Sustainable Use 170,383

Visitation

Actual Current Annual Attendance – 53,000

Potential Market for the year 2021 (estimate from Section 5.2.1 of the *Master Plan*) – 99,477

The potential visitation rate for Hilton Falls Conservation Area is well within the calculated sustainable annual visitation rate, calculated based on the assumption that trails will be upgraded at the beginning of the planning period and the entire visitor impact management program is funded. Cycling is an activity of some concern and will be monitored closely and managed appropriately,

Hilton Falls Conservation Area

	Picnic				Shelters			Trails			Cycling		
	PAOT	Turnover	Days	Total	PAOT	Days	Total	Days	PAOT	Total	Days	PAOT	Total
Current	50.00	2.00	54.00	**5,400.00**	0.00	54.00	**0.00**	54.00	663.88	35,849.52	36.00	124.00	4,464.00
Proposed				**10,800.00**	50.00	54.00	**2,700.00**	126.00	398.33	50,189.33	84.00	74.40	6,249.60
								27.00	398.33	10,754.86	27.00	74.40	2,008.80
								63.00	265.55	16,729.78	63.00	49.60	3,124.80
								27.00	199.16	5,377.43	45.00	37.20	1,674.00
								63.00	66.39	4,182.44	105.00	12.40	1,302.00
										123,083.35			**18,823.20**

	Visitor Centre
Current	**720.00**
Proposed	**7,560.00**

Proposed Trails		
Days	PAOT	Total
54.00	703.88	38,009.52
126.00	422.33	53,213.33
27.00	422.33	11,402.86
63.00	281.55	17,737.78
27.00	211.16	5,701.43
63.00	70.39	4,434.44
		130,499.35

Total	
Current	**148,027**
Proposed	**170,383**

Natural Heritage System Evaluation Matrix

Category	Primary Evaluation Criteria	Secondary Evaluation Criteria	Rationale	Priority Level
Core Conservation Lands	Environmental Sensitive Areas		Regional designation based on an area meeting several primary and secondary criteria which generally include relatively high native species richness, connections to natural system, diverse/rare plant and animal communities, relatively undisturbed, species at risk, earth science features, contribution to groundwater recharge/discharge/quality, surface water quality, scientific research and/or education.	**3**
	Area of Natural and Scientific Interest	Life Science	MNR designation for areas of land and water containing natural landscapes or features which have been identified as having values related to natural heritage protection, scientific study, or education. Development and site alteration shall not be permitted in significant areas of natural and scientific interest unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (PPS 2005).	**3**
		Earth Science		**4**
	Provincially Significant Wetlands		Historically, wetland coverage within the Great Lakes Basin exceeded 10% (Detenbeck et al. 1999). The number of wetlands remaining in the Southern Ontario Landscape has been reduced to allow for urban settlements, shoreline development and agriculture. Wetlands have been shown to reduce the amount of water flowing out of a watershed, reduce flooding, create higher base flows, and reduced occurrence of high flows (Hey and Wickencamp 1996). Development and site alteration shall not be permitted in significant wetlands (PPS 2005).	**1**
		30 m Buffer		**2**
		31 – 120 m Buffer		**4**
	Niagara Escarpment Planning Areas	Escarpment Natural Area	"Escarpment features which are in a relatively natural state and associated stream valleys, wetlands and forests which are relatively undisturbed are included within this designation. These contain important plant and animal habitats and geological features and cultural heritage features and are the most significant natural and scenic areas of the Escarpment. The policy aims to maintain these natural areas." (NEC 2009)	**3**
		Escarpment Protection Area	"Escarpment Protection Areas are important because of their visual prominence and their environmental significance. They are often more visually prominent than Escarpment Natural Areas. Included in this designation are Escarpment features that have been significantly modified by land use activities such as agriculture or residential development, land needed to buffer prominent Escarpment Natural Areas, and natural areas of regional significance. The policy aims to maintain the remaining natural features and the open, rural landscape character of the Escarpment and lands in its vicinity." (NEC 2009)	**4**
		Escarpment Rural Area	"Escarpment Rural Areas are an essential component of the Escarpment corridor, including portions of the Escarpment and lands in its vicinity. They provide a buffer to the more ecologically sensitive areas of the Escarpment." (NEC 2009)	**5**
Areas of Functional Ecological Importance	Forest Cover	Sensitive Deep Forest Interior (≥ 200 m)	Recognition of the Hilton Falls Conservation Area interior forest northwest of Sixteen Mile Creek. "The Halton Forest South includes a major portion of the largest continuous tract of forest and wetland along the Niagara Escarpment south of Grey County, one of the largest natural areas within 100 km of Toronto, and the largest natural area in Halton Region. This woodland corridor covers approximately 35 square km, providing refuge for a high diversity of species requiring large tracts of forest to maintain viable populations" (Riley, et at. 1996).	**1**
		Deep Forest Interior (≥ 200 m)	Factors such as overall forest cover, patch size and shape (i.e. interior forest) all have a positive effect on the viability of habitat for flora and fauna. Overall forest cover appears to be the single most important factor in protecting bird species diversity but at the very large scale (160,000 ha), forest interior the amount of 200m forest in a patch was correlated with species richness. Forest cover is based on Ecological Land Classification.	**2**
		Forest Interior (≥ 100 m)		**3**
		Fringe Forest (<100 m)		**4**
		Plantation		**4**
	Hedgerows		Hedgerows can provide corridor function for a variety of wildlife species and can help maintain overall biodiversity in the landscape. Species within hedgerows tend to be less sensitive to disturbance as more sensitive species have likely been extirpated due to previous disturbances (e.g. agriculture).	**4**
	Regenerating Habitat (Habitat Restoration)		Similar to forest ecosystems, non-forest habitat cover (e.g. meadow), patch size and shape all have a positive affect on the viability of flora and fauna. Patch size and interior space has been maximized, where possible.	**4**
	Watercourse		Maintenance or rehabilitation of natural watercourse abiotic and biotic conditions including thermal regime and cover are important factor which influences a variety of attributes including dissolved oxygen concentrations, photosynthesis, metabolic rates of aquatic organisms, timing of life-history stages, and the decomposition rates of organic material. These influences in turn, affect ecosystem components such as algal, invertebrate, and fish communities.	**2**
		15 m Buffer		**3**
	Fish Community Class	Coldwater and potential ~~coolwater~~ / Redside Dace (30 m from	Fish habitat is comprised of those physical, chemical and biological attributes of the environment, which are required by fish to carry out their life processes (e.g.,spawning, nursery, rearing, feeding, overwintering, migration). It consists of those environments that directly or indirectly support fish communities. These guidelines can be applied to habitat, which may not directly support fish, but may provide	**1**

Category	Primary Evaluation Criteria	Secondary Evaluation Criteria	Rationale	Priority Level
Areas of Functional Ecological Importance		meanderbelt, if not mapped 30 m from watercourse)	nutrients and/or food supply to adjacent or downstream habitats and may contribute to increased water quality for fish. Changes to riparian vegetation can alter watercourse temperatures, reduce stability of stream banks and decrease overhead cover and refugia for fish. A vegetate buffer adjacent to a watercourse can also assist in the removal of sediment, pesticides and other deleterious substances which degrade water quality and fish habitat. Fish require appropriate fish habitat to carry out their life processes and the provision of adequate vegetated buffers is essential to the maintenance and enhancement of fish habitat. With the exception of the Redside Dace setbacks (*draft* Redside Dace Recovery Strategy 2009) the remaining setbacks are from Ontario Regulation 162/06.	
		Potential coolwater and warmwater sportfish (30 m from watercourse)		**2**
		Warmwater forage fish (15 m from watercourse)		**4**
	Drinking Water Source Protection – Municipal Wellhead Protection Area	100 m radius	A wellhead is simply the physical structure of the well above the ground. A wellhead protection area is a surface projection of the zone surrounding the wellhead through which groundwater is reasonably likely to travel to the well. The various capture zones that make up a wellhead protection area are based on how long it takes water to reach the well. The amount of land involved in a wellhead protection area is determined by a variety of factors such as the amount of water being pumped and the type of soil/rock through which the water moves. Well capture zones differentiate the potential risks to water quality from contaminants that could move with groundwater to the well. -100-metre radius: The area where the risk to the well is highest and the greatest care should be taken in handling any potential contaminant. -100 m to 2-year time of travel: Bacteria and viruses from human and animal waste are a concern, as are hazardous chemicals. -2 to 5-year time of travel: Chemical pollutants are the primary concern, however, microbiological risks may still be a concern. -5 to 25-year time of travel: The most persistent and hazardous contaminants remain a concern.	**1**
		100 m to 2-year time of travel		**2**
		2 to 5-year time of travel		**3**
		25-year time of travel		**4**
	Rare Vegetation Community	G1 - G3 and S1 - S3	Globally and provincially rare vegetation communities may arise as a result of rare growing conditions including, soil attributes (nutrients), water availability, and sun exposure. Or, more commonly in urbanized environments, rare vegetation communities arise as a result of being one of the few remaining examples of a once more common community.	**1**
	Species at Risk		Species at risk and habitat for endangered and threatened species are protected by the Federal Species at Risk Act (birds and fish) and Provincial Endangered Species Act (2007).	**1** (See Table 4-1)
		Critical Function and Protection Zone	Legislation mandates that species at risk habitat be protected. To protect it for the long-term, critical areas based on life process must be identified and protected from degradation. See species specific Table 5-1.	
	Globally and Provincially Rare Species	G1 - G3 and S1 - S3	Similar to species at risk, species considered globally rare should be protected to maintain current biodiversity.	**1** (See Table 4-1)
		Critical Function and Protection Zone		
	Halton Region Rare Species		Similar to species at risk, species considered rare at the regional level should be protected to maintain current biodiversity.	**2** (See Table 4-1)
		Critical Function and Protection Zone	See species specific Table 5-1.	
	Non-Provincially Significant Wetlands		The preservation of all wetlands help preserve native plant and animal species, wildlife habitat, ecological process, maintenance of biological diversity and erosion and flood control.	**2**
		Wetlands > 2ha 30 m Buffer	Wetlands that are greater than or equal to two hectares in size and not Provincially Significant are regulated 120 metres from the limit of the wetland. (Policy 3.38, Ontario Regulation 162/06). Wetlands less than two hectares in size and not Provincially Significant are regulated 30 metres from the limit of the wetland (Policy 3.39, Ontario Regulation 162/06).	**2**
		Wetlands > 2 ha 31 – 120 m Buffer		**4**
		Wetlands < 2ha 15 m Buffer		**2**
		Wetlands < 2 ha 16 – 30 m Buffer		**4**
	Vernal Pools		Vernal pools provide critical habitat for a variety of species, most notably amphibians during the breeding season. Many amphibian species have evolved to be obligate, or near obligate, vernal pool species and are therefore necessary to maintain existing populations.	**1**
		Critical Function Zone 30 m Buffer	Adjacent uplands (0-30m) provide important foraging habitat for amphibian species as well as providing important water quality functions. Natural habitat that is located further from vernal pools can be particularly important to the maintenance of functions and species populations that are more terrestrial during their adult stage.	**2**
	Seeps		Seeps provide base flows to streams and help in the regulation of coldwater / coolwater thermal designations. Development and site	**1**

Category	Primary Evaluation Criteria	Secondary Evaluation Criteria	Rationale	Priority Level
Areas of Functional Ecological Importance		30 m Buffer	alteration shall be restricted in or near sensitive surface water features such that these features and their related hydrologic functions will be protected, improved or restored (PPS 2005).	**3**
	Bat Hibernacula		Banding studies have confirmed that bats normally show high fidelity to specific hibernation sites over the years. Bats are particularly sensitive to disturbance during hibernation, and their ability to survive through winter is often jeopardized if disturbed (Stebbings 1969, OMNR 1984). Arousal is energy expensive, equivalent to about 65 days of hibernation (Brack 2004). The availability of suitable winter hibernacula is limited. Consequently, those caves that are presently used by hibernating bats are considered significant habitat and are critical to the survival of existing populations (OMNR 2006).	**1**
	Floodplain	Hazard Component	Floodplains occur adjacent to watercourse features and experience occasional and periodic flooding. These areas tend have higher biodiversity as they represent the transition zone between ecosystem types. As well, these areas tend to have greater natural vegetation due to their flood prone nature and have regulations limiting their development. Policy 3.25.2.4 (Ont. Reg. 162/06) states that, "Except as provided for in Policies 3.25.2.1–3.25.2.3, no new development is permitted within 15 metres of the flood plain" of major valley systems.	**2**
		15 m Buffer		**3**
	Meander Belt	Hazard Component	Policy 3.26.2.4 (Ontario Regulation 162/06) states that, "Except as provided for in Policies 3.26.2.1 – 3.26.2.3, no new development is permitted within 15 metres of the meander belt allowance" for major valley systems.	**2**
		15 m Buffer		**3**
	Stable Top of Bank	Hazard Component	Policy 3.35.3 (Ontario Regulation 162/06) states that, "Except as provided for in policies 3.35.1 and 3.35.2, no new development or redevelopment is permitted within 15 metres of the stable top of bank of major valley features".	**2**
		15 m Buffer		**3**
Significant Natural and Cultural Features	Look Outs		The vista or open area often focuses on a specific feature in the landscape. Views add an additional dimension to landscape quality and enhance opportunities for appreciation of the landscape for park visitors.	**4**
	Veteran Tree		Veteran trees are rare in many southern Ontario forest due to selective cutting of wood for timber. These older trees (>60dbh) play and important role in diversify the age structure of forest and can signify areas with fewer disturbances in the past. Older trees often produce large masts which ensure regeneration of a new forest canopy.	**3**
	Ancient Cedars		The Niagara Escarpment is the most significant site for ancient Eastern White Cedars in Ontario. The Niagara Escarpment Ancient Tree Atlas Project (NEATAP) was started in 1998 to search for the oldest living trees at numerous cliff sites along the Escarpment. Germination dates for these trees date back to as early as 1134 A.D. In total 111 trees have been identified in Halton, the majority of which are found at Mount Nemo, Rattlesnake Point, Crawford Lake and Kelso Conservation Areas.	**1**
	EMAN Plot / MOE Plot / Forest Bird Monitoring Program Station / Fish Sampling Station		The Ecological Monitoring and Assessment Network is a Canada wide monitoring program overseen by Environment Canada designed to better detect, describe, and report on ecosystem changes. The program and requires protection to ensure the accuracy of long-term datasets. The Forest Bird Monitoring Program is designed to monitor habitat specific population changes of Ontario birds breeding in mature forests. Fish Sampling Stations are part of Conservation Halton's Long-term Environment Monitoring Program for fish diversity.	**1**
		EMAN Plot / MOE Plot 30 m Buffer		**1**
		EMAN Plot / MOE Plot 31 - 100 m Buffer		**2**
	Steep Slopes	Scarp Face Slope (45-80%)	The near vertical escarpment face and steep talus slope are part of the larger Niagara Escarpment. The scarp face is a distinctive regional landmark, boasts magnificent views and vistas and contains significant ecological features. While providing dramatic visual presence and some limited recreational opportunities, the steep slopes require careful management to ensure the protection of their physical and ecological attributes.	**1**
		Talus & Other Slope (8-25% & 25-45%)		**2**
Other	Agricultural Fields		Low diversity and ecological function	**5**
	Existing Facilities	e.g. parking lot, building, and access / maintenance road		**5**
	Cultural Heritage	e.g. historic foundations, ruins, archeological sites		**3**
	Utility Easements	See Table X.X		**5**
	Cultural Meadows	CUM 1-1	Provides an ecological function and supports surrounding environments. Not present in enough area to maintain fully functioning meadow ecology. Deemed appropriate for restoration or to accommodate facilities in limited areas.	**5**

TABLE 4-2: VISITOR IMPACT MANAGEMENT MATRIX FOR HILTON FALLS CONSERVATION AREA (BASED ON KELSO CONSERVATION AREA MASTER PLAN)

Activity	Permitted Uses Areas	Ecological and Physical Impact Indicators	Service Level	Development and Operational Guidelines	Probable Impact Cause	Potential Management Strategies
Trail Uses (Hiking)	Trails selectively permitted in any Park Management Zones	▪ Evidence of loss of vegetation and / or soil-litter in excess of designated trail width (i.e., trampling damage or compaction) ▪ Trail rutting, ponding or expanding wet areas ▪ Surface soil erosion, gullying or compaction ▪ Tree root exposure or damage ▪ Unauthorized new trail development – braiding, widening ▪ Waste litter ▪ Breeding disturbance, nest abandonment	Primitive (i.e., Single Track Bruce Trail)	▪ Avoid poor soil conditions ▪ Maximize sheet water drainage and utilize water bars and gutters ▪ maximum 120 cm trail width ▪ Packed earth or natural bedrock path ▪ Route away from rare or endangered plant or animal species ▪ Maximum slope 20% on erodible soils ▪ Avoid wet areas unless protection measure provided ▪ Avoid habitat fragmentation and minimize intrusion into interior forest habitat or wildlife corridors	▪ Lack of trail etiquette knowledge ▪ Excessive group size and / or supervisions ▪ Improper behaviour ▪ Curiosity seekers exploring off trails ▪ Seasonal weather or unsuitability ▪ Unauthorized use ▪ Improper trail route	▪ Informational signage ▪ Temporary trail closure ▪ Better trail definition with wood chip or stone surfacing and bordered with an edging of rocks, logs or simple barriers ▪ Native material trail surfacing with bark chips or limestone screenings on high capacity trails or problem sections ▪ Remedial drainage works: water bars, ditches, culverts, footbridges, etc. ▪ Boardwalks for wet areas ▪ Limit group sizes ▪ Increased trail supervision or trails monitoring – trail stewards, bike patrols ▪ Reroute users to less / under used areas ▪ User trail maps come with responsibility code ▪ Educational programs ▪ Barriers to prevent non-pedestrian usage ▪ Adopt-a-Trail maintenance program ▪ Convenient waste receptacles ▪ Remediation of impacted areas
			Medium Service Nature Trail	▪ Maximum 200cm trail width ▪ Avoid highly sensitive habitats ▪ Maximum 18% slope for short distances ▪ Additional as above		
			High Capacity Nature Trail	▪ Maximum 300 cm trail width ▪ Handicapped accessible ▪ Packed granular surfacing ▪ Maximum slope 12% ▪ Additional as above		
Trail Use (Mountain Biking)	Permitted only on designated trails in any management zone	▪ Creation of unauthorized routes and trail braiding ▪ Trail widening ▪ Riding on restricted routes (i.e., sections of the Bruce Trail) ▪ Erosion and / or rutting ▪ Tree root abrasion and / or damage ▪ Conflict with other trail users ▪ Overcrowding	Same three levels as for hiking trail use	▪ Same as for hiking trails plus the flowing: ▪ Vertical trail clearing of 200cm ▪ One-way trail width of 50 – 150 cm ▪ Two-way tail width of 250cm maximum (excluding service roads) ▪ Technically challenging trails will include variable slopes, bumps and small obstructions of rocks and logs	▪ Lack of knowledge of trails responsibility code ▪ Knowingly disobeying rules ▪ Trails or rules not clearly defined ▪ Seasonal or weather unsuitability ▪ Excessive group size ▪ Overuse	▪ More information and education including detailed trail maps signage and regulation postings ▪ Close trails or portions during wet or soft conditions or when incompatible with other activities ▪ Better supervision including bike patrols and organized bike patrollers ▪ Better trail markers and hazard markings or trail skills ranking ▪ Trail loop system ▪ Trail surface maintenance and repairs ▪ Designated trails for mountain bikers
Group Picnicking	Designated picnic areas in Development or Resource Management Zones	▪ Turf trampling and destruction ▪ Noise pollution ▪ Litter / garbage ▪ Sewage odours or overflow	General	▪ Provide healthy turf cover ▪ Provide accessible sanitary facilities within 100 metres ▪ Provide scattered shade tree plantings throughout area ▪ Provide surface walking trails on major area linkages	▪ High use area in variable weather conditions ▪ Shortcut route to designation ▪ Excessive peak day loading	▪ Provide additional picnic facilities (i.e., washroom facilities, trails, waste receptacles) ▪ Develop additional picnic facilities throughout park to disperse crowds ▪ Limit peak day attendance

Table 4-3: Schedule of Restoration Costs

GENERAL EARTHWORK ITEMS	Size	Qty.	Unit	Unit Price	Price/m2	Total
Mobilization / Demobilization	-	0	L.S.	$5,000.00	$ -	$ -
Trail Signage	-	0	ea	$200.00	$ -	$ -
Access paving protection and restitution	-	0	L.S.	$1,000.00	$ -	$ -
Heavy Equipment Clearing and Grading	-	0	m²	$1.50	$ 1.50	$ -
mudtracking/road clean-up		0	L.S.	$1,000.00	$ -	$ -
Trail Markers		0	ea	$10.00	$ -	$ -
Wood Box Culvert		0	ea	$220.00	$ -	$ -
CMP culvert		0	ea	$ 300.00	$ -	$ -
Light Equipment Clearing and Grading		0	m²	$6.50	$ 6.50	$ -
Topsoil Stripping and stockpile for reuse		0	cu.m.	$28.00	$ 9.30	$ -
Midden / Refuse / Fence Removal		0	hec	$5,000.00	$ 0.50	$ -
Site sourced woody debris		0	L.S.	$500.00	$ -	$ -
Bridge Crossing single wood		0	m²	$86.00	$ 86.00	$ -
Trailhead Closures		0	ea	$1,500.00	$ 100.00	$ -
Dewatering (pump-and-pipe)	-	0	L.S.	$5,500.00	$ -	$ -
Pedestrian and tree protection fencing	-	0	l.m.	$10.00	$ -	$ -
Silt fence-install, maintain and remove	-	0	l.m.	$15.00	$ -	$ -
Excavation and Grading (removal offsite)	-	0	m²	$16.66	$ 16.66	$ -
Trail Double granular		0	m²	$46.00	$ 9.20	$ -
Trail Double Mulch		0	m²	$7.50	$ 7.50	$ -
invasive species removal		0	m²	$0.50	$ 0.50	$ -
Eagle bridge single wide 7.5m x 1.8m		0	ea	$20,000.00	$ 1,500.00	$ -
ecoblanket terraseed		0	m²	$ 3.50	$ 3.50	$ -
Imported topsoil	-	0	cu.m.	$35.00	$ 11.66	$ -
400-500mm Rip Rap	-	0	cu.m.	$76.50	$ 38.25	$ -
700g/sq.m. Coir Cloth (ECB - 4m wide)	-	0	m²	$8.00	$ 8.00	$ -
Straw much / photodegradable netting ECB	-	0	m²	$1.95	$ 1.95	$ -
REVEGETATION ITEMS						
Caliper Trees						
Acer saccharinum, Silver Maple	40mm cal.	0	ea	$ 300.00		$ -
Quercus macrocarpa, Bur Oak	40mm cal.	0	ea	$ 300.00		$ -
Whip Size Trees						
Juniperus viginiana, Red Cedar	150cm hgt	0	ea	$ 85.00		$ -
Acer saccharum, Sugar Maple	150cm hgt	0	ea	$ 85.00		$ -
Quercus macrocarpa, Bur Oak	150cm hgt	0	ea	$ 85.00		$ -
Tilia americana, Basswood	150cm hgt	0	ea	$ 85.00		$ -
Populus tremuloides, Trembling Aspen	150cm hgt	0	ea	$ 85.00		$ -
Native Shrub Mix						
Rosa palustris , Wetland Rose	50cm hgt #2	0	ea	$ 40.00		$ -
Spirea latifolia , Meadowsweet	50cm hgt #2	0	ea	$ 40.00		$ -
Rhus typhina, Staghorn Sumac	50cm hgt #2	0	ea	$ 40.00		$ -
Amelanchier canadensis, Serviceberry	100cm hgt. #5	0	ea	$ 85.00		$ -
Lindera benzoin, Spicebush	50cm hgt #2	0	ea	$ 40.00		$ -
Cornus alternifolia, Alternate leaved Dogwood	50cm hgt #2	0	ea	$ 40.00		$ -
Cornus sericea, Red Osier Dogwood	50cm hgt #2	0	ea	$ 40.00		$ -
Salix exigua, Sandbar Willow	75cm hgt #2	0	ea	$ 35.00		$ -
Symphoricarpos albus, Snowberry	75cm hgt #2	0	ea	$ 35.00		$ -
Rubus idaeus, Wild Raspberry	50cm hgt #2	0	ea	$ 35.00		$ -
Sambucus canadensis, Elderberry	50cm hgt #2	0	ea	$ 35.00		$ -
Viburnum lentago, Nannyberry	50cm hgt #2	0	ea	$ 35.00		$ -
Plugs and other forms						
Upland basic grass mix	drill seed	0	m²	$ 0.25	$ 0.25	$ -
Aquatic Plugs	50mm plug	0	ea	$ 3.50		$ -
Forbs	100cm pot	0	ea	$ 5.00		$ -
VPL Shrubs	20-60cm	0	ea	$ 35.00		$ -
I year Transplant	125cm hgt #1	0	ea	$ 25.00		$ -
2 year Transplants	200cm hgt #2	0	ea	$ 45.00		$ -
conifer seedlings	15cm hgt	0	ea	$ 5.00		$ -
Live willow stakes	-	0	ea	$ 5.00	$ 10.00	$ -
Shoreline Herbaceous Native Regeneration Seed Mix	-	0	m²	$ 4.50	$ 4.50	$ -
					Revegetation subtotal	**$ -**

The Conceptual Cost Estimates provided herein is for budgetary purposes only and may vary considerably from a Contractor's quotation. All plant material is restoration quality. One year warranty at 70% take.

COST SUMMARY	
General Earthworks Items	$ -
Revegetation Items	$ -
Subtotal	$ -
15% contingency	$ -
TOTAL COST	**$0.00**

Table 4-4: Supplementary Restoration Costs

Reference Project	Size	Project Description
Solar Farm - Under Construction Estimated Cost: $575,000	4.12ha	Combination of tall grass prairie, nucleation plant cells and pit and mound micro-topography.
Industrial Restoration Site - Completed 2007 Total Cost: $92,000	<5ha	Enhancement of existing woodlot and repair of industrial disturbances using successional forest buffers and open meadow restoration treatments.
Restoration of Rouge River Riparian Areas - Under Construction. Estimated Cost: $500,000	>1km of river	Extensive repair and restoration to several Rouge River Tributary sites protecting municipal infrastructure and enhancing the ecological system. Work included riparian habitat improvements and channel realignment to provide flood relief.
West Side Marsh - Completed 2004 Total Cost: ~$2,300,000	<25ha	Enhancement to existing wetlands as well as construction of new wetland areas, providing multiple habitat types including: pike nursery, littoral shelves, raptor poles, nesting islands, bass basin shelters and hibernacula.
Edge Management Plan - Under Construction Estimated Cost: $250,000	>10ha	Woodlot management in new community development. Works included trail design, successional planting and trailhead closures.
Industrial Restoration Site - Under Construction Estimated Cost: $85,000	<5ha	Restoration to woodlot edge and lakeside slope disturbed by industrial activity using nucleation plant cells.

Master Plan for Hilton Falls Conservation Area

Stage Three Report
Appendix II:
Financials

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Appendix II: Financial Calculations

Table 5-1: Hilton Falls Conservation Area Development Timeframe Assumptions

Capital Cost Element	Total Cost ($2010)	Development Timeframe Assumptions
Signage		
Main Entrance	$30,000	year 1 (2011)
Conservation Halton Parks Wayfinding/cross marketing	$25,000	year 1 (2011)
Interpretive Signage	$50,000	year 4
Language Outreach Upgrades	$20,000	year 4
Road		
Tar and chip surface road	$261,000	year 1
Bioswales	$25,000	year 1
Base Parking		
Tar and chip and other upgrades	$440,000	year 2
Bioswales	$18,250	year 2
Shade tree planting (caliper)	$17,500	year 2
Overflow Parking		
Overflow parking	$87,500	year 4
Bioswales	$13,750	year 4
Picnic and Site Furnishings		
Open Picnic Shelter/Pavilion	$80,000	year 3
Upgraded Toilets	$15,000	year 2
Site Furnishing	$50,000	year 2
Other Infrastructure and Upgrades		
Automated Gate	$40,000	year 2
Rebuild observation platform & stairs	$90,000	year 5
Addition to existing building	$1,000,000	year 8
Renovate existing building	$175,000	year 8
Site Service Upgrades	$50,000	year 6
Site Technology Upgrades	$50,000	year 5
Accessibility Upgrades	$20,000	year 3
Trails		
Decommissioned trails	$25,000	year 1
Trails signs	$7,000	year 2
Upgraded mountain biking trails	$120,000	years 1 to 3
Upgrading walking trails	$40,000	years 1 to 3
Boardwalk enhancement	$300,000	years 1 to 3
Trails recreational rental equipment	$100,000	year 8
Trails interpretive programming equipment	$60,000	year 5
Fencing/Trail Delineation	$100,000	years 1 to 3
Trailhead(s)	$11,000	year 1
Restoration Costs		
Restoration Costs	$1,097,300	years 1 to 3
Visitors Impact Management Plan *	$150,000	Years 1,2,3,4,5,6,7,8,9,10
Sub-Total	$4,568,300	
Professional Fees /Soft Costs (15%)	$685,245	calculated for each year
Contingency (15%)	$685,245	calculated for each year
Grand Total	**$5,938,790**	

**The Visitors Impact Management Plan has allotted $60,000 per year to be divided between the four parks based on need. For budgeting purposes we have averaged the amount to be $15,000 per park, per year.*

Table 5-2: Hilton Falls Site Development Costs Over 10-Year Period

Facility	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total Cost Over Period
Signage											
Main Entrance	$30,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$30,000**
Conservation Halton Parks Wayfinding/cross marketing	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$25,000**
Interpretive Signage	$0	$0	$0	$50,000	$0	$0	$0	$0	$0	$0	**$50,000**
Language Outreach Upgrades	$0	$0	$0	$20,000	$0	$0	$0	$0	$0	$0	**$20,000**
Road											
Tar and chip surface road	$261,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$261,000**
Bioswales	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$25,000**
Base Parking											
Tar and chip and other upgrades	$0	$440,000	$0	$0	$0	$0	$0	$0	$0	$0	**$440,000**
Bioswales	$0	$18,250	$0	$0	$0	$0	$0	$0	$0	$0	**$18,250**
Shade tree planting (caliper)	$0	$17,500	$0	$0	$0	$0	$0	$0	$0	$0	**$17,500**
Overflow Parking											
Overflow parking	$0	$0	$0	$87,500	$0	$0	$0	$0	$0	$0	**$87,500**
Bioswales	$0	$0	$0	$13,750	$0	$0	$0	$0	$0	$0	**$13,750**
Picnic and Site Furnishings											
Open Picnic Shelter/Pavilion	$0	$0	$80,000	$0	$0	$0	$0	$0	$0	$0	**$80,000**
Upgraded Toilets	$0	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	**$15,000**
Site Furnishing	$0	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	**$50,000**
Other Infrastructure and Upgrades											
Automated Gate	$0	$40,000	$0	$0	$0	$0	$0	$0	$0	$0	**$40,000**
Rebuild observation platform & stairs	$0	$0	$0	$0	$90,000	$0	$0	$0	$0	$0	**$30,000**
Addition to existing building	$0	$0	$0	$0	$0	$0	$0	$1,000,000	$0	$0	**$1,000,000**
Renovate existing building	$0	$0	$0	$0	$0	$0	$0	$175,000	$0	$0	**$175,000**
Site Service Upgrades	$0	$0	$0	$0	$0	$50,000	$0	$0	$0	$0	**$50,000**
Site Technology Upgrades	$0	$0	$0	$0	$50,000	$0	$0	$0	$0	$0	**$50,000**
Accessibility Upgrades	$0	$0	$20,000	$0	$0	$0	$0	$0	$0	$0	**$20,000**

Table 5-2: Hilton Falls Site Development Costs Over 10-Year Period, continued

Facility	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total Cost Over Period
Trails											
Decommissioned trails	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$25,000**
Trails signs	$0	$7,000	$0	$0	$0	$0	$0	$0	$0	$0	**$7,000**
Upgraded mountain biking trails	$40,000	$40,000	$40,000	$0	$0	$0	$0	$0	$0	$0	**$120,000**
Upgrading walking trails	$13,333	$13,333	$13,333	$0	$0	$0	$0	$0	$0	$0	**$40,000**
Boardwalk enhancement	$100,000	$100,000	$100,000	$0	$0	$0	$0	$0	$0	$0	**$300,000**
Trails recreational rental equipment	$0	$0	$0	$0	$0	$0	$0	$100,000	$0	$0	**$100,000**
Trails interpretive programming equipment	$0	$0	$0	$0	$60,000	$0	$0	$0	$0	$0	**$60,000**
Fencing/Trail Delineation	$33,333	$33,333	$33,333	$0	$0	$0	$0	$0	$0	$0	**$100,000**
Trailhead(s)	$11,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$11,000**
Restoration Costs											
Restoration Costs	$365,767	$365,767	$365,767	$0	$0	$0	$0	$0	$0	$0	$1,097,300
Visitors Impact Management Plan*	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$150,000
Sub-Total	$944,433	$1,155,183	$667,433	$186,250	$215,000	$65,000	$15,000	$1,290,000	$15,000	$15,000	$4,568,300
Professional Fees /Soft Costs	$141,665	$173,277	$100,115	$27,938	$32,250	$9,750	$2,250	$193,500	$2,250	$2,250	$685,245
Contingency	$141,665	$173,277	$100,115	$27,938	$32,250	$9,750	$2,250	$193,500	$2,250	$2,250	$685,245
Grand Total	**$1,227,763**	**$1,501,738**	**$867,663**	**$242,125**	**$279,500**	**$84,500**	**$19,500**	**$1,677,000**	**$19,500**	**$19,500**	**$5,938,790**

**The Visitors Impact Management Plan has allotted $60,000 per year to be divided between the four parks based on need. For budgeting purposes we have averaged the amount to be $15,000 per park, per year.*

Table 5-4: Hilton Falls Conservation Area Attendance Projection

Average Annual Attendance (2005 - 2009)	**53,000**					
Weighted Annual Population Growth Factor	4.72% (based upon population projections of municipalities in the catchment areas of the Conservation Area)					
Year	**(A) Attendance Increase Due to Regional Population Growth Factor**	**(B) Increment Due to Marketing Factor (2%)**	**(C) Increment Due to 'Staycation' Factor (1%)**	**Resulting Attendance Projection**	**(D) Increment from Major New Facilities Coming On-Stream***	**Final Attendance Estimate**
2010	55,502	1,110	555	57,167	0	57,167
2011	58,121	1,162	581	59,865	0	59,865
2012	60,865	1,217	609	62,691	0	62,691
2013	63,737	1,275	637	65,650	0	65,650
2014	66,746	1,335	667	68,748	0	68,748
2015	69,896	1,398	699	71,993	0	71,993
2016	73,195	1,464	732	75,391	0	75,391
2017	76,650	1,533	767	78,950	0	78,950
2018	80,268	1,605	803	82,676	0	82,676
2019	84,057	1,681	841	86,578	0	86,578
2020	88,024	1,760	880	90,665	4,533	95,198
2021	92,179	1,844	922	94,944	4,533	99,477

** construction of the $1.1 million Visitor Centre by 2018 (Year 8) expected to result in additional 5% attendance in Years 9 and 10, and on.*

Table 5-6: Hilton Falls Conservation Area Attendance and Revenue Forecast

	Attendance	Revenue per User	Total Revenue from Attendance
Base Year (2005 - 2009 Average)	53,000	$4.77	$252,587
2012	62,691	$5.00	$313,453
2013	65,650	$5.00	$328,248
2014	68,748	$5.00	$343,741
2015	71,993	$5.00	$359,966
2016	75,391	$5.00	$376,956
2017	78,950	$5.00	$394,748
2018	82,676	$5.00	$413,380
2019	86,578	$5.50	$476,181
2020	95,198	$6.00	$571,189
2021	99,477	$6.50	$646,604

Table 5-7: Hilton Falls Conservation Area Current Operating Budget

Budget Line Item Category	2010 Preliminary Budget	2009 Budget
EXPENDITURES		
Administration (Full-Time Salaries and Related Costs)*	$141,760*	$102,186*
Salaries and Wages (Seasonal / Part Time)	$49,037	$56,813
Benefits (Seasonal / Part Time)	$5,762	$6,675
Equipment Rental	$1,824	$1,767
Telephone	$5,624	$5,174
Utilities – Hydro and Fuel	$3,440	$3,842
Insurance	$550	$700
Firewood	$0	$0
Program Material	$1,250	$1,250
Material & Supplies – Cross Country Skiing	$0	$0
Advertising and Promotion - Brochure	$1,450	$1,680
Infrastructure Maintainance	$3,000	$4,350
Facilities	$2,150	$3,375
Gatehouse	$3,100	$3,702
Food Supplies	$3,000	$3,000
Special Events	$1,250	$1,000
Total Expenditures	**$223,197**	**$93,328**
REVENUES		
Entry Fees	$235,087	$214,897
Concessions	$9,500	$9,500
Donations in Kind	$0	$0
Miscellaneous	$2,000	$2,000
Special Events – Mountain Bike	$4,500	$4,500
X-Country Ski Rentals	$1,500	$1,500
Total Revenues	$252,587	$232,397
Excess Of Revenues Over Expenditures	**$29,390**	**$139,069**

** The budget contains grouped administrative expenses (consisting of full-time wages, salaries and benefits, staff travel, vehicle rentals, and bank services) for Mt. Nemo, Rattlesnake Point, and Hilton Falls. CH's usual practice is to allocate 40% of these costs to each of Hilton Falls, and Rattlesnake Point, and 20% to Mount Nemo. Accordingly, 40% of this amount ($354,400 in the 2010 budget) has been allocated to Hilton Falls.*

Table 5-9: Hilton Falls Conservation Area Staffing Projections

	Incremental Staffing Increase (FTJEs)	Total Staffing Complement (FTJEs)	Incremental Direct Staffing Costs
Base Year (2011)	**0**	**2.91**	$0
Year 1	0.25	3.16	$19,076
Year 2	0.50	3.41	$38,152
Year 3	0.75	3.66	$57,228
Year 4	1.00	3.91	$76,304
Year 5	1.26	4.17	$95,380
Year 6	1.51	4.42	$114,456
Year 7	1.76	4.67	$133,532
Year 8	2.01	4.92	$152,608
Year 9	2.26	5.17	$171,684
Year 10	2.51	5.42	$190,760

Table 5-10: Hilton Falls Conservation Area Maintenance Costs Associated with New Development

Year	Capital Development in Year	Cumulative Development	Maintenance Costs (at 2% of cumulative costs to previous year)
Year 1	$1,208,263	$1,208,263	$0
Year 2	$1,482,238	$2,690,502	$24,165
Year 3	$848,163	$3,538,665	$53,810
Year 4	$222,625	$3,761,290	$70,773
Year 5	$182,000	$3,943,290	$75,226
Year 6	$65,000	$4,008,290	$78,866
Year 7	$78,000	$4,086,290	$80,166
Year 8	$1,657,500	$5,743,790	$81,726
Year 9	$0	$5,743,790	$114,876
Year 10	$0	$5,743,790	$114,876

Table 5-12: Hilton Falls Invasive Species Management and Monitoring Costs

Year	Invasive Species Control Costs	Species Monitoring Costs	Total Species Management / Monitoring Costs
Year 1	$4,400	$8,360	$12,760
Year 2	$2,200	$8,360	$10,560
Year 3	$2,200	$10,560	$12,760
Year 4	$2,200	$8,360	$10,560
Year 5	$2,200	$8,360	$10,560
Year 6	$2,200	$10,560	$12,760
Year 7	$0	$8,360	$8,360
Year 8	$2,200	$8,360	$10,560
Year 9	$0	$10,560	$10,560
Year 10	$2,200	$8,360	$10,560
Total Costs	**$19,800**	**$90,200**	$110,000

Table 5-13: Hilton Falls Operating Cost Projection

	Continuation of Existing Budget	Additional Capital Maintenance Costs	'Enhanced Standard of Care' Costs	Species Management & Monitoring Costs	Incremental Direct Staffing Costs	Additional Marketing Costs (including TODS)	Total Estimated Operating Budget
Year 1	$223,000	$0	$59,911	$12,760	$19,076	$27,600	$342,347
Year 2	$223,000	$24,165	$59,911	$10,560	$38,152	$27,600	$383,388
Year 3	$223,000	$53,810	$59,911	$12,760	$57,228	$27,600	$434,309
Year 4	$223,000	$70,773	$59,911	$10,560	$76,304	$27,600	$468,148
Year 5	$223,000	$75,226	$59,911	$10,560	$95,380	$27,600	$491,677
Year 6	$223,000	$78,866	$59,911	$12,760	$114,456	$27,600	$516,593
Year 7	$223,000	$80,166	$59,911	$8,360	$133,532	$27,600	$532,569
Year 8	$223,000	$81,726	$59,911	$10,560	$152,608	$27,600	$555,405
Year 9	$223,000	$114,876	$59,911	$10,560	$171,684	$27,600	$607,631
Year 10	$223,000	$114,876	$59,911	$10,560	$190,760	$27,600	$626,707

Table 5-14: Hilton Falls Net Financial Operating Position

	Estimated Operating Revenues	Estimated Operating Costs	Net Financial Operating Position
Year 1	$313,453	$342,347	($28,894)
Year 2	$328,248	$383,388	($55,141)
Year 3	$343,741	$434,309	($90,568)
Year 4	$359,966	$468,148	($108,183)
Year 5	$376,956	$491,677	($114,721)
Year 6	$394,748	$516,593	($121,845)
Year 7	$413,380	$532,569	($119,188)
Year 8	$476,181	$555,405	($79,224)
Year 9	$571,189	$607,631	($36,442)
Year 10	$646,604	$626,707	$19,897

Table 5-15: Hilton Falls Target Revenues per Visitor to Break Even

Year	Anticipated Operating Deficit	Attendance in that Year	Additional Surcharge per Visitor Required to Break Even	Assumed per Visitor Revenue for that Year	Total Target Revenue per Visitor
2012	$28,894	62,691	$0.46	$5.00	$5.46
2013	$55,141	65,650	$0.84	$5.00	$5.84
2014	$90,568	68,748	$1.32	$5.00	$6.32
2015	$108,183	71,993	$1.50	$5.00	$6.50
2016	$114,721	75,391	$1.52	$5.00	$6.52
2017	$121,845	78,950	$1.54	$5.00	$6.54
2018	$119,188	82,676	$1.44	$5.00	$6.44
2019	$79,224	86,578	$0.92	$5.50	$6.42
2020	$36,442	95,198	$0.38	$6.00	$6.38
2021	$0	99,477	$0.00	$6.50	$6.50

Master Plan for Hilton Falls Conservation Area

Stage Three Report
Appendix III:
Limestone Legacy Visions, Goals and Objectives

TCI Management Consultants
DILLON CONSULTING
EDA Collaborative Inc.

Appendix III - Halton Escarpment Parks, A Limestone Legacy

October 1, 2007

LL Vision: A sustainable network of world class conservation parks for ecological health and to provide public green space for quality education and recreation experiences.

LL Goal: To build and maintain a network of spectacular natural parks in Halton that demonstrate and explain the rich natural history, cultural heritage and global significance of Ontario's Greenbelt and the Niagara Escarpment and to provide high quality recreational and educational experiences for watershed residents and beyond.

LL Objectives:

- A Halton gateway to the Niagara Escarpment with access to the Bruce Trail and future municipal trail connections, thereby linking our natural parks with other natural elements both in and beyond Halton Region.
- An outstanding premier ranked tourism attraction with multiple themed parks and features.
- A network of parks with consistent quality signage encompassing entrance signs, interpretive stations, information kiosks and internal directional signs.
- A wide range of educational and recreational opportunities for park visitors including one of the few downhill skiing and snowboarding facilities in southern Ontario.
- A planning and funding model that will enhance the Escarpment Parks and enable infrastructure improvements, capital expansion and quality maintenance standards.
- The development of guidelines for standards to ensure quality facilities, services and programs.
- The development of a sustainability plan for the Escarpment Parks that is complementary to the Sustainable Halton Plan and Halton's natural heritage system of greenlands. This would involve using Conservation Halton's parks as core lands, that would contribute to the range of habitat conditions (wetlands, forests, etc.) needed to maintain a high species biodiversity in the Region.
- The development of a management protocol for master planning the Escarpment Parks including the aspect of the Region's extensive forest tracts which are part of Halton's significant greenlands.
- The development of a partnership agreement for the development and funding of the Escarpment Parks.