Heart Lake Conservation Area

MASTER PLAN

Prepared By: Heart Lake Conservation Area Master Plan Advisory Committee
Conservation Land Planning Group, TRCA

Toronto and Region Conservation for The Living City

Member of Conservation Ontario Natural Champions

City of Brampton

Region of Peel Working for you

Town of Caledon

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF MAPS

LIST OF TABLES

EXECUTIVE SUMMARY

In 2003, Toronto and Region Conservation (TRCA) initiated the preparation of a master plan for the Heart Lake Conservation Area (HLCA). At Meeting #8-03 of the TRCA Board on October 31, 2003, RES. #A229/03 was adopted as follows:

"THAT staff be authorized to develop a Heart Lake Conservation Area Master Plan;

THAT an Advisory Committee be established, which would include members of the Etobicoke and Mimico Creek Coalition, interested community groups, business representatives, community residents, agency staff, municipal staff and area councillors to assist with the development of the Master Plan and to facilitate the opportunity for public input;

AND FURTHER THAT the final Master Plan be brought to the Authority for approval."

As a part of the process for developing *The Heart Lake Conservation Area Master Plan,* TRCA prepared *The Heart Lake Conservation Area Master Plan Background Report* that details the current knowledge about HLCA. This report was reviewed by TRCA staff and the HLCA Master Plan Advisory Committee.

The Heart Lake Conservation Area Master Plan contains nine (9) chapters, divided into four parts. Each section and chapter is briefly described below.

Chapter 1: "Introduction" provides a description of the development of a master plan for HLCA, including the study process and a brief description of HLCA. The master plan was developed by the TRCA and the HLCA Master Plan Advisory Committee. Public input was gathered throughout the process at public meetings and through surveys.

HLCA occupies 169 hectares in the Etobicoke Creek watershed, within the City of Brampton. Its diverse ecosystem includes two kettle lakes, the headwaters for Spring Creek, a wetland complex, one of the largest individual blocks of forest in the Etobicoke Creek watershed, and surficial geology of glacial till and river deposits. In addition, sections of the Heart Lake Provincially Significant Wetland Complex, the Heart Lake Woodlands Environmentally Significant Area, and the Heart Lake Forest and Bog Area of Natural and Scientific Interest are found in HLCA.

Chapter 2: "Plan Vision, Goal, Objectives and Principles" details the plan vision, goals, objectives and principles developed by the HLCA Advisory Committee. The following vision statement was developed, and together with the accompanying goals, objectives and management principles (see Chapter 2), should guide all current and future actions.

> *The Heart Lake Conservation Area is regarded as a significant conservation park that forms a key environmental, cultural and social component of an established urban community in The Living City. The park, which will be used for nature-based recreation and as a living classroom, will be managed with a stewardship approach that allows natural communities to prosper.*

Chapter 3: "Management Zones" provides a summary of the management zones and how the zones were delineated. The zones and definitions are based on the Ontario Provincial Parks – Planning and Management Policies. However, the recommended conservation land management zoning categories and policies have been modified to more closely address the requirements of HLCA and TRCA. The seven management zones defined for HLCA include Nature Reserve, Natural Environment, Primary Restoration, Secondary Restoration, Operations, Public Use, and Public Use – Lease. Approximately 78 per cent of the park is classified as Nature Reserve, Natural Environment, Primary Restoration or Secondary Restoration; only 21 per cent is zoned for Public Use.

Chapter 4: "Management Recommendations" presents the management recommendations developed for HLCA. Recommendations are made with regards to management zones; natural heritage; cultural heritage resources; recreation, conservation education and tourism; stewardship and outreach; operations and park management; land use and management; and plan implementation. Some key management recommendations include the following:

- Monitor all management zones for natural heritage and public use indicators to evaluate the effects of the various management policies, uses and activities on these ecological systems.

- Develop and implement naturalization plans based on terrestrial natural heritage inventory and assessments.
- Monitor regeneration sites to ensure a continued presence and improvement of indicator species.
- Develop and implement a nuisance wildlife management strategy for the Canada goose.
- Maintain and create natural connections in HLCA to allow for species movement.
- Continue to manage the hypolimnetic anoxia situation in Heart Lake by continuing the use of the lake lung.
- Manage Teapot Lake to protect its meromictic quality.
- Protect and conserve all archaeological sites.
- Permit events and activities that support the vision of HLCA that is established in the Master Plan.
- Promote environmental responsibility of visitors using HLCA.
- Charge a per-person entrance fee and activity-specific fees, such as for fishing or swimming, at the individual facilities.
- Develop a new pavilion or other building facility at the beach area at HLCA that will meet LEED™ standards.
- Provide passive recreation opportunities at HLCA in the winter months.
- Connect HLCA trails to other trail systems, such as the City of Brampton and the Town of Caledon trail systems.
- Close informal trails that go through Nature Reserve management zones.
- Develop a self-directed lesson plan targeting a specific subject area that teachers can use with students on the interpretive trails.
- Develop a stewardship group to provide implementation support at HLCA.
- Develop and implement plans to improve communication, awareness, education of park issues and initiatives and backyard practices that support conservation land management.
- Follow TRCA Best Management Practices.
- Maintain the two lease properties at HLCA.
- Review and update the HLCA Master Plan as necessary. A review should take place every five to seven years.
- Prepare a new master plan for HLCA in 25 years.

Chapters 5 and 6 present more detailed plans based on the management zones and recommendations developed in the previous two chapters. These are:

- Chapter 5: “Public Use and Recreation Plan” includes a summary of the public use and recreation plan and
- Chapter 6: “Trail Plan” is intended to guide the development and management of trails, access points, signage and related facilities in order to achieve the Master Plan goal and objectives.

Key features of the public use and recreation plan include:

- Public use will be concentrated in the southern portion of the park.

- A new waterplay facility, including a pavilion and splash pad, will replace swimming in Heart Lake.
- A new administrative and operations building that will incorporate all-season office space for Camp Ogada will be built.
- A skills development area, including a ropes course, will be constructed.
- The boathouse will be improved and relocated to the main beach area.
- The gate house and front gates will be moved further into the park along the entrance road.
- Camp Ogada will be relocated into the public use area of the park.

Key features of the trail plan include:

- The Peel Trail will be the main north/south trail connection that will link the Brampton and Caledon trail systems.
- The Rayner Trail will be a universal access trail.
- The Heart Lake Trail circles the TRCA portion of Heart Lake.
- Excess trails will be closed.
- Directional and interpretive signage will be posted.
- Two primary trail heads will be installed.

Chapter 7: "Plan Implementation" provides a summary of guidelines for implementing *The Heart Lake Conservation Area Master Plan.* Included are an implementation schedule and key directions for the stewardship committee to support TRCA in implementing the master plan. Opportunities for agency, municipal and private land stewardship are also discussed.

The Heart Lake Conservation Area Master Plan will guide HLCA for the next 25 years, with regular reviews and updates conducted every five to seven years. Through diligent implementation of this plan, HLCA will be further enhanced as a valuable environmental, recreational and educational resource for residents of the Greater Toronto Area.

CHAPTER

1

INTRODUCTION

1.1 Overview

The Heart Lake Conservation Area (HLCA) Master Plan was generated to protect, conserve and restore the valuable ecological features and functions of the site, while guiding the current and potential future public uses of the area.

The master planning process occurred in several phases that consisted, among other actions, of compiling background materials and research; holding public information and consultation sessions; holding advisory committee meetings; developing a vision, goal and objectives; developing management recommendations; and developing trail and public use plans. The master plan itself includes a description and evaluation of the property based on relevant plans and policies, existing resource inventories and environmental conditions, site limitations and opportunities. Additionally, the plan identifies specific management zones for the site that delineate and guide the types and levels of appropriate activities. The plan also makes recommendations for future

initiatives, including the protection of natural features and habitat regeneration based on an ecosystem approach to planning and management. Finally, detailed plans for trails and public use are presented.

1.1.1 Toward A Living City Region

Toronto and Region Conservation (TRCA) is committed to community partnerships with all sectors of society, to encouraging environmental stewardship and to building on innovative thinking about environmental health, social responsibility and sustainable economies.

TRCA's vision of a Living City Region has four objectives:

- **Healthy Rivers and Shorelines** - To restore the integrity and health of the region's rivers and waters from the headwaters in the Oak Ridges Moraine, throughout each of the nine watersheds in TRCA's jurisdiction, to the Toronto waterfront on Lake Ontario.
- **Regional Biodiversity** - To protect and restore a regional system of natural areas that provide habitat for plant and animal species, improve air quality and provide opportunities for the enjoyment of nature.
- **Sustainable Communities** - To facilitate broad community understanding, dialogue and action toward integrated approaches to sustainable living and city building that improves the quality of life for residents, businesses and nature.
- **Business Excellence -** To produce continuous improvement in the development and delivery of all programs through creative partnerships, diverse funding sources and careful auditing of outcomes and effectiveness.

Two key TRCA Living City strategies that have been integrated into this Master Plan are:

- *Terrestrial Natural Heritage Strategy*
- *Greening Our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks.*

1.1.2 TRCA's Terrestrial Natural Heritage Approach

This master plan recognizes the implications of rapid urbanization in the Greater Toronto Area and is based on two principles:

- That rare species protection is not enough for ensuring regional health; and
- That the protection of more than "significant sites" is needed to ensure regional health.

This approach considers the site within the context of the region and regional pressures. It provides clear and detailed direction for gathering and analyzing information about natural habitats, vegetation communities, and species and forms the basis for developing strategies for protection and restoration. The approach moves beyond the contemporary model of defining natural heritage systems based on a series of cores and corridors. It recognizes that all habitat patches have some value and make a contribution toward ecological health across the landscape. This approach evaluates a site's contribution at three levels:

1. The entire TRCA jurisdiction
2. Other defined areas of planning units such as the watershed and subwatershed
3. Municipal areas.

A key component of the TRCA Terrestrial Natural Heritage Approach is the scoring and ranking of vegetation communities and fauna species. The ranking information is used to determine if there are any species or vegetation communities of concern on the site. A second key component of the approach is the terrestrial natural heritage indicators and measures that are used to establish quantitative targets for the terrestrial ecosystem. The indicators are:

- Quantity of Natural Cover
- Distribution
- Matrix Influence
- Patch Size and Shape
- Landscape Connectivity
- Biodiversity.

The terrestrial natural heritage information that was gathered was analyzed and used to determine the appropriate management zones and trail alignments. The scoring and ranking of vegetation communities and fauna species reflects the primary resistance to urbanization and human encroachment. Species are ranked based on local distribution or local (L) ranks. These L ranks are in some ways analogous to the provincial (S) and global (G) ranks that are assigned to vegetation communities, flora and fauna. The TRCA ranks range from L1 to L5. Generally, L1 to L3 species or vegetation communities are of regional conservation concern (i.e., within TRCA jurisdiction) and the locations have been preserved. The complete lists of species and vegetation communities for HLCA can be found in Appendices A, B and C.

1.1.3 Greening Our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks

Recommendations from *Greening Our Watersheds* were integrated into the HLCA Master Plan to ensure a consistent watershed management approach. *Greening Our Watersheds* was developed by a multi-stakeholder task force and based on an ecosystem approach to environmental management. It assists the people who can make a difference in the watersheds, including residents, community groups, businesses, educators, elected representatives and staff at the federal, provincial, regional and local levels of government. Task force members developed a watershed vision, management strategies and objectives, indicators of conditions, and measurement criteria, targets and actions, all aimed at achieving healthier and more sustainable Etobicoke and Mimico Creek watersheds by the year 2025.

Three principles form the basis of this plan:

- Respect
- Protect
- Regenerate the natural and human heritage of the watersheds.

These principles area applied to the land, water, human heritage, and communications and public outreach within the watersheds.

The Task Force reviewed the watershed management strategies contained in *Greening Our Watersheds* and recommended five priority areas to be the immediate focus of the Etobicoke-Mimico Creek Watersheds Coalition:

- Improving water management
- Promoting sustainable communities
- Securing natural heritage lands
- Improving awareness of natural and human heritage
- Protecting and regenerating natural habitats.

1.1.4 TRCA and Conservation Lands

The goal of TRCA in managing conservation lands is:
"To ensure the environmental stewardship of Authority lands and to continue to bring into ownership additional conservation and hazard lands essential for achieving a healthy regional environment and sustainable communities" (TRCA 2001).

Currently, TRCA lands are managed under the following categories:

- Active-use conservation areas
- Passive-use areas/resource management tracts
- Residential properties
- Rented farm land
- Contract/lease and easement land
- Limited-use open land
- Management agreement land.

1.2 Study Process

Planning efforts have shown that community and interest groups have grown more concerned with the impact of land use change on the remaining natural landscapes within the Greater Toronto Area. At the same time, user groups, businesses and municipalities have expressed a growing interest in using public lands for a variety of outdoor recreation, ecological restoration and other uses. The provision of public uses on TRCA-owned land must consider economic factors, the recreational needs of the community, as well as ensure the natural landscape is protected and properly managed.

TRCA initiated the preparation of a comprehensive master plan for HLCA in the summer of 2003. At Meeting #8-03 on October 31, 2003, the TRCA Board adopted RES. #A229/03 as follows:

"THAT staff be authorized to develop a Heart Lake Conservation Area Master Plan;

THAT an Advisory Committee be established, which would include members of the Etobicoke and Mimico Creek Coalition, interested community groups, business representatives, community residents, agency staff, municipal staff and area councillors to assist with the development of the Master Plan and to facilitate the opportunity for public input;

AND FURTHER THAT the final Master Plan be brought to the Authority for approval."

The HLCA Master Plan was undertaken in three phases as follows:

Phase One

- Prepare a HLCA Master Plan background report
- Establish an Advisory Committee and hold meetings
- Establish and circulate a study newsletter
- Host a public information session
- Develop a plan vision, goals, objectives and management principles.

Phase Two

- Determine draft management zones
- Develop draft management recommendations
- Integrate watershed management recommendations
- Host advisory committee meetings
- Develop public use and recreation program options
- Develop public use design guidelines
- Develop public use and recreation concepts
- Develop an overall draft trail plan for the property
- Circulate a study update newsletter
- Host public meetings to review draft material.

Phase Three

- Finalize draft public and recreation and trail plans
- Develop a plan implementation strategy and costs
- Host advisory committee meetings
- Host public meeting to present final draft plan
- Obtain partners and TRCA Board endorsement and/or approval of plan
- Circulate a study update newsletter.

1.3 The Advisory Committee

The HLCA Master Plan Advisory Committee consisted of representatives from the following groups and municipalities:

- Region of Peel
- City of Brampton
- Town of Caledon
- Etobicoke and Mimico Creeks Watershed Coalition

- Ministry of Natural Resources
- Brampton Environmental Community Advisory Panel
- Peel District School Board
- York University
- Scouts Canada
- Friends of Heart Lake
- Caledon Cycling Club
- Local Residents
- TRCA.

The Advisory Committee helped TRCA staff to finalize the project terms of reference, establish vision, goals and objectives, determine management zones and management recommendations, and develop the trail and public use plans. The committee also provided technical input and assisted with the public consultation program for the master plan.

In summary, the Advisory Committee was responsible for the following major functions:

- Providing technical expertise, monitoring information and advice to TRCA throughout the development of the master plan
- Ensuring that appropriate staff and members at their respective municipalities/ agencies/associations were adequately informed throughout the process
- Providing commentary and input on suggestions brought to the Advisory Committee
- Assisting in the identification of current outstanding issues and making suggestions regarding appropriate ways to resolve them
- Assisting TRCA in presentations and public forums, where appropriate.

This study is the result of over three years work and commitment by this dedicated committee and by TRCA staff. The Advisory Committee provided direction for the management zones, trail plan, public use and recreation plan and recommendations contained in this master plan. Copies of the minutes for the Advisory Committee meetings have been compiled and can be obtained from TRCA upon request.

1.4 Public Consultation

At the outset of the master plan, it was agreed that public use, enjoyment and stewardship of HLCA would be important to the community. Consequently, the public had to have meaningful input in the planning process. To facilitate a wide range of opportunities for input, many techniques were used to generate a high level of awareness and public comment.

The public consultation program included:

- Meetings with interested organizations and groups in the community
- Information sessions, newsletters, questionnaires and mailings to the community to identify a broad range of potential needs and opportunities for the site

- Public meetings to present the background information, plan vision, proposed management zones, concept plans, trail plan, public use plan and management recommendations.

In general, the public responded very favourably to the proposed master plan. They found its vision, goals, objectives and management principles to be appropriate. The public preference was to make nature-based public use the focus of the park and to balance this with environmental protection and restoration.

As part of the public consultation process, several questionnaires were distributed to HLCA users and to those attending public meetings. The first survey was used to obtain information about the current use of HLCA and to identify public preferences for future recreation uses and activities. The second questionnaire was designed to gather feedback on the proposed Public Use and Recreation Plan. A more detailed summary of the information collected from these questionnaires is presented in the Public Use and Recreation Plan (see Appendix D).

Although there was considerable opportunity for written feedback through these forums, the overall number of completed formal surveys was low (40), not surprising given the overall level of satisfaction with HLCA that was expressed by most respondents. Highlights from the questionnaires included:

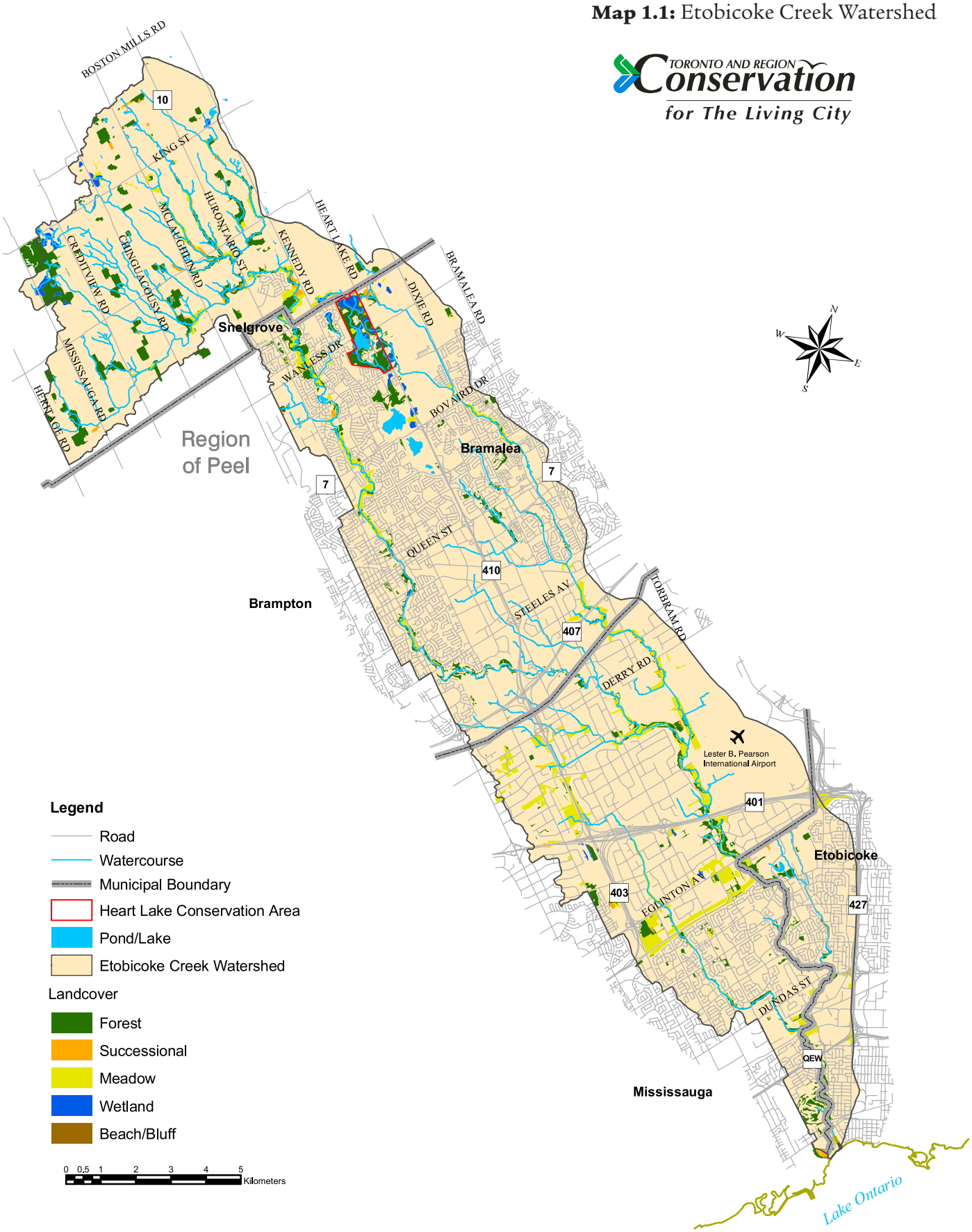
- Most of the respondents were from the Brampton area and visit the park a few times a year or for special events such as the Peel Children's Water Festival (PCWF). A few were from Mississauga and Caledon, and several noted that they were first-time visitors.
- Support was positive for the underlying framework for public use and management of the site and for upgrading of existing facilities.
- The general message was one of improvement and upgrading of existing facilities. Some could see the benefit of new, moderately-scaled facilities to support existing recreation and outdoor education opportunities that are compatible with the ecology of the site.

1.5 Location, Site Description and Resource Uses

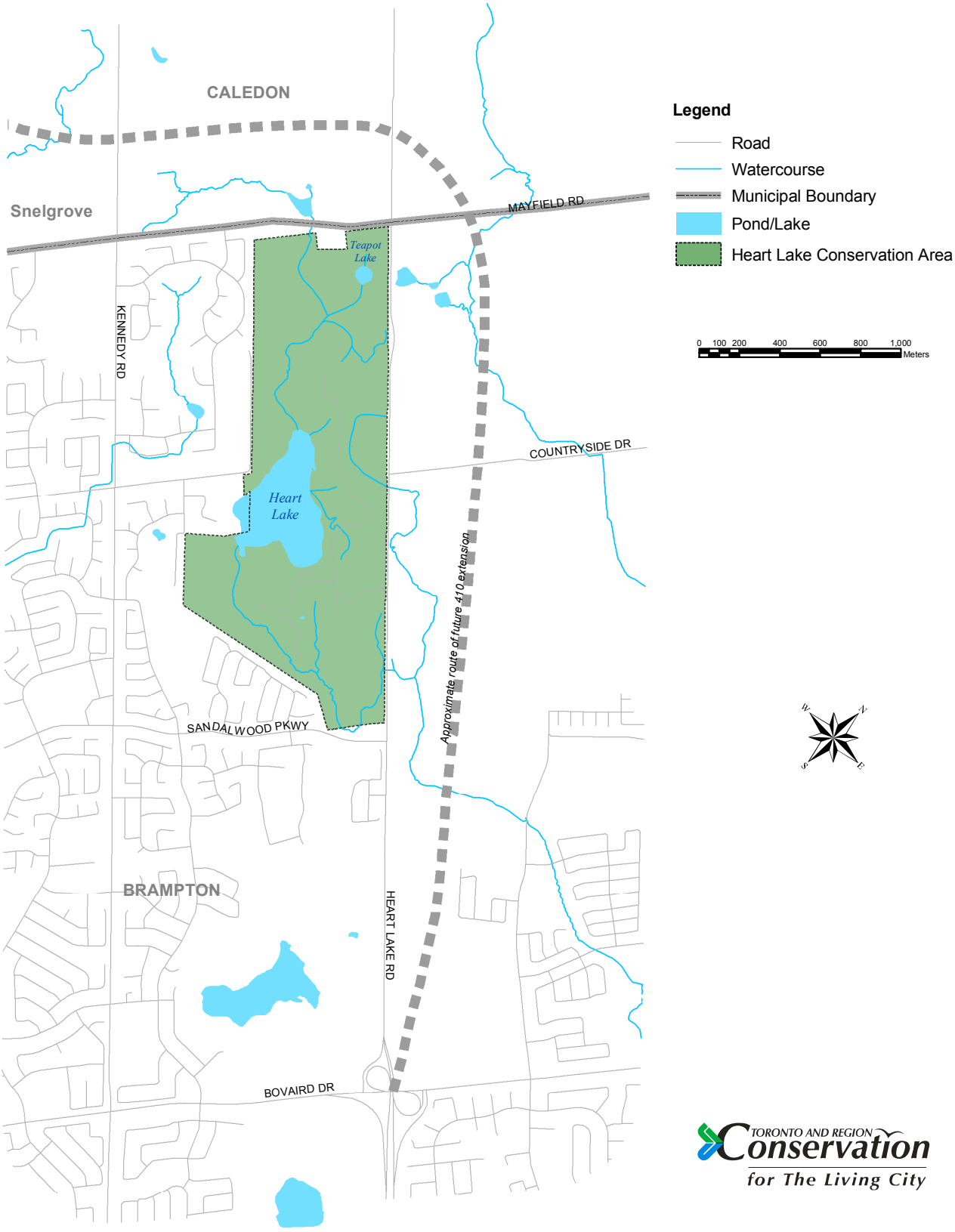
This section summarizes part of the information provided in the Background Report, which can be obtained from TRCA upon request.

HLCA is located in the Etobicoke Creek watershed (Map 1.1). It is approximately 169 hectares (ha) in size, located south of Mayfield Road, north of Sandalwood Parkway, east of Conservation Drive and west of Heart Lake Road in the City of Brampton within the Region of Peel (Map 1.2). The City of Brampton and Town of Caledon municipal boundaries border the northern edge of HLCA at Mayfield Road.

Map 1.1: Etobicoke Creek Watershed



Map 1.2: Location of Heart Lake Conservation Area



The park's diverse ecosystem includes:

- Two kettle lakes (Heart Lake and Teapot Lake)
- Headwaters for Spring Creek
- A 58-hectare wetland complex
- 43.5 hectares of deciduous, coniferous and mixed forests (one of the largest individual blocks of continuous forest in the Etobicoke Creek watershed)
- Surficial geology composed of glacial till and river deposits.

This combination of unique habitats has qualified sections of the HLCA to be identified as significant by the Ontario Ministry of Natural Resources (MNR). The Heart Lake Wetland Complex is an MNR Classified Wetland, while the Heart Lake Woodlands are classified as an Environmentally Significant Area (ESA) (Map 1.3). In addition, the Heart Lake Forest and Bog are the only regional Life Science Areas of Natural and Scientific Interest (ANSIs) within the Etobicoke and Mimico Creek watersheds. The wetland areas within the HLCA connect to other wetlands outside of the park boundaries. Thus, the park has a strong natural connection to many of its neighbouring properties.

The HLCA has many important natural features. It consists of rolling, grass-covered fields, with woodlots (an Upland Hardwood Stand and a Lowland Hardwood Stand) in the northern section of the area. The area also contains four small plantations and has a section of "Barren and Scattered" woodlot. Approximately 8200 trees, shrubs and aquatic plants have been planted in sand dune, upland forest, lowland forest/wet meadow and riparian habitats during past restoration projects at the HLCA.

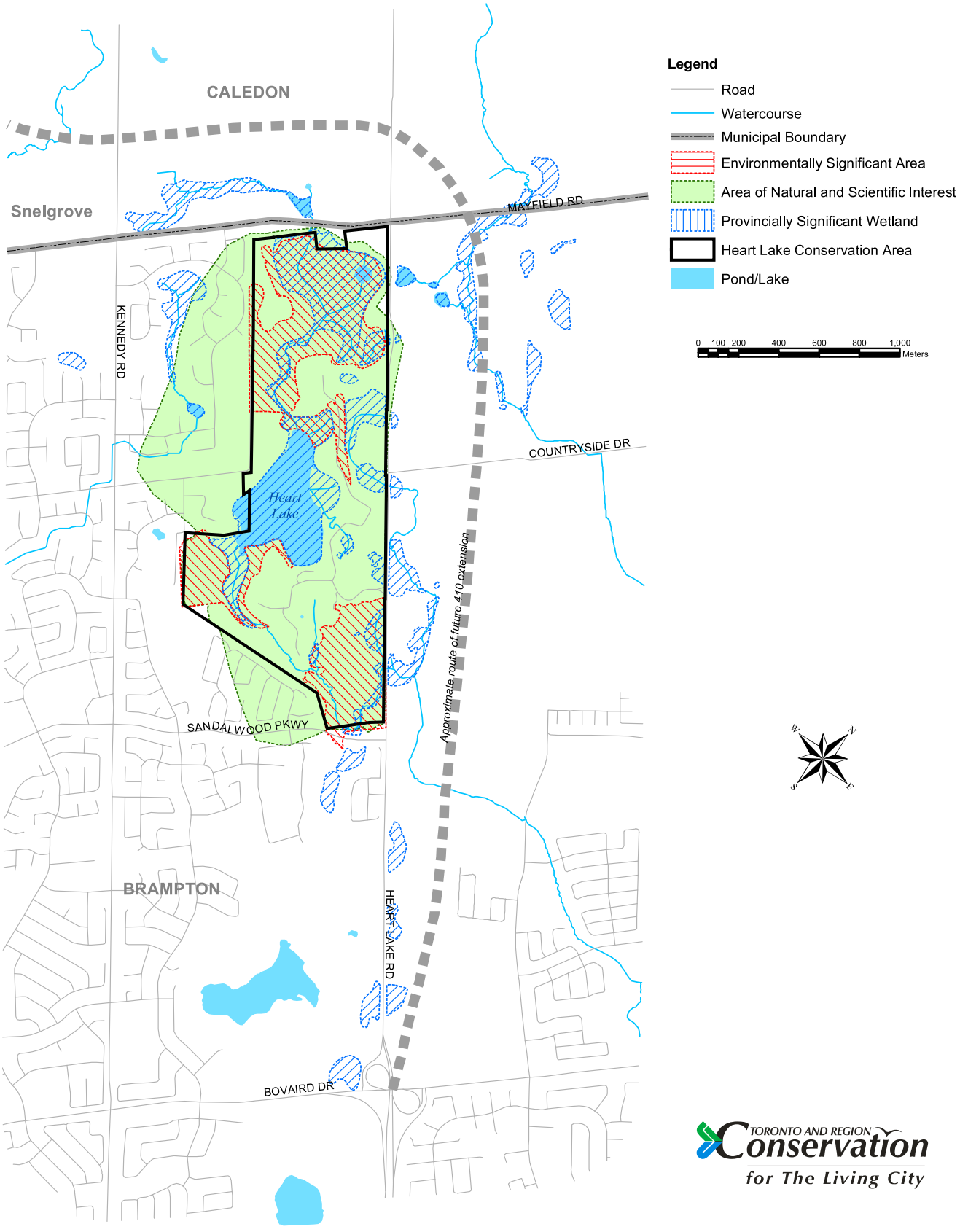
The HLCA is located in one of the most fertile and productive agricultural basins in Ontario. Formerly, the major land use in the area was agriculture. Now the predominant land use is suburban housing.

The HLCA was initiated in 1956, when the Metropolitan Toronto and Region Conservation Authority (MTRCA) purchased 64.2 hectares of land from Mr. A.E. Taylor. This encompassed most of the area surrounding Heart Lake and was immediately developed for recreational use. A series of land acquisitions were made to increase the size of the HLCA.

The area was first opened to the public in 1957. In 1962, the Beach House complex was built and, in the following year, gabions were put along the east bank of the lake to prevent soil erosion. Heart Lake has long been a source of recreational fishing for the local population. The lake is stocked with rainbow trout every year, although they do not reproduce in the lake. There are also other species of fish, including largemouth bass.

This Conservation Area is now the largest natural greenspace area in the City of Brampton and provides the community with attractions such as bird watching, boating, fishing, hiking trails and picnic areas. The Peel Children's Water Festival has been held annually at the HLCA since 2002 and attracts approximately 10,000 people each year. Over 56,000 people visit the park annually.

Map 1.3: Environmental Classifications for HLCA



TORONTO AND REGION Conservation
for The Living City

CHAPTER

2

PLAN VISION, GOALS, OBJECTIVES AND PRINCIPLES

2.1 A Vision for Heart Lake Conservation Area

HLCA is the only conservation area within the Etobicoke Creek watershed. As such, it is important that its vision, goals, objectives and principles adhere to and are integrated with the vision of *Greening Our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks* (2002). The vision for the watersheds in 2025 reads as follows (TRCA 2002):

> In the year 2025, the Etobicoke and Mimico Creek watersheds will be places where people live in harmony with the environment, where the water is clean, where green open spaces are vital and connected, and

where fish and wildlife thrive. In order to realize our vision we must respect, protect, and regenerate the natural and human heritage of the watersheds.

We will ***Respect*** the watersheds by:

- Recognizing that there area inter-connections between air, land, water and living organisms – including people;
- Encouraging community stewardship and individual responsibility for the health of the watersheds;
- Developing awareness of the watersheds and celebrating achievements for their protection and regeneration; and
- Promoting the use of an ecosystem approach to planning by governments, businesses, communities and individuals.

We will ***Protect*** the watersheds by:

- Conserving the natural and human heritage of the watersheds.

We will ***Regenerate*** the watersheds by:

- Improving the natural hydrological functions to reduce runoff and maintain base flow;
- Improving water quality in the creeks and Lake Ontario;
- Reestablishing forests, wetlands and natural connections;
- Enhancing self-sustaining native fish, wildlife, and plant populations; and
- Promoting the value of the links between the natural and human heritage of the watersheds.

By the year 2025, these natural and cultural shifts will result in more sustainable and healthier watersheds.

Working within this watershed framework, the vision for the HLCA Master Plan reflects the essence of conservation planning values and sets a definite direction for the future management of HLCA. The vision of HLCA is as follows:

The Heart Lake Conservation Area is regarded as a significant conservation park that forms a key environmental, cultural and social component of an established urban community in The Living City. The park, which will be used for nature-based recreation and as a living classroom, will be managed with a stewardship approach that allows natural communities to prosper.

The primary focus of the vision is to protect and appreciate the park and the natural, human functions it serves. It recognizes that people are attracted to HLCA because it offers a unique experience in an urban setting and that a balance among the natural and cultural environments and human use can be achieved.

2.2 Master Plan Goals and Objectives

The goals and objectives of the HLCA Master Plan build on the framework established by the plan's vision, and are consistent with *Greening Our Watersheds*.

Natural Heritage

- Goal: To protect and restore the natural ecosystems and to ensure the health and diversity of native species, habitats, landscapes and ecological processes.
  - Objective: Establish a nature reserve area within the HLCA to protect the sensitive natural features of the park.
  - Objective: Institute monitoring programs to ensure that this diverse ecosystem is continually protected and enhanced.
- Goal: To maximize linkages and connectivity of the natural heritage features to one another and to adjacent areas.
  - Objective: Undertake restoration projects to create connections between isolated natural features.
  - Objective: Reconnect woodland habitats to facilitate movement and recolonization by flora and fauna.

Cultural Heritage

- Goal: To protect and conserve the cultural heritage features for their inherent value and depiction of the long-term human use and occupancy of the area.
  - Objective: Identify and promote the area's heritage features.

Land Use

- Goal: To ensure protection of the ecological integrity and cultural values of the land through innovative planning, management and appropriate conservation, recreation and other land uses.
  - Objective: Locate development away from areas that are subject to risks from natural hazards (e.g. risks associated with flooding and erosion).
  - Objective: Minimize the amount of impervious surfaces.
  - Objective: Promote public ownership and the intelligent use of surrounding lands which connect to and influence the natural system of the HLCA.
  - Objective: Incorporate wildlife access points along the boundaries of the HLCA.

Park Management

- Goal: To manage the HLCA using an ecosystem approach.
  - Objective: Incorporate the protection of the natural and cultural heritage of the HLCA and the provision of appropriate recreation and educational opportunities into a sound economic model that does not compromise the natural integrity of the public greenspace at the HLCA.
  - Objective: Ensure planning decisions are based on an evaluation of the amenity and ecological value of the resource, as well as the associated dollar costs and benefits.

- Objective: To implement a progressive park model at the HLCA that will foster a strong sense of community involvement and provide a diverse and well-connected natural system.
- Objective: To ensure that principles and goals of *Greening Our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks* are supported in the HLCA Master Plan and that activities and uses contribute to the watershed management mandate.
- Objective: To manage the HLCA in a manner that will ensure the achievement of all objectives and to provide for ongoing public involvement in the management process.

Education

- Goal: To promote knowledge and understanding of the natural and cultural values of the land and water, their protection and management requirements, as well as their significance, sensitivities and interrelationships in the HLCA and surrounding areas.
  - Objective: Offer both informal and formal learning opportunities about the natural environment, cultural and heritage resources and sound environmental practices.

Stewardship

- Goal: To promote and facilitate the ongoing public involvement towards a partnership that will foster sustainable living and will accomplish watershed management objectives, as well as implement Master Plan recommendations.
  - Objective: Create a HLCA Stewardship Committee that consists of representatives of local governments, residents, community groups, business owners and other stakeholders.
  - Objective: Promote partnerships among environmental, cultural heritage, recreation and education organizations, private industry and public agencies.
  - Objective: Encourage action-oriented initiatives to protect, conserve and regenerate HLCA.
  - Objective: Improve community connections to the watershed through recognition, preservation and celebration of heritage features and resources.
  - Objective: Raise funds for environmental regeneration, protection, education and awareness initiatives in the HLCA.
  - Objective: Engage residents in environmental restoration activities for the HLCA.
  - Objective: Encourage people to choose lifestyles that are sustainable and ecologically-sound.

Recreation

- Goal: To provide opportunities for appropriate, accessible nature-based recreation activities that are consistent with all other objectives.
  - Objective: Focus public use on outdoor recreation and education.

- Objective: Provide diverse landscapes, places, wildlife habitats, uses, programs and experiences.
- Objective: Provide a balanced mix of public uses, developed and natural areas, large and small scale, and free and user pay activities.
- Objective: Plan and manage outdoor recreation facilities in a manner that integrates ecological health with social benefits.
- Objective: Construct and maintain trails that are linked to communities and the regional trail system.

2.3 Management Principles

The HLCA Master Plan adheres to these principles:

- Conserve, protect and regenerate the ecological integrity of the area.
- Ensure natural and cultural heritage sustainability with a cost-effective approach.
- Promote and monitor the use and enjoyment of the land ensuring minimal impact to the natural environment by striving for a balance between conservation and appropriate public uses.
- Promote cooperation and develop awareness among all stakeholders and form partnerships that will enhance stewardship and provide protection of the lands.
- Promote active community involvement and develop community stewardship that will foster an integrated approach to land use planning and implementation strategies.
- Recognize, integrate, promote and enhance linkages among HLCA, the Etobicoke Creek watershed and other natural and cultural features.
- Utilize flexible management approaches and continually evaluate management options to ensure that operations and existing infrastructure are both effective and appropriate and that new facilities meet Leadership in Energy and Environmental Design (LEED™) Green Building Rating System (or a similar rating system) standards.
- Restore and naturalize disturbed areas on the HLCA property.
- Utilize best erosion management practices.
- Utilize best forest management practices where appropriate.
- Expand public land holdings through acquisition, conservation easements, donations and planning incentives.
- Effectively manage public use safety, security and liability issues.
- Promote accessibility to the HLCA and its various facilities, wherever possible.
- Protect and conserve all known and unknown archaeological sites and cultural landscapes by means of archaeological assessments of any locations where ground-level disturbances are planned.

CHAPTER

3

MANAGEMENT ZONES

A variety of natural and cultural heritage information was compiled for the Background Report that was studied in Phase 1 of the master planning process. This information formed the basis for determining the management zones and their requirements (Table 3.1). The zones are distinguished by their different levels of ecological protection, management needs and acceptable levels of public use.

Table 3.1: Permitted Resource Uses by Management Zone

Management Zone	Permitted Intensity of Uses	Example Resource Uses
Nature Reserve This zone includes areas that are ecologically significant such as ESAs, ANSIs, Interior Forest, etc.	None to Low Intensity	Local and inter-regional trail, nature viewing/interpretation, research, education, photography and cross-country skiing
Natural Environment This zone includes areas that have potential for ecological succession and restoration.	Low Intensity	Local and inter-regional trail, nature viewing/interpretation, research, education, photography and cross-country skiing
Primary Restoration This zone will be allowed to evolve into a Natural Environment or Nature Reserve zone.	Low Intensity	Local and inter-regional trail, nature viewing/interpretation, research, education, photography and cross-country skiing.
Secondary Restoration This zone will undergo natural succession and regeneration, ultimately becoming part of the surrounding Natural Environment or Nature Reserve zone.	Low to Moderate Intensity	Local and inter-regional trail, nature viewing/interpretation, research, education, photography and cross-country skiing.
Public Use This zone will feature a variety of activities deemed appropriate.	Low to Moderate Intensity	Local and inter-regional trail, nature viewing/interpretation, research, education, photography and cross-country skiing, sports fields, group picnic areas, day camp and group camping facilities.
Public Use – Lease These areas house residential property that will be used as private residences.	Low to High Intensity	Considered a private area subject to specific lease agreements. Possible resource uses could include recreational activities, private buildings and parking for the leased areas.
Operations This zone contains buildings and facilities used by TRCA staff.	Low to High Intensity	Considered a private area for the purposes of TRCA staff operations.

These zones and definitions are based on the Ontario Provincial Parks – Planning and Management Policies. However, the recommended conservation land management zoning categories and policies have been modified to more closely address the requirements of HLCA and TRCA. Given the current pressures of urbanization on the quality and quantity of natural cover throughout TRCA's jurisdiction, it is paramount to approach the management of any natural area in a way that addresses that particular site in the larger regional context. By implementing the following system of management zones, TRCA will move toward improving the condition and resilience of natural habitats in the Toronto region.

3.1 Management Zones Defined

The seven management zones defined for HLCA include Nature Reserve, Natural Environment, Primary Restoration, Secondary Restoration, Operations, Public Use, and Public Use – Lease. Table 3.2 summarizes the management zone definitions. Table 3.1 details the permitted resource uses in each of the management zones.

Table 3.2: Heart Lake Conservation Area Management Zone Definitions

Management Zone	Definition
Nature Reserve	Areas that have significant or unique natural features, landforms, species or habitats that require careful management to ensure long-term protection.
Natural Environment	Large core habitat areas and corridors that are "natural" in character, but do not meet the criteria of the Nature Reserve Zone.
Primary Restoration	Priority lands within HLCA where ecological health and diversity could be enhanced through active environmental restoration.
Secondary Restoration	Lands within HLCA where ecological health and diversity could be enhanced by allowing the processes of natural regeneration to occur.
Public Use	Areas that have existing or potential for recreational and educational uses, facilities or services. This designation may include areas with suitability to low, moderate or high intensity public uses.
Public Use - Lease	A public use zone referring to an area of the property containing a residential dwelling that is leased by the TRCA and that has restricted public access.
Operations	This refers to an area of the property containing operational buildings and their surrounding areas used by the TRCA staff for operational, maintenance and administrative duties. No public use is allowed.

3.2 Determining the Management Zones

In order to apply the appropriate management zones to a particular area, TRCA staff reviewed, inventoried, analyzed and ranked the features and functions for the area using the Geographic Information System (GIS). They then presented the information to the Advisory Committee, which reviewed and endorsed the process and management zone designations. This same information was also presented to the public as part of the public consultation process described in Chapter 1. It was received with general acceptance. The final management zone delineation is shown in Map 3.1.

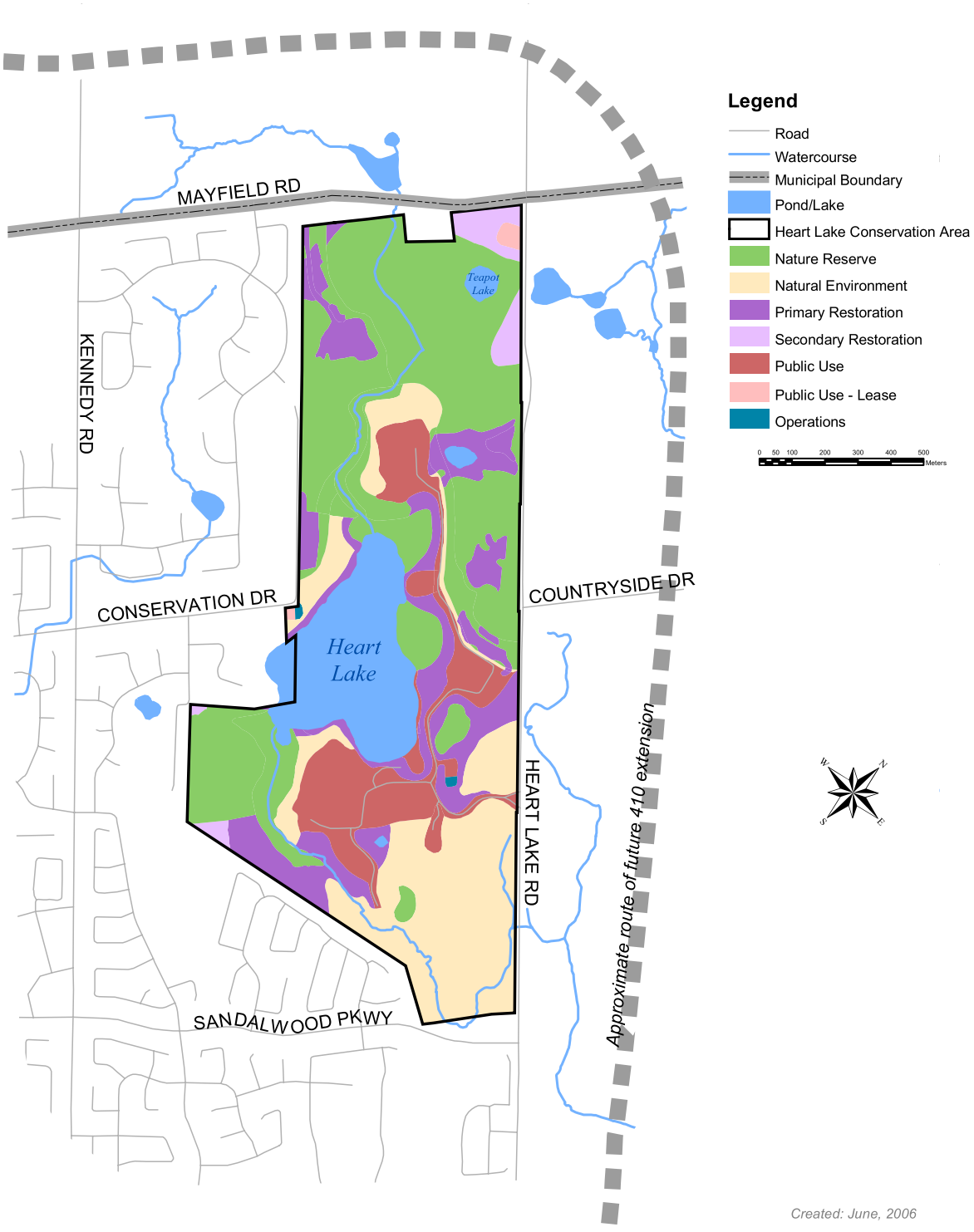
The critical information that was analyzed and ranked for the Nature Reserve, Natural Environment and Public Use Zones included:

- Interior habitat
- Vegetation communities
- Species of concern
- Environmentally Significant Areas (ESAs)
- Areas of Natural and Scientific Interest (ANSIs)
- Classified and unclassified wetlands
- Existing public use areas
- Lease areas
- Existing infrastructure.

The Primary Restoration Zones were established through a landscape-level analysis to determine possible additions to the size and shape of the interior habitat. Additionally, Primary Restoration Zones were considered adjacent to sensitive areas, especially those located close to higher-intensity public uses. Other Primary Restoration areas include those within Public Use Zones where users would enjoy additional tree cover and visually interesting landscapes if the current cultural practices and maintenance activities were altered.

To determine Secondary Restoration Zones, TRCA staff examined and analyzed areas within HLCA that were previously cultural landscapes used for public activities, or areas that are somewhat degenerated, or already regenerating. However, these areas differ from the above-mentioned Primary Restoration Zones because they are not in key sensitive locations or are less sensitive in nature.

Map 3.1: Management Zones, Heart Lake Conservation Area



CHAPTER

4

MANAGEMENT RECOMMENDATIONS

The management recommendations are intended to guide the actions of TRCA, its partners and stakeholders to ensure that the property will remain a healthy and vital part of the Etobicoke Creek watershed. The recommendations have been separated into the following sections: Management Zones; Natural Heritage Resources; Recreation, Conservation Education and Tourism; Stewardship and Outreach; Operations and Park Management; and Land Use and Management. They are consistent with the provisions outlined in TRCA's *Valley and Stream Corridor Management Program* (1994), the Strategy for Public Use of Conservation Authority Lands and the watershed management objectives outlined in *Greening Our Watersheds*.

The management zone recommendations serve to guide actions and uses within the various management zones assigned. They build on the general recommendations, providing more detailed input into management actions. Combined, the general management recommendations and the management zone recommendations provide a foundation for managing HLCA in a manner that protects and regenerates the ecological form and function of the area while providing opportunities for public enjoyment and stewardship.

4.1 Management Zones

Within the seven management zones at HLCA, specific management activities are permitted, and recommendations are made to improve the overall conditions of the ecological and public use features.

Recommendations

- Monitor all zones regularly for terrestrial natural heritage and public use indicators. Monitoring may include frog call surveys, breeding list surveys, monitoring of heronry status, public opinion surveys and more.
- Sign management zones to educate the public about the environmental features of the zone and appropriate public uses. For example, a sign at a Primary Restoration zone would include information about the reasons for undertaking restoration, what is being restored and appropriate use of the area. However, signs should not be so numerous that they detract from the natural aesthetics enjoyed by visitors.

4.1.1 Nature Reserve

Resource management activities encouraged in this zone include projects designed to protect, enhance or restore natural features, landforms, species or habitats. This includes forest management, fish habitat improvement and revegetation activities. All trails should be monitored to ensure that invasive species are not spread throughout the area. See recommended access points and permitted uses for Nature Reserve Zones in Chapter 3 of this plan.

Recommendations

- Install limited interpretive signage to promote awareness about the function of the Nature Reserve Zone.

4.1.2 Natural Environment

Resource management activities encouraged in this zone include environmental management projects designed to protect, enhance or restore natural features, landforms, species or habitats. This includes forest management, fish habitat improvement and revegetation activities. All trails should be monitored to ensure that invasive species are not spread throughout the area.

Recommendations

- Install limited interpretive signage to promote awareness about the function of the Natural Environment Zone.

4.1.3 Primary Restoration

Resource management activities encouraged in this zone include environmental management projects designed to protect, enhance or restore natural features, landforms, species or habitats. By undertaking successful restoration activities, which would be allowed to mature over time, these areas would evolve into either Natural Environment or Nature Reserve Zones.

Recommendations

- After implementation, actively maintain primary restoration areas to ensure the success of the plant materials and the achievement of restoration goals.

4.1.4 Secondary Restoration

These HLCA lands are allowed to undergo the processes of natural regeneration. Over time, these areas are expected to evolve into Natural Environment or Nature Reserve Zones.

Recommendations

- Monitor secondary restoration areas for the presence of invasive exotic species or noxious weeds and manage for the presence of these species according to TRCA policies.

4.1.5 Public Use

Resource management activities encouraged in the Public Use Zones include environmental management projects designed to protect, enhance or restore natural features, landforms, species or habitats wherever possible, while allowing public access and appropriate intensity public uses.

Recommendations

- Locate public use activities in the areas zoned as Public Use.

4.1.5.1 Public Use – Lease

The Public Use – Lease Zones represent areas of HLCA that contain residential buildings owned by TRCA and rented to individuals. As a result, access is restricted to TRCA staff and the residents.

Recommendations

- Restrict access to Public Use – Lease Zones to TRCA staff and the residents.

4.1.6 Operations

The Operations Zones represent areas of HLCA that contain operational buildings and facilities used by TRCA employees, including the workshop, administration building and lake lung pump house. These areas are restricted to TRCA staff.

Recommendations

- Install shrubs and/or trees around Operations Zones. This will provide privacy for park staff and will reinforce that these areas are not for general public use.

4.2 Natural Heritage Resources

Natural heritage includes the physical, chemical and biological elements of the natural environment – what is often termed "nature" or the "environment." A "Natural Heritage System" refers to the interactions and dependencies between and among the physical, chemical and biological elements of natural heritage. It is these interactions that control the hydrologic cycle and the quality of habitat for plants, animals, birds and fish.

HLCA's natural heritage should not be considered in isolation. It is connected to the lands beyond its boundaries, as well as to the greater Etobicoke Creek watershed. The increasing amount of land around HLCA dedicated to urban use raises concern as to how its natural heritage value can be sustained.

These recommendations focus on terrestrial habitat, wetlands, geology and aquatic systems. All management activities will be designed and implemented in compliance with federal and provincial legislation such as the *Migratory Birds Conservation Act, Fisheries Act, Conservation Authorities Act, Planning Act, Lakes and Rivers Improvement Act* and *Ontario Water Resources Act*.

Recommendations

- For both aquatic and terrestrial ecosystems, regular monitoring of the flora, fauna and overall condition of the ecosystems of HLCA is recommended to evaluate the effects of the various management policies, uses and activities on these ecological systems.
- Manage the valley and stream corridor areas according to the criteria set forth in TRCA's *Valley and Stream Corridor Management Program* (1994).

4.2.1 Terrestrial Natural Heritage

HLCA is located within the southern portion of the Great Lakes – St. Lawrence floristic region, which is composed of mixed coniferous and deciduous forest. It also lies on the South Slope physiographic region, which is characterized by an extensive, gently undulating till plain with overall low recharge per unit area and localized groundwater discharge in deeply incised river valleys.

The Heart Lake study area supports 32 vegetation communities, 52 flora species and 23 fauna species that are considered to be of regional concern in TRCA's jurisdiction. In addition to these species, there are 34 fauna species ranked as L4, which are considered to be of concern within the urban area.

In its current condition, the natural cover at HLCA is maintaining a relatively high level of natural function as compared to other adjacent areas where the agricultural matrix has been reduced by residential development that retains all forest and wetland cover. This is evidenced by the persistence of sensitive fauna species such as wood frog and spring peeper as well as the presence of the heronry at the HLCA. Matrix influence has huge implications on the remaining natural cover.

4.2.1.1 Quantity of Natural Cover

The study area covers 128.7 hectares of natural cover. This contributes 6.3 per cent of the total natural cover within the Etobicoke Creek watershed. Currently, the Etobicoke Creek watershed has one of the lowest per cent natural cover figures in the TRCA jurisdiction at 9.7 per cent. Loss of natural cover within HLCA would result in a significant reduction of the per cent watershed natural cover. Therefore, every effort should be made to maintain, and then to enhance, natural cover in HLCA.

Recommendations

- Maximize the natural cover in HLCA.
- Position restoration projects so they will affect all other terrestrial natural heritage indicator categories (e.g., patch size and shape, connectivity, and matrix influence).

4.2.1.2 Distribution of Natural Cover

HLCA is located on the western edge of the TRCA jurisdiction where there is a relatively low proportion of natural cover capable of supporting representative biodiversity. At present, HLCA contains 50 L1-L4 vegetation communities, 72 L1-L4 flora species, and 57 L1-L4 fauna species. The protection of natural cover in HLCA, and the enhancement of natural cover on adjacent lands, will help to retain the full range of flora, fauna and vegetation communities that occur in the region.

Recommendations

- Retain and/or increase natural cover.
- Management strategies should ensure the continued presence of all L1-L4 species in their current distribution, and then work to enhance this distribution by creating or restoring habitat.

4.2.1.3 Matrix Influences

Unlike much of the southern, more urbanized portion of the Toronto region, HLCA scores relatively high for matrix influence and this is one of the factors facilitating the persistence of high biodiversity there. The matrix to the south and west is entirely urban, and largely agricultural to the north and east. Much of HLCA receives an overall influence score of three out of five (fair); the south-east third scores only two points (poor).

Development of the agricultural land would extend and intensify the problems and pressures associated with the urbanization currently restricted to the west and south of the site, diminishing the quality of HLCA's natural system. If, however, the present natural cover could be enhanced by the reforestation of neighbouring agricultural and old field lands, the natural system would acquire some degree of resilience. The increased area of cover would more effectively buffer forest interiors from the effects of developments (such as edge effects, predation, brood parasitism, and informal trails).

Impacts from adjacent lands can be mitigated through measures such as the removal of invasive exotic species such as European buckthorn (*Rhamnus cathartica*), dog-strangling vine (*Cynanchum rossicum*), garlic mustard (*Alliaria petiolaris*), and common reed (*Phragmites australis*). Pesticides and fertilizers from adjacent land should not be allowed to enter surface or ground water. Fences should protect natural habitats from human encroachment and a buffer planting around any new developments would be advisable.

In addition, as urban development increases around the site and ease of access to sensitive areas is improved, informal trail creation is likely to occur from neighbouring residents. The populations of attractive, sensitive species will be subjected to greater pressures from picking and collection. If it is deemed to be a problem, fencing and signage can be used to try to reduce the problem. It may be necessary to restrict access to certain portions of HLCA at certain seasons (e.g., restricting access to the area of forest in the northern portion of the site where great blue herons have a nesting colony).

Recommendations

- Retain and increase natural cover.
- Buffer against impacts.
- Limit any land-use changes (i.e., loss of natural cover) within the matrix that will reduce matrix influence score.
- Improve stewardship and educate visitors about appropriate use of HLCA to diminish the negative effects of matrix influence.

4.2.1.4 Patch Size and Shape, and Habitat Interior

Area-sensitive fauna species are fairly well represented, including three species that require in excess of 20 ha of forest habitat, and 16 that require at least five hectares. Protection and judicious restoration of natural cover would maintain natural features and improve size and shape as well as the amount of forest interior in HLCA. The larger the habitat block, the more resilient the fauna and flora communities are to developments within the landscape. It is important not to underestimate the quality of the habitat that is acting as an ecological buffer. Furthermore, there are several negative matrix influences associated with developments (low, medium and high density) that cannot be effectively buffered against (e.g., the introduction of house cats into the environment).

Recommendations

- Retain and increase natural cover.
- Reforest interstitial open habitat with appropriate native tree species to improve forest patch size and shape and increase forest interior.

4.2.1.5 Connectivity

Connectivity within HLCA is relatively good as reflected in the impressive list of herpetofauna on the site. However, HLCA is somewhat isolated from other patches of natural cover within its landscape. Continuity of habitat, especially forest and wetland, should be maintained to benefit fauna with low mobility and species that are especially vulnerable to any obstructions to their seasonal migrations and wanderings. At a minimum, corridors that provide access between suitable habitats should be provided.

Recommendations

- Protect and restore ecological linkages associated within the valley corridors.
- Maintain and/or enhance continuous links between habitat patches (especially forest and wetland, and along riparian corridors).
- Provide access under barriers such as roads.

4.2.1.6 Biodiversity

HLCA has a very high faunal biodiversity for an area that is effectively within the urban matrix. The site inventory includes at least 71 vegetation communities, 251 flora species and 86 fauna species. Biodiversity should be managed in such a way as to protect and improve the natural system.

Recommendations

- Ensure protection and enhancement of specific features such as forest and wetlands.

4.2.1.7 Forests

A large area of the HLCA is covered by forests. Some are natural forests, while other areas are plantations. At some point, all the forests in the park were likely reforesting of old farm fields. Forest stands within the HLCA are actively managed in accordance with TRCA's participation in the Managed Forest Tax Incentive Program.

Greening Our Watersheds has several principles that can be applied to HLCA:

- No net loss of present forest cover
- No net loss of significant forest
- An increase in the area of forest cover.

Forest management at HLCA should adhere to these guidelines when implementing the following recommendations.

Recommendations

- Improve the habitat patch total score through targeted planting of trees and shrubs to the same level as currently exists in the northern end of HLCA, advancing "fair" patches to "good".
- Create a nature reserve area with increased forest cover and limited public use in the northern section of HLCA to create interior habitat and attract rare species and intensify public use areas in the southern section of HLCA.

- Connect naturalized spaces and connect the urban forest between parks and schools to create natural linkages to and between the sites.
- Invasive tree species, such as scots pine (*Pinus silvestris*) and European buckthorn (*Rhamnus cathartica*), should be controlled using control methods appropriate to the proximity to public use areas and sensitive herbaceous species. European buckthorn has a high invasive potential and should be cut and managed according to the TRCA Pest Management Policy. Scots pine has a low invasive potential and should be girdled. Control methods should be monitored and evaluated with regard to their effectiveness and impacts to the woodlot.
- Tree thinning should take place to select for better quality and spacing of residual stems. Removals from overstocked diameter classes will provide growing space and resources for the remaining trees, improve forest health, create space to establish new regeneration and provide an opportunity for the manager to adjust species composition.
- Felling of hazard trees should be subject to TRCA's Policy for Managing Hazard Trees and Operation Procedures for Managing Hazard Trees.
- Subject to the hazard tree program, areas of high intensity public use should be inspected twice a year by a competent assessor, and low intensity public use areas should be surveyed annually.

4.2.1.8 Naturalization

In order to preserve and improve the scores for biodiversity and natural cover at HLCA, naturalization projects will be necessary.

Recommendations

- Develop and implement naturalization plans based on the terrestrial natural heritage inventory and assessment that was completed in the first phase of the master planning process.
- Encourage water efficient landscaping so the use of potable water for landscape irrigation is reduced or eliminated by planting water-efficient, native, climate-tolerant plants and using high-efficiency irrigation technologies.
- Naturalize Heart Lake into a self-sustaining, warm-water fishery.
- Plant woody riparian vegetation buffers adjacent to Heart Lake.
- Naturalize areas of the Big Bowl while still allowing for winter tobogganing.
- Consider the sustainability of projects and plantings at the Peel Children's Water Festival (PCWF). Create a long-term vision for the projects and plantings associated with the festival so they can be sustained over the long term.
- Monitor regeneration sites to ensure a continued presence and improvement of indicator species.

4.2.1.9 Flora

A total of 251 flora species were found at HLCA. This includes 52 species of regional concern and 46 exotic or non-native species. Most of the rare or declining plants found in HLCA are associated with the vegetation communities that are of regional concern. Consequently, they are highly susceptible to changes in development and recreational influences.

Recommendations

- Once a species is considered rare, damage to its habitat and the species itself is often irreparable. Exercise conservation efforts before a species becomes rare.
- Prepare a conservation strategy for the regionally-rare vegetation communities at HLCA or unusual associations of common species, including an investigation into the cause of the rarity.
- Consider the effects on drainage, seepage and recharge zones of any management actions. HLCA is located at the headwaters of Spring Creek and represents an important recharge zone affecting both water quality and base flows in the creek. All vegetation communities of regional concern found at HLCA have exacting hydrological requirements.
- Maintain and protect the diverse vegetation community in the Heart Lake and Teapot Lake watersheds, including protection from invasive species.
- Undertake invasive species management to reduce competition for native flora. Replace exotic species with site-appropriate native plants.
- Locate trails and other public uses away from flora species sensitive to trampling and other human influences.
- Educate visitors about sensitive flora species. Include information about not picking, trampling or otherwise harming vegetation.

4.2.1.10 Fauna

A total of 86 fauna species have been recorded at HLCA, including 66 bird species, ten herpetofauna and ten mammal species. Twenty-three of these species are of regional concern, and an additional 34 are of concern in urban areas. Of particular importance is the great blue heron because there is a large heronry of 63 nests (as of fall 2003) at the northern end of HLCA. Also, the marsh wren is a species that has declined as its marsh and wetland habitat has diminished and its presence at the HLCA emphasizes the importance of the wetland habitat in HLCA.

Recommendations

- Exercise conservation efforts before a species becomes rare. Once a species is considered rare, damage to its habitat and the species itself is often irreparable.
- Maintain closed and open habitat areas to allow for a full complement of fauna species.
- Create a natural buffer around the heronry and erect a fence during the nesting season. The HLCA heronry is the second largest heronry in the TRCA jurisdiction.
- Develop and implement a nuisance wildlife management strategy for the Canada goose. This species prefers areas next to water, with unobstructed sightlines so it can clearly see predators. Minimize these areas by planting native grass, shrub and wildflower species along the beach at Heart Lake and small plantings in picnic areas. Other management strategies can include not feeding the geese, seeding open areas with a coarse grass, cutting the grass slightly longer and covering the banks of Heart Lake with climbing obstacles. If HLCA is a breeding area for the goose, a program of oiling the eggs so that they do not hatch could be undertaken. Another option is the use of dogs to disturb the geese so that

they do not return to HLCA. A relocation program could also be considered as part of the management strategy. Further research into this subject will have to take place to develop a strategy appropriate to HLCA.

- Manage the deer population in HLCA. As agricultural and greenspace lands in the area undergo urban development, habitat for deer becomes limited. HLCA offers a refuge for these animals. However, neighbours often complain about the impact of deer on their property. While TRCA does not want to limit the movement of deer, it would like to minimize the impact of the animal on flora species of concern and neighbouring properties. White-tailed deer cannot be captured, killed or harassed unless a Deer Removal Permit is issued by the Ontario Ministry of Natural Resources (MNR). Two management strategies that could be part of a nuisance management strategy are: (1) erect higher fencing between HLCA and private land owners and (2) plant species that are less palatable to deer at HLCA boundaries that border sensitive habitat, sensitive flora species and residences. Scare tactics may work on a short-term basis. An outreach and stewardship strategy should be employed to inform neighbours about planting species that are less palatable to deer as a method of deterring the animals from encroaching upon their property.
- Maintain and create natural connections in HLCA to allow for species movement, such as connections from creeks to wetlands and lakes for frogs. Consideration should also be given to providing connections to natural spaces that border HLCA, such as the wetland area north of Mayfield Road and the park system south of Sandalwood Parkway.

4.2.1.11 Natural Cover and Habitat

Natural cover performs innumerable functions, ranging from supporting native biodiversity, to providing recreational and aesthetic opportunities for people, to water-related benefits. In a local context, Etobicoke Creek is very typical of watersheds in the southern TRCA region, typified by urban development, narrow stream corridors, low species diversity and a landscape of fragmented natural cover. As part of the Etobicoke Creek watershed, HLCA stands out as an extremely significant contributor to species diversity and overall natural cover in this watershed, and in a regional context, to this portion of the TRCA jurisdiction.

Conserving habitats at HLCA is extremely important for the distribution of natural cover. Loss of natural cover at HLCA would further reduce the remaining natural habitat in the Etobicoke Creek watershed and would negatively affect the total natural cover in TRCA's region. Achieving optimal distribution of natural cover requires the preservation of all habitats in a remnant regional natural system.

Recommendations

- Create buffers around sensitive areas such as wetlands, ponds and rookeries. Such buffers should be installed immediately to protect the current level of species at HLCA.

- Fencing, natural barriers and signage should be used to reduce access to sensitive areas. It may be necessary to restrict access to certain portions of the HLCA at certain seasons, such as to the forest in the northern portion of the site where great blue herons have a nesting colony during their nesting season.
- Consider the effects on drainage, seepage and recharge zones of any management actions.
- Improve terrestrial habitat patch shapes, increase patch size and connect fragmented habitat areas, including connections through wildlife road crossings. This will provide additional natural cover and safe access for flora, fauna and people.
- Ensure that there is no net loss of present wetland cover.
- Ensure that there is no net loss of significant wetlands.
- Improve education about and reduce the impacts of urbanization, and particularly recreation, on natural habitats.
- Control erosion to reduce negative effects on water and air quality through techniques including silt fencing, sediment traps, construction phasing, stabilization of steep slopes, and maintaining ground cover.

4.2.2 Wetlands

The Heart Lake Wetland Complex is an Environmentally Significant Area, as well as a Provincially Significant Wetland (PSW) and an Area of Natural and Scientific Interest in both the Life Science and Earth Science categories. In addition, TRCA recognizes significant portions of the wetland and supporting features as an ESA (ESA – Heart Lake Woodlands) and the entire system is regulated under TRCA's regulatory authority (Ontario Regulation 166/06) to prohibit the potential for adverse impacts and/or interference with its form and functions.

The wetland complex encompasses approximately 58 hectares within the HLCA boundaries and extends onto adjacent properties. Thus, the park has a strong natural connection to many of its neighbouring properties which adds strength to the connectivity and biodiversity of the natural heritage system. Some reports suggest that to maintain a healthy natural system the quantity of natural cover should include a minimum of 30 per cent forest and 10 per cent wetland coverage. In its current condition, 53 per cent (89 hectares) of HLCA is covered by forest and 26 per cent (44 hectares) is covered by wetlands and swamps. These habitat areas allow the HLCA to support a diverse and sustainable natural heritage system which is one of the unique characteristics of this park that should be preserved.

Recommendations

- Prohibit adverse impacts and/or interference with the form and function of the Heart Lake wetland complex and its supporting system.
- At a minimum, maintain the percentage of HLCA covered by wetlands.

4.2.3 Geology

The geological sequence of HLCA comprises up to 20 metres of clayey silt to silt till (Halton Till), with overlying sand and gravel ridges of the Brampton Esker. The Halton Till is underlain by 20 to 40 metres of sand and gravel (inferred to be the Oak Ridges Moraine Aquifer Complex), which are, in turn, underlain by the shale bedrock. Overall, the overburden thickness ranges from about 30 to 35 metres underneath the hills surrounding Heart Lake and 20 metres to the west.

The geologic and water level data indicate that the combination of closed depression storage in Heart Lake, Teapot Lake and the pond to the south of Teapot Lake, combined with the absence of till deposits beneath these features, greatly facilitates recharge of the underlying Oak Ridges Moraine Aquifer Complex. Therefore, these areas also represent high aquifer vulnerability zones.

Recommendations

- Protect areas of aquifer recharge.

4.2.4 Aquatic Resources and Conditions

HLCA possesses two kettle lakes and many wetlands and bogs. The surrounding land uses can affect the condition of these aquatic resources. Thus, an important concern is how development of this land has and will affect the site's drainage conditions and HLCA's aquatic ecosystems.

Recommendations

- Pursuant to Section 28 of the Conservation Authorities Act, adopt the following standards:
  - Restrict the use of water in or from rivers, streams, inland lakes, ponds, wetlands and natural or actinically constructed depressions in rivers or streams.
  - Prohibit the straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or changing or interfering in any way with a wetland.
  - Prohibit development that will negatively affect the control of flooding, erosion, dynamic beaches or pollute the HLCA.

4.2.4.1 Water Bodies

Heart Lake and Teapot Lake are the two major bodies of water in HLCA, and both are kettle lakes. Heart Lake is the focus of the public use activities at HLCA. Teapot Lake is one of only two known meromictic lakes in southern Ontario and the only one in TRCA's jurisdiction, making it an especially significant feature. Meromictic lakes are of great value - the sediments are never stirred by water movements or mixed by benthic animals, thereby providing the most sensitive and complete records of the history of the region over the last 12,000 years.

Recommendations

Heart Lake

- Conduct a frozen finger analysis of Heart Lake. This will assist in determining if a native community was located in the area near HLCA.
- Prepare and implement a regular monitoring regime for Heart Lake to include the following components:
  - Collection of bathymetry data
  - Use of a level logger to ascertain the water level
  - Taking of bore hole samples of the sediments or soft sediment core samples.
- Identify possible point sources of bacteria in Heart Lake by completing a detailed sanitary survey.
- Reduce bacterial loading, especially E. coli bacteria levels, in Heart Lake. Possible management strategies may include:
  - Controlling waterfowl
  - Implementing an annual beach soil replacement program
  - Ensuring that the septic systems of the rental properties are not currently leaking into Heart Lake. If a system is leaking, take immediate action to address the leak and repair the system.
- Study the potential sources of polynuclear aromatic hydrocarbons (PAHs) in the sediments and their relationship to PAHs in the sediments of other groundwater-fed lakes in the local area and TRCA jurisdiction.
- Study the sensitivity of Heart Lake to increased loadings of nutrients or organic materials.
- Reduce suspended sediments, chloride and phosphorous loadings to Heart Lake.
- Continue to manage the hypolimnetic anoxia situation in Heart Lake by continuing the use of the lake lung.
- Retrofit the lake lung pump house to solar power.
- Monitor and manage algal blooms.
- While swimming remains a permitted activity in Heart Lake, meet the Provincial Water Quality Objective (PWQO) for E. coli at least 95 per cent of the Heart Lake swimming season. In addition, comply with Region of Peel health standards for water quality in natural lakes used for swimming.
- Once swimming is disallowed in Heart Lake, remove the buoy line that defined the swimming area and post signs to inform visitors that swimming is prohibited.
- Maintain or improve riparian habitat on Heart Lake. Restore the shoreline of Heart Lake to a more natural state by removing all gabion baskets, concrete, timbers and all other unnatural materials where possible.
- Encourage other property owners who front onto Heart Lake to allow their shoreline to naturalize. Possible methods include allowing the grass to grow long and planting native species at the lake edge. TRCA should take a stewardship approach to facilitating this action.
- Assess the effects of land use and residential developments on the water flowing from the wetlands north of Mayfield Road.
- Provide prominent signage along the sensitive habitats of Heart Lake, especially the wetlands and fish spawning areas.

Teapot Lake

- Manage Teapot Lake to protect its meromictic quality.
- Remove all structures in Teapot Lake. Repair the boardwalk to provide safe access to the lake for security, scientific study and educational purposes.
- Maintain the unique biodiversity surrounding Teapot Lake by maintaining the tree buffer around the lake and prohibiting general public use of the area. Consequently, trails should not venture to or near Teapot Lake. Limited access may be granted to the scientific research community who can use information gathered from Teapot Lake to learn more about the unique ecosystem and the area's history.
- Study the potential sources of PAHs in the sediments and their relationship to PAHs in the sediments of other groundwater-fed lakes in the local area and TRCA jurisdiction.

4.2.4.2 Fisheries

Heart Lake appears to be recovering to a more self-sustaining warm water fishery with a shift toward a healthier fish community dominated by bass. This shift is mainly due to improved water quality as a direct result of various management decisions and naturalization activities. Anglers have rediscovered the natural bass fishery and have added it to their harvest in recent years along with the "put and take" rainbow trout fishery.

Recommendations

- Naturalize Heart Lake into a self-sustaining, warm-water fishery in which largemouth bass is the main attraction.
- Continue to stock Heart Lake with rainbow trout. This allows for angling to occur earlier in the year, increasing both the fishing season and associated revenues.
- Conduct a formal survey of anglers at HLCA to determine what is being fished at Heart Lake. This survey can be conducted at the boat house or gate house. Providing visitors with an incentive to complete the survey, such as a free admission coupon, may encourage more visitors to participate in the survey.
- Prohibit the use of live bait for fishing at the HLCA. Live bait may eat the aquatic vegetation. It may also introduce undesirable or exotic species into the lake's ecosystem.
- Implement a catch-and-release system or low catch limits to maintain fish in Heart Lake.
- Heart Lake is a popular lake for recreational angling and contains organic contaminants, mercury and arsenic in the lake sediments. Therefore, fish from Heart Lake should be submitted to the Ontario Ministry of the Environment's Sport Fish Contaminant Program on a routine basis to assess any risk imposed by fish contaminants.

4.3 Cultural Heritage Resources

Few cultural heritage resources have been identified to date within HLCA. Archaeological investigations within and adjacent to HLCA indicate that people have been living in the area for at least 8,000 years. The TRCA Archaeological Site Predictive Model indicates that there is a strong possibility that new archaeological resources will be discovered.

Recommendations

- Ensure that the TRCA's Archaeological Resource Management Unit conducts archaeological assessments of any locations where ground level disturbances are planned, such as for trail routes, parking lots, picnic shelters and washroom facilities.
- Protect and conserve all archaeological sites (known and unknown) within HLCA. This is important given their rarity and the direct connection that they provide to the past.
- Pursue all opportunities to preserve and interpret heritage sites for public education. For example, interpretive signage could be provided at old drinking water wells to explain the significance of these structures as a part of the range of water sources local people have used. TRCA should contact staff at the Region of Peel and the City of Brampton to further TRCA's understanding of these heritage sites.
- Research the history of HLCA and incorporate it into regeneration activities.
- Determine if there was an Aboriginal community in the HLCA area by conducting a frozen finger analysis of Teapot Lake. If the data indicates that such a community existed, incorporate this information into interpretive signage at HLCA.
- Create a Medicine Wheel garden at HLCA to celebrate past and current Aboriginal use of the area.
- Make the HLCA Background Report available to researchers and members of the public to raise awareness and appreciation of the history of humankind in this area.
- Encourage the City of Brampton Heritage Board to continue to update and add to their existing inventories.

4.4 Recreation, Conservation Education, and Tourism

HLCA is one of the few large greenspaces in the City of Brampton. It is a destination, not only for Brampton residents, but also for those in the Greater Toronto Area because it offers a variety of opportunities for recreation, conservation education, and tourism.

Recommendations

- Recreation, education and tourism opportunities provided at HLCA should support the vision of HLCA established in this master plan as:

- A significant conservation park that forms a key environmental, cultural and social component of an established urban community in The Living City
- A living classroom used for nature-based recreation
- A place where natural communities can prosper and be managed with a stewardship approach.

4.4.1 Public Use and Recreation

HLCA is just one of many greenspaces available for public use in the area, although it is the only active TRCA conservation area in the Etobicoke and Mimico Creeks watershed. The City of Brampton and the Town of Caledon provide parks, recreation and cultural facilities and programs that complement and compete with HLCA. Please refer to Chapter 5 for more information about the Public Use and Recreation Plan for HLCA.

Recommendations

General

- Permit events and activities that support the vision of HLCA as established in the Master Plan. A review of events that have been permitted in the past and that are continuing in the future, such as the PCWF, the Peel EcoFair, and dragon boat races, should be conducted to assess how these events impact the park.
- When assessing potential uses, consider how these uses will impact current public use opportunities and the cumulative impacts of these multiple uses of HLCA. In addition to environmental impact, uses should be evaluated in terms of the facilities that they require, the demand for the activity and/or program, and the cost associated with its undertaking.
- Maintain sufficient open recreation area to be able to provide attractive areas for events such as the PCWF and Peel EcoFair. Key areas include the Birchview picnic sites and the Big Bowl.
- Investigate the possibility of providing exercise lessons such as yoga and tai-chi on the beach. TRCA would enter into a contract with a professional, certified instructor to lead the program.
- Promote HLCA visitor's environmental responsibility. Include an environmental code of conduct with camping and picnic permits. The environmental code of conduct should also be posted at the boathouse and trail heads.
- Investigate the possibility of holding outdoor music concerts at HLCA. Possible musicians could include local school groups and the Brampton Symphony. Locations could include the beach area or the Big Bowl.
- Charge per person entrance fees and activity-specific fees (such as for fishing or swimming) at the individual facilities. Every visitor, regardless of entrance point (by the trails or through the front gate) and time of year (during the summer or the winter) is expected to pay the required entrance fees. A brief explanation of what user fees pay for (e.g. toward achieving The Living City vision and maintaining the trails) should be posted on entrance and trail head signs.

- When evaluating the inclusion of possible activities in the park, the concerns of neighbouring communities, especially about noise and traffic, should be considered and addressed.

Fishing

- Prohibit the use of lead fishing sinkers and jigs weighing less than 50 grams.
- Promote Heart Lake as a self-sustaining, warm-water fishery where largemouth bass is the main attraction. This can be supplemented with stocked rainbow trout, whose fishing season starts earlier in the calendar year.
- Post interpretive signs at the boat house and fishing nodes to identify the fish species found in Heart Lake and the fishing seasons of those species. This will help the less knowledgeable angler identify which fish they can keep and which should be put back into Heart Lake.

Buildings

- Develop a new pavilion or other building facility at the beach area at HLCA that will meet LEED™ standards. The current beach building requires extensive repair. Architectural assessments have determined that it is less expensive to tear it down and create a new building that will support the beach and lake activities included in the Master Plan. The large flagstone patio should be preserved to act as a link to the previous building and to be incorporated into the design of any future building at the site. The new building should be designed to fit within its environmental context.
- Interim use of the existing beach centre building, until funding is secured for the open-air pavilion, could include storage and/or office space for Camp Ogada or the skills development company. Appropriate use of the building will be subject to future review.
- Subject to a review of the impacts of the PCWF on HLCA, investigate establishing a permanent headquarters for the PCWF at the Lodge. Storage space for PCWF displays should be incorporated into the new Programming and Administration Centre. Look to partners in education to build such a facility.
- Ensure that all facilities and building development and retrofits receive appropriate review and approvals. For example, environmental assessments as required by the federal or provincial governments may need to be completed.
- Ensure that all new buildings are designed to be LEED™ certified. Retrofits to existing buildings should strive to meet LEED™ certifications whenever possible.
- Accommodate green roofs on new and existing buildings where appropriate.
- Implement the highest appropriate level of stormwater control for new and retrofit developments.
- Use innovative wastewater technologies to reduce the generation of wastewater and potable water demand, including decentralized on-site wastewater treatment and reuse of non-potable water.
- Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems through water efficient fixtures, equipment and seasonal conditions that exceed standards.

- Encourage the use of Green Power grid-source, renewable energy technologies on a net zero pollution basis, including solar, wind, geothermal, biomass or certified low-impact hydro sources. These technologies could be used at washroom buildings, trail heads and the beach pavilion or other building facilities.
- Ensure all new and redeveloped buildings meet, at minimum, the R2000 energy standards.
- Promote the reuse and recycling of buildings, construction and renovation materials. This is especially relevant to the demolition of the current beach centre building. All efforts should be made to recover some of the original materials to be used in the new beach pavilion and/or other new buildings recommended in this plan.
- Incorporate art from local artists into interiors of buildings at HLCA. This may include art from people who once owned a parcel of HLCA, or emerging local artists. For emerging local artists, the opportunity to sell their art should be provided.

Picnicking

- Install more picnic shelters, where appropriate. There is a great demand for picnic sites with shelters. These additional shelters will make picnic sites more desirable and will add to park revenue, since sites with shelters are rented at a premium.

Waterplay Facilities

- Install a splash pad that uses state-of-the-art water conservation techniques. This will provide a safe and clean water experience and attract visitors during hot summer months. The waterplay facility can also act as a demonstration of water conservation techniques, providing an educational component to complement the recreational use.
- Discontinue swimming in Heart Lake as a permitted activity. Heart Lake suffers from algal blooms and has a murky bottom, both of which contribute to a poor swimming experience. In order to support Heart Lake's restoration to a warm-water fishery, swimming will be discontinued. It is recommended that the removal of swimming be phased in to coincide with the installation of a waterplay facility at HLCA. An education and awareness campaign should be implemented to inform visitors as to the benefits and reasons behind disallowing swimming in Heart Lake.

Winter Activities

- Provide passive recreation opportunities at HLCA in the winter months. The operating season of HLCA should be extended to allow for passive recreation in the winter months, including trails and hills. However, this should not include the use of facilities such as washrooms and other buildings as on-site staff and major retrofits to winterize the buildings would be required. Current budget conditions do not allow for staff to be on-site at HLCA during the winter months. Gates could be opened and roads could be plowed by a partner, such as

local service clubs, a private company or the City of Brampton in conjunction with their programs at Camp Ogada during the winter months. Beyond snow removal from entrance and roadway to the Programming and Administration Centre, winter maintenance should not be undertaken. Therefore, trails will not be groomed for skiing.

- As weather permits, offer additional winter activities. Possible activities include skating on Heart Lake for a special event, tobogganing and ice fishing.
- Safety barriers should be erected at Heart Lake during the winter months to prevent people from entering the lake and/or falling through thin ice.

City of Brampton's Camp Ogada

- Relocate the City of Brampton's Camp Ogada to the southern section of the HLCA. Provide indoor administration and storage facilities in the Programming and Administration Centre for year-round use. Concentrate summer use at the Lakemount picnic sites.

4.4.2 Trails

There is an extensive network of trails in HLCA, although there is only a minor formal trail system. As a part of this Master Plan, the trail system will be formalized, inappropriate trails closed and signage developed. In addition, HLCA trails will be designed to connect with City of Brampton and Town of Caledon trails, where appropriate. Please refer to Chapter 6 for more detailed information about the Trail Plan for HLCA.

Recommendations

- Connect HLCA trails to other trail systems. The Peel Trail at HLCA connects to the City of Brampton trail system to the south and future Town of Caledon trails to the north.
- Connect fragmented trails. Loops and trail connections are used at HLCA to create a continuous network of trails allowing trail users to adapt their use to their individual needs.
- All trail construction, reconstruction, naturalization or closures to be in accordance with TRCA's *Trail Planning and Design Guidelines*.
- Blaze trails with directional symbols according to TRCA standards. Signage standards for TRCA are established in TRCA's *Trail Planning and Design Guidelines* manual.
- Provide lighting at trail heads, where possible. Motion sensors could provide light only when necessary, to reduce power consumption and to limit the light pollution for fauna. Solar power or other alternative energy sources could be used for the lights.
- Close informal trails that go through Nature Reserve management zones.
- Ensure that trails avoid areas where species of concern have been identified. Trampling can become an issue in high-use public areas and trail users occasionally stray from defined trails, creating a network of informal paths. In order to protect species and their habitats, new trails should avoid such areas and existing trails in these areas should be closed.

- Provide an interpretive function along the trails, thereby educating trail users about proper trail etiquette and environmental issues via a trail head sign and brochures.
- Provide formalized, non-vehicular entrances to HLCA off of Mayfield Road and Sandalwood Parkway. This will allow for local residents to safely access HLCA on foot and avoid using a vehicle to access the front gate off Heart Lake Road.
- Continue to work with the local community and the City of Brampton to resolve the issue of greater pedestrian access to HLCA from the west side of the park.
- Develop discovery trails that highlight heritage sites and resources as well as contemporary sites and resources. Include appropriate signage along the trails to reflect these features.
- Create a new entrance to the Terry Fox trail near the front entrance gate. An entrance closer to the gate will increase visibility and safety for trail users.

4.4.3 Education

There are eight schools in the vicinity of HLCA making it an important site for environmental education activities. Currently, the only formal education program that is hosted at HLCA is the PCWF; however, there is no permanent centre for its program operations. Recommendations for expanding the environmental education opportunities at HLCA are listed below.

Recommendations

- Provide an interpretive function along the trails, thereby educating users about proper trail etiquette and environmental issues via trail head signs and brochures.
- Pursue opportunities to interpret natural and cultural heritage sites for public education. Develop permanent, durable displays to raise awareness at these sites.
- Develop an interpretive program to highlight the formation and characteristics of kettle lakes like Heart Lake and Teapot Lake.
- Develop an interpretive program to highlight the meromictic nature of Teapot Lake.
- Develop a self-directed lesson plan targeting a specific subject area that teachers can use with students on the interpretive trails.
- Host and promote educational events, such as the PCWF and Peel EcoFair.
- Align restoration efforts at the PCWF with a specific grade's curriculum and plant in areas throughout HLCA.
- Share the overall vision for regeneration with participating schools and community groups so that individual projects are put into the context of long term plans.

4.5 Stewardship and Outreach

Currently, HLCA does not have a stewardship group associated with the park. After the master plan process is complete, it is hoped that HLCA will have an active stewardship group. This group will assist TRCA in the implementation of the master plan and outreach to the local community. The committee should include

representatives from partner municipalities, stakeholder groups and local residents. Many of the same groups that participated in the master plan advisory committee should be represented on the stewardship committee.

Recommendations

Stewardship Group

- Develop a stewardship group to provide implementation support at HLCA. This committee will include representatives of local governments, residents, community groups, business owners and other stakeholders.
- Create a Terms of Reference for the HLCA Stewardship Committee. This document will include a list of appropriate stakeholders, committee organization and term length, responsibilities, rules of conduct and issue resolution procedures. It is suggested that among other things, responsibilities of the committee will include restoration project implementation, trail maintenance, outreach and education, and other activities which support the Master Plan and the TRCA.
- Create stewardship partnerships with local groups, such as Scouts Canada, Peel Youth Alliance, local school groups (especially environmental clubs) and other local community groups.
- Plan annual stewardship events that include interactive learning experiences.

Outreach

- Target the promotion of Best Management Practices and stewardship at houses bordering on Heart Lake and onto the HLCA boundary.
- Take the issues of habitat protection and enhancement into the backyards of the Heart Lake community to promote opportunities to create small nodes of local habitat areas to augment and support the bigger picture.
- Develop and implement plans to improve communication, awareness and education of park issues and initiatives, and backyard practices that support conservation land management.
- Educate neighbours and other stakeholders about dumping organic matter and debris, household products and other items in HLCA.
- Provide information to park visitors about the environmental and safety concerns of dogs roaming freely in the park.
- Work cooperatively with the local community on issues such as vandalism, security and trespassing.

Partnerships

- Work with schools to educate children and adults about permitted activities at HLCA.
- Investigate partnerships with local businesses to implement restoration plans or sponsor programs and events at HLCA.
- Formally recognize the contributions of all partners.

4.6 Operations and Park Management

HLCA has full-time and seasonal staff who carry out the day-to-day operations in the park. Staff need to be kept abreast of the plans and policies that affect their park so their actions are consistent with the recommendations in this master plan.

Recommendations

- Follow all TRCA policies. Example policies include the TRCA Animal Control Policy, the TRCA Policy for Managing Hazard Trees and the TRCA Pest Management Policy. These policies support TRCA's Living City objectives and best management practices.
- Follow the policies and procedures set forth in the Conservation Parks' Operations Manual. This manual provides reference materials and detailed instructions on how to operate the park in order to meet environmental, customer service and corporate objectives.
- Take measures to restrict the access to Heart Lake during the winter and spring by erecting fencing. Given variable weather and climate during these seasons, ice that forms on Heart Lake may not be stable enough to support the weight of humans. By restricting access to the lake, the potential for someone to fall through the ice is greatly reduced.
- Reduce landfill waste by encouraging reducing, reusing and recycling programs, including composting of organic waste to reduce the environmental impacts of waste disposal.
- Use local and regional materials to reduce environmental impacts resulting from transportation and to support the local economy when financially feasible.
- Illustrate sustainable practice techniques and backyard habitats at HLCA to act as a model for local residents and other park visitors.
- Improve water and energy efficiency wherever possible. Promote water efficiency programs and tools.
- Use alternative methods of water treatment such as constructed wetlands, secondary treatment, solar aquatics and biofiltration marshes, where appropriate.
- Provide a bulletin board in a public use space to inform the community of TRCA, HLCA Stewardship Group and other local community events and initiatives.

4.7 Land Use and Management

HLCA is an important component of the natural and social community. In order to maintain and enhance HLCA as an attractive location for people, flora and fauna, its natural environment must be protected and linked to the surrounding lands. Appropriate management techniques will help to maintain HLCA as a vital piece of greenspace and public use space.

Recommendations

General

- Maintain the two lease properties at HLCA to act as a source of revenue for TRCA and to provide additional surveillance on the more remote areas of HLCA.
- Minimize the ecological footprint of public use facilities and activities.
- Promote natural connections to the wetlands and trails surrounding HLCA.

Edge Management

- Provide natural or fence barriers along the edge of HLCA to define its boundaries. Sign boundaries as appropriate.
- Create natural buffers along the edges of natural areas at HLCA.
- Provide sound buffers along residential borders.

4.8 Implementation, Monitoring and Review of the Master Plan

This master plan and the associated recommendations are appropriate given the current knowledge and conditions at HLCA. The plan allows for changes in the natural, cultural, social and economic environment. However, regular reviews should be conducted and updates prepared to make the plan as relevant as possible.

Recommendations

- Develop performance measures and indicators for the master plan to determine the impacts and level of success of the master plan. These measures and indicators should be monitored regularly. The results of this monitoring program will inform reviews of the master plan.
- Review and update the HLCA Master Plan as necessary. A review should take place every five to seven years.
- Prepare a new master plan for HLCA in 25 years.
- When proposals for park uses come forward, consider how the activity supports the vision of HLCA as established in this master plan and the cumulative impacts of the activity. Uses should be evaluated in terms of the facilities required, the demand for the activity and/or program, and the economic feasibility. All projects should be subject to appropriate environmental assessments and building approvals, as required.
- Consult with the HLCA Stewardship Committee, local governments, community stakeholders and local residents when developing detailed plans that support the Master Plan.

CHAPTER

5

PUBLIC USE AND RECREATION PLAN AND RECOMMENDATIONS

The following report was prepared by ENVision – The Hough Group, dmA Planning & Management Services, and Joseph Bogdan Associates Inc, who were hired by TRCA to complete a public use and recreation plan for the HLCA Master Plan. The public use and recreation plan is informed by the master plan with respect to natural environment objectives and allowable uses within specific zones of the park. It will be used in conjunction with the master plan to inform the future development and management of HLCA. Appendix D includes the process and information used to develop the public use and recreation plan.

5.1 Public Use and Recreation Plan

5.1.1 Key Recommendations

The Public Use and Recreation Plan was developed in response to comments received on the alternative concepts (see Appendix D4).

The following are the key recommendations for public use within HLCA that provide the framework for the plan:

- Focus on passive recreation activities that support the core function of the site as a conservation area and are sustainable from an ecological and economic perspective.
- Maintain/enhance picnicking, fishing, lake-oriented and nature-based activities as a core focus of the park.
- Add/update amenities that support core conservation park uses and that expand visitor and revenue generation opportunities.
- Consolidate new facilities in existing managed tableland areas.
- Restore areas based on the recommendations of the master plan.
- Develop multi-use buildings that accommodate existing and expanded park uses and allow for partnerships with other recreation providers.
- Incorporate design standards that support ecological objectives, e.g. LEED™ standard or equivalent buildings, environmentally compatible site design, passive stormwater management/water recycling; use of recycled materials.
- Re-organize parking areas to reduce the required land area and provide space for new facilities development.
- Relocate Ogada Wilderness Centre summer camp/year-round activities to public use management zones of the park to allow for restoration initiatives on the current site, the continuance of a natural setting and the provision of an up-to-date facility.

5.1.2 Description of the Plan

The final recommended Public Use and Recreation Plan as illustrated on Figure 5.1 focuses on the managed portions of the site that support recreation uses. Ecological enhancement and restoration initiatives for the overall conservation area are being developed through the master plan. The Trail Plan establishes the overall trail network for HLCA, and was developed in conjunction with the Public Use and Recreation Plan. The following sections describe the key elements of the Public Use and Recreation Plan.

HEART LAKE ROAD PARK ENTRANCE AREA

The existing entrance at Heart Lake Road remains the primary park entrance area and the only point of entry for vehicles. During peak travel times and park events, left turns in and out of the park are difficult. As well, there is no safe pedestrian access at the main gate. As the road network in this area is further improved, it is recommended that the City of Brampton be encouraged to consider HLCA in the review of traffic issues and provide for safer entry and exit into the park such as a signalized intersection.

Figure 5.1: Public Use and Recreation Plan for HLCA

The Programmming and Administration Centre

Located at the top of the park entrance road off Heart Lake Road, the Programming and Administration Centre area includes a relocated gate house and controlled park entrance area. It combines park administration/operations functions with an indoor space for the Ogada Wilderness Centre year round program activities, and provides for surveillance and staff presence in the main park area. This area would also serve as the primary trail head and information area for HLCA.

The master plan concluded that it was in the best ecological interests of the conservation area to relocate the Ogada Wilderness Centre out of its current location to allow for restoration of the site to woodland. The Ogada Wilderness Centre currently operates both a summer day camp program and a program during the school year. While the summer camp would be best located away from the most public areas of the park to enhance the "nature experience", the winter program could benefit from more permanent building facilities in the developed areas of the park for ease of maintenance, snow clearing and emergency access. These factors were considered in finding a new home for Ogada and resulted in a proposal for shared use with the park administration functions.

The following is a suggested building program and space allocation for the Programming and Administration Centre. The building should be designed in an architectural style that complements the natural setting (e.g., wood, stone, glass) with sustainable building design standards (i.e., LEED™) fitting a seasonal park building. Further discussions and confirmation will be needed at the time of the building design.

Park Functions (approximately 350 square metres)

- Park administration office
- Park operations/maintenance garage (could be a separate building)
- Staff room, kitchen, first-aid room (shared with Ogada Wilderness Centre)

Ogada Wilderness Centre Functions (approximately 200 square metres)

- meeting/activity room for approximately 60 children
- mud room and change area/gathering space
- equipment storage space

Other (approx. 20 square metres)

- storage space for PCWF and other annual park events

Skills Development Area

A skills development area, with ropes course, is proposed for the south side of the entrance area in the clearing currently occupied by the operations area of the park. Consideration was given to the skills development area being built on the west side of Heart Lake. However, there were concerns expressed by staff about safety, surveillance, managing pedestrian access to the park and by local residents about potential increases in traffic through the adjacent neighbourhood. The south side of the

park was ultimately selected as it is easily observed and able to be managed from the Programming and Administration Centre. Further detailed review will be undertaken as the proposal is developed. The skills development area could be managed by trained HLCA staff, tendered to a private operator, or managed by a park partner (e.g. City of Brampton, or the Ogada Wilderness Centre).

Further investigation on the feasibility and design of the skills development area is required. The following could be considered:

- A high and/or low level ropes course
- Fitness components, such as a vita parcours (trail with workout stations)
- Access to Terry Fox Trail through the woods.

SOUTH CENTRAL PARK AREA

The main tableland area south of Heart Lake is the hub of the park's recreation activity. The area has an existing parking area that supports approximately 400 cars and is currently the location of several prime group picnic areas and the site of the PCWF. The area is the largest contiguous open space in the park and provides the best opportunity for the introduction of a new centralized park facility with washrooms, a concession stand, an outdoor waterplay area and open-air and covered picnic facilities. This area is a priority for development as immediate replacement of the washroom facilities at the original beach building is required.

Proposed new features of the central area are:

The Heart Lake Waterplay

- Children's splash-pad with interactive elements oriented to a range of ages, with nature or water conservation or recycling theme
- Sunning decks with cooling 'mist tubes' for observers
- Future expansion area to provide for a plunge pool
- Water conservation/sustainability features such as outlet water going to landscaped bioswales in the parking area or installing a greywater recycling system to recirculate the water
- Potential addition of second children's playground area (dry) to service the central area of the park.

The Pavilion

- Washroom/changeroom building with concession, outdoor eating area and open-air picnic pavilion. Refer to Figures 5.2 and 5.3 for the conceptual floor plan and elevation
- Architectural styling in keeping with the natural setting (e.g. wood, stone, glass, with sustainable building design standards, i.e. LEED™, as suitable)
- Bookable as large group event space (also with the waterplay)
- Redesigned/landscaped parking area for 400 cars with sustainable design measures such as porous asphalt, filter strips, and planted bioswales.

Figure 5.2: Proposed Pavilion Floor Plan

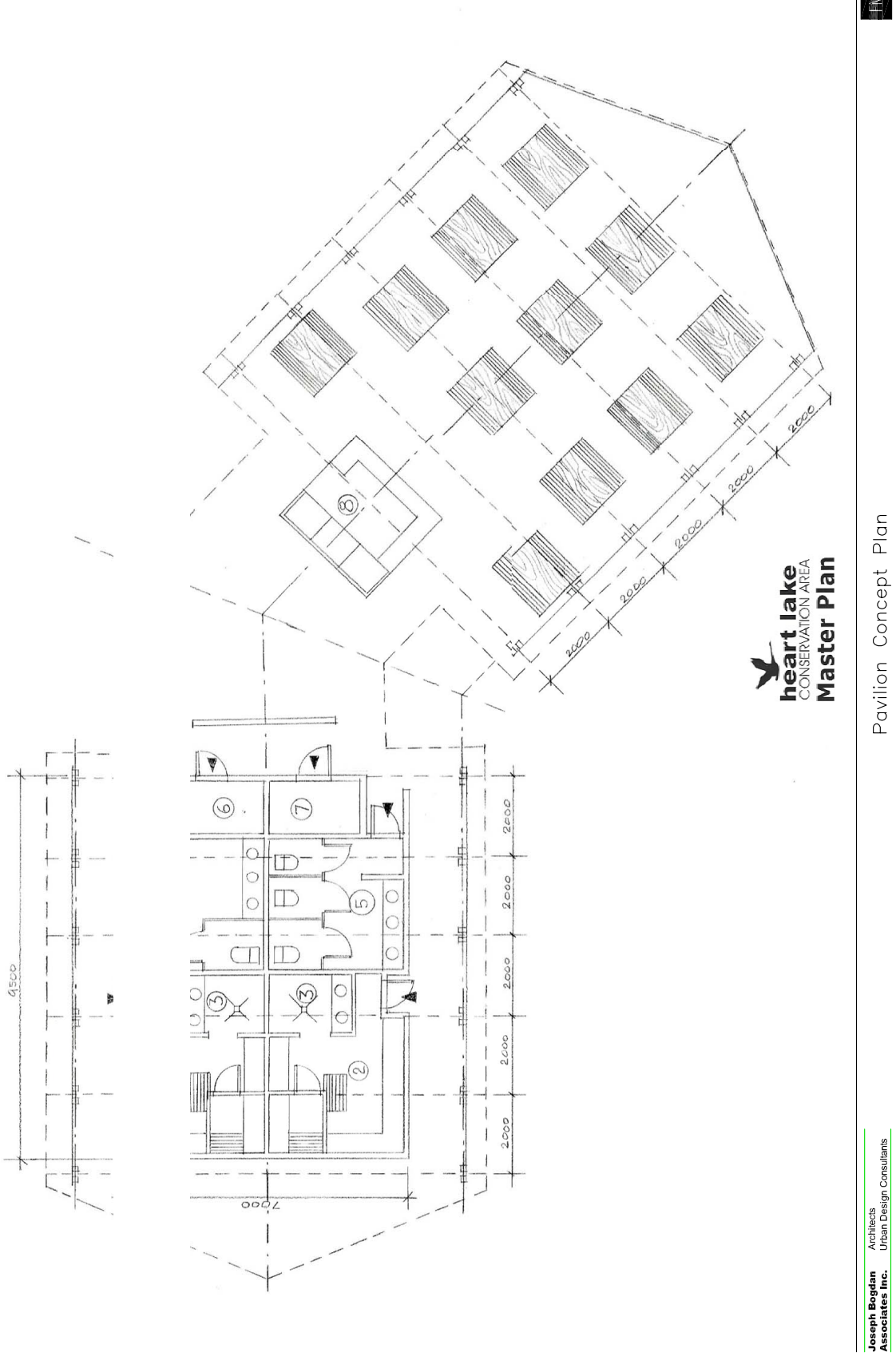


Figure 5.3: Proposed Pavilion Elevation Drawing

heart lake CONSERVATION AREA Master Plan

Pavilion Concept

ENVISION

Joseph Bogdan Associates Inc. Architects Urban Design Consultants

Events Space

- Parking area/open lawn space suitable for events (e.g. PCWF)
- Continued use of bookable picnic sites and shelters (Shady Nook, Hill & Dale, and Birchview) with improved picnic shelters where needed.

Community Stewardship Areas

- Community planting areas that are developed and managed by community groups in partnership with TRCA staff
- Support initiatives such as the proposed Medicine Wheel Garden (an aboriginal interpretive/spiritual site) or naturalization areas that can be achieved through school or community planting days.

Interim Location for Ropes Course

- Proposed at the south end of the conservation area prior to the construction of the Programming and Administration Centre and the relocation of the park maintenance and storage area from its existing location.

THE BEACH AND HEART LAKE EDGE

Heart Lake remains the focal point of the conservation area and continues to offer water-based recreation activities. In spite of efforts in recent years to improve the lake environment with the installation of a lake lung, poor water quality remains an issue for lake swimming due to nutrient loading, waterfowl, and its characteristics as a kettle lake. Through the master plan, there was some consideration given to the introduction of new technologies to improve water quality. However, the high capital and operational costs and the unique lake conditions are considered a challenge.

The beach area is not recommended for removal. However, a formal beach facility and supervised lake swimming is not provided in the Public Use and Recreation Plan. The existing washroom/changehouse on the beach is recommended for regeneration due to its poor condition. Re-use of the stone terrace in conjunction with an open-air picnic pavilion or other building facility is proposed. A beach volleyball court is proposed to add to the potential for group booking of the site as a unique picnic area. Water contact through access to the lake edge and other lake activities such as fishing and boat rentals are still provided and are enhanced through updated facilities.

Proposed features of the beach area are:

The Beach House

- Open-air picnic shelter or other building facility with architectural styling in keeping with the natural setting (e.g. wood and stone) and large enough for group bookings
- Reuse of existing flagstone beach terrace in conjunction with the picnic shelter
- Retention of sand beach area
- Seasonal beach volleyball court.

The Boathouse

- Houses boat rentals, small washroom space, water events dock/staging area (for Dragon Boat Festival, trout release, fishing, boat rental)
- Architectural styling in keeping with the natural setting (e.g. wood, stone and glass), with sustainable building design standards (i.e. LEED™ or equivalent) as appropriate.

Heart Lake Trail

- Expanded lake edge boardwalk/trail with interpretive signs and fishing access locations that encircle the TRCA-owned areas of Heart Lake (with a possible floating boardwalk on west side, or the expansion of a land-based trail if additional land is acquired)
- Continued naturalization and enhancement of the shoreline on the east, west and north sides
- Trail head and educational signage (e.g. trail route map, Heart Lake formation and characteristics of kettle lakes, shoreline and aquatic habitat enhancement initiatives).

EAST SIDE OF HEART LAKE

The east side of Heart Lake is the main public access through the park and includes the roadway linking the recreation areas, the north-south Esker Trail (which is a multi-use trail) and the lakeside Heart Lake Trail, a pedestrian-only trail. The park's only playground is located on this side in association with existing group picnic areas (Poplar and Green Acres).

A proposed new feature of the east side is:

The Heart Lake Lodge

Located on the east side of the conservation area overlooking Heart Lake, the Lodge takes advantage of the lakeside setting, existing picnic sites and access to the lake edge boardwalk trail and stairs. It is a multi-purpose building suitable for rentals and bookings and would be a longer-term initiative for the park that could potentially be open on a year-round basis.

Targeted events might include small weddings/family parties and local community group meetings. In particular, events or activities such as team-building sessions, or corporate retreats that would benefit from the natural setting and other amenities such as the trails or skills development area could be attracted.

Although additional investigations are required to determine the building's exact size and amenities, the Lodge is envisaged as:

- Approximately 500 square metres with facilities for up to 100 people including meeting/event space, kitchen facilities, and lounge area
- Open concept, chalet style with an architectural styling in keeping with the natural setting (e.g. wood, stone, glass)
- Designed to sustainable building design standards (i.e. LEED™ or equivalent) as appropriate.

WEST SIDE OF HEART LAKE

The west side of Heart Lake remains a quiet, nature-oriented area with a looped nature trail, lookout, and fishing access point. With increased public access through this area, the existing leased house on Conservation Drive, along with the private lakeside properties, will need to be provided with appropriate buffers and fencing to maintain privacy.

Consideration was given during the development of options to the location of new facilities on the west side, including the ropes course and Ogada Wilderness camp. However, there were concerns expressed by staff over safety, surveillance, and managing pedestrian access to the park, and by local residents over potential increases in traffic through the adjacent neighbourhood.

With the proximity of the residential area, informal pedestrian access points are created through breaches in the fence line. These areas need to be monitored and repaired frequently and it is recommended that these measures be combined with barrier planting to further serve as a deterrent. Through the master plan process there was consideration of establishing a permanent walk-in gate on the west side. There is public support for a formal park entrance off Richvale Park near Royal Palm Drive. TRCA will test an entrance at this location. As part of this test, TRCA will monitor the impacts of this entrance on park revenues, flora and fauna, and safety and security.

Proposed treatment of the west side includes:

- Maintenance of leased residential property on HLCA lands with appropriate fencing and buffers
- Development of a nature trail loop, lookout, and fishing access point
- Establishment of a controlled access gate at the school site (for school groups and members of the stewardship group)
- Closing/securing informal neighbourhood access points (using fencing and/or unfriendly planting barriers).

NORTH URBAN WILDERNESS AREA

The master plan proposes to restore the open clearing at the north end of HLCA to a forest, which necessitates the relocation of the Ogada Wilderness Centre camp facilities. As previously noted, there are benefits to having the school-year outdoor education program in a permanent building facility in proximity to the main park entrance. However, the summer Ogada day camp program operates during July and August when park visitation is high. The program currently benefits from its present isolation from the public areas of the park, both for security and management issues, as well as to enhance the nature experience.

It is proposed that the relocated day camp summer program be accommodated in the most northerly recreation area, where there is adequate open space, existing washroom facilities and a large parking area that can accommodate a bus turn-around.

To accommodate the summer program it is recommended that a new open-air pavilion or other building facility be constructed that can support both the Ogada program and large group event bookings on weekends and through the remainder of the operating season. The space would also accommodate the occasional group camping (e.g., Scouts) that is currently permitted. The administrative functions, storage space, first-aid facilities, and group meeting space for bad weather days would remain at the permanent Programming and Administration Centre facility. (Refer to the Programming and Administration Centre description.)

Proposed features of this area include:

- Large, open-air picnic pavilion(s) at the Lakemount picnic sites to support the Ogada summer program, large group picnics, and occasional overnight group camping, e.g., Scouts
- Redesigned/landscaped parking area for 200 cars
- Improved north-south trail link to Mayfield Road designed to provide secondary emergency access
- Restoration of existing clearing as woodland (where Ogada currently operates)
- Nature trail loop links to the main trail spine (Esker Trail)
- Trail head and educational signage (e.g., trail route map, Teapot Lake and meromictic lakes, and reforestation).

5.1.3 Sustainable Design Standards

In keeping with Living City objectives, TRCA has a mandate to design all new buildings with sustainable and green building design principles, using LEED™ or LEED™ Canada certification, as administered by the Canada Green Building Council, an adaptation of the American program tailored specifically for the Canadian climate, building codes and practices. The LEED™ program recognizes leading edge design, construction and operational practices that reduce environmental impacts. This is achieved through the award of credits for achieving performance criteria that outperform standard building practices.

The LEED™ Canada for New Construction and Major Renovations program issues credits within five areas:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality.

Within each of the categories there is flexibility to accommodate a wide range of green building strategies that best fit the constraints and goals of particular projects.

With respect to the proposed new buildings and structures at HLCA, designing to LEED™ criteria includes these considerations: cost of construction, the seasonal use of the buildings, ease of maintenance, and suitability of the strategies for moderately-sized structures.

Many green building strategies are relatively easy to achieve without significantly modifying the construction technology or the desired appearance of the building or unduly impacting building operations. For example, for credit as a reduced Heat Island, both green vegetated roofs and Energy Star® compliant highly reflective and high emissivity roofing (high albedo) will achieve points. Green roofs are more complex and expensive to achieve, require more maintenance, and are most often associated with large, flat-roofed buildings. High albedo roofing is applicable to all types of structures including open-air pavilions. Other relatively simple building measures include maximizing for daylighting and views, incorporation of green power sources, and reduced energy and water consumption in appliances and fixtures.

Sustainable site design credits include many strategies that are typically considered for compatibility with a natural setting and ecologically sensitive practices including: limiting grading and site disturbance, use of native and water efficient plant material, passive stormwater management and reducing impervious surfaces. Even without objectives for LEED™ certification, these would be recommended measures for the HLCA site.

The following are a range of possible green building and sustainable site measures that should be incorporated at HLCA. Appendix E provides additional detailed information on sustainable design measures based on criteria contained within the five principle LEED™ areas.

Green Building Measures

- Reduce potable water use for wastewater or provide 100 per cent on-site treatment through such measures as on-site greywater treatment units, dual flush toilets, and composting toilets.
- Reduce potable water use through such measures as ultra-low flow fixtures, metered faucets, composting toilets, waterless urinals, and the re-use of greywater for non-potable water use.
- Design building envelope and building systems to maximize energy performance.
- Use high performance windows to limit winter heat loss and summer solar gain (may involve glazing, shading and framing).
- Use specialized insulation measures to support thermal conservation (through exterior wall and roof construction).
- Use building orientation measures (e.g. south-facing orientation for roof; east/west windows with overhangs to block out summer sun).
- Use Energy Star ® compliant, highly reflective and low emissivity roofing over 75 per cent of the surface area. Green roofs are also credited but will be more difficult to achieve.
- Design passive solar measures, i.e. windows, skylights, thermal storage in flooring or walls;
- Consider alternative power sources: solar electric (photovoltaic) systems, wind energy, geothermal heat pump, heat recovery ventilators (HRVs).

- Reduce building and site light emissions and increase access to dark skies.
- Reduce use of scarce natural resources. Use salvaged or recycled materials, rapidly renewable resources or those that require less energy to produce.
- Divert and recycle construction waste.

Sustainable Site Design and Landscape Measures

- Design with minimal building footprint and designate an area of adjacent open space equal to building footprint.
- Minimize site disturbance including earthwork and clearing to reduce development impact area.
- Demonstrate that post-development peak discharge rate and quantity doesn't exceed pre-development peak discharge rate and quantity. Examples of stormwater management (SWM) measures include infiltration trenches, vegetated swales, porous paving, detention areas, and constructed wetlands.
- Provide passive stormwater treatment measures (e.g., run-off movement through bioswales, meadows, wetlands, SWM retention areas).
- Use water recycling technologies such as harvesting of roof/downspout run-off for irrigation or to water planted areas, re-use of building greywater and waterplay drainage for landscape or non-potable building use (e.g., toilets, custodial use).
- Use permeable paving materials: gravel, porous asphalt, pavers ('ecopavers', 'turfstone').
- Use recycled materials, limit use of scarce resources, and select materials requiring less energy to produce and/or manufactured regionally.
- Apply xeriscape principles: native plant material selected for reduced water consumption, drought resistance, climate hardiness.
- Limit turf. Use groundcovers, mulched shrub areas, permeable surfaces, gravel and pavers.
- Locate and plant trees to shade hard surfaces and buildings to reduce heat island effect and to cool buildings.
- Install solar powered landscape lighting (i.e. on trails) and in parking lots.
- Use of down-turned and shielded streetlight fixtures to promote dark skies.
- Promote alternative modes of transportation (i.e., ensure site connectivity with internal/external trails and bike routes, and provide bicycle racks and storage areas).
- Encourage access to transit. The *Brampton Transportation & Transit Master Plan* notes the expansion of service along Heart Lake Road and Sandalwood Pkwy within the next five years (City of Brampton 2004).

5.2 Implementation Strategy

5.2.1 Project Costs

Table 5.1 summarizes the site development costs for the buildings, structures and amenities identified in the Public Use and Recreation Plan. Please refer to Appendix F for more detailed implementation costs.

Table 5.1: Public Use and Recreation Site Development Costs, Total Costs
Please refer to Table 7.1 and Appendix F for more detail about development and implementation costs, schedules and partners.

AREA	TOTAL ($)
Heart Lake Road Entrance Area	1,863,610
Heart Lake Waterplay and Picnic Area	1,502,660
Lakefront and Beach Area	575,950
The Heart Lake Lodge Area	734,150
Lakemount Area	299,200
Trails	547,000
Additional Items	600,000
Sub-Total Park Construction Costs	6,122,570
Design & Engineering, Contingencies 15%	918,386
Total Park Construction Costs (taxes not included)	7,040,956

The following order of facilities development is proposed for HLCA over an assumed ten-year period. Environmental initiatives, trails development and interpretive and educational components should be integrated with each project as appropriate and as identified in the master plan and the Trail Plan.

Immediate Projects (funding or partial funding is allocated)

- The Pavilion and waterplay (including redevelopment of the parking lot and surrounding area to incorporate sustainability measures)

Short-term Projects (one to three years)

- Programming and Administration Centre
- The Beach House, open-air picnic pavilion or other building facility

Medium-term Projects (three to five years)

- The Programming and Administration Centre
- Skills Development Area (permanent location for the ropes course and fitness trail)
- The Boathouse

Long-term Projects (five to ten years)

- The Lodge

5.2.2 Partnership Opportunities

TRCA will continue to look to partnerships for assistance in achieving its objectives for HLCA. Past partners who are stakeholders in the park and who have a mutual interest as recreation providers include the Region of Peel and the City of Brampton. A continued collaborative relationship and cost-sharing among the partners over the long term will be important in realizing the recommendations of the Public Use and Recreation Plan to the mutual benefit of all parties. With new and improved public use facilities and programs, additional partners will be possible.

The City of Brampton has a potential interest in several key projects in the conservation area. These include the provision of facilities to continue the Ogada Wilderness Centre including:

- The joint development of the Programming and Administration Centre
- A new open-air pavilion at the north-end
- The ropes course.

As well there is the potential for cost-sharing with the City of Brampton on:

- Development of the trails at HLCA, which connect to the city-wide trail system.

The Region of Peel partners with TRCA on the provision of regional recreational facilities. Potential projects for which the Region of Peel may provide funding include:

- The Pavilion washroom/concession facility
- The waterplay area
- Upgrades to the beach area including the Beach House and Boathouse facilities.

There is the potential for the Town of Caledon to partner with TRCA on several HLCA projects that will satisfy the public use and recreation demands of residents in the southern extreme of Caledon. Such initiatives include:

- The waterplay area
- Development of the trail system that incorporates connections to the Town of Caledon trail system
- Lake-based activities including fishing and boating
- Potential day camp programs.

TRCA is also interested in promoting use of its conservation parks as part of a component of healthy living. As part of this wellness program, there is potential to partner with public health departments and other health promotion industries.

There is also potential for TRCA to partner with local community service groups to implement the master plan. For example, in August 2005 local Scout groups were instrumental in raising money for and rebuilding staircases from the Green Acres picnic site to Heart Lake. It is hoped that similar initiatives and partnerships on buildings, such as the Skills Development Area, can occur with community service groups.

TRCA will also look to local businesses and fundraising as a source of funds to support the implementation of the master plan. In addition, local businesses can sponsor programs and events at HLCA.

As well, it is TRCA's intent to establish a HLCA Stewardship Group to assist in the long-term management of the conservation area. There is potential for the continued involvement of such volunteers in activities such as planting, park clean-up, trail maintenance, and monitoring. Many of these activities are already undertaken as voluntary measures by local residents and the dedicated volunteers who have served on the HLCA Master Plan Advisory Committee. The Stewardship Committee will also be a key group in raising awareness and funds for HLCA.

CHAPTER

6

TRAIL PLAN AND RECOMMENDATIONS

6.1 Introduction

The Heart Lake Conservation Area (HLCA) is currently a healthy and diverse natural environment with several special designation areas including Environmentally Significant Areas, Areas of Natural and Scientific Interest, interior forests, wetlands and bogs. Additionally, the area features Teapot Lake, one of only two known meromictic lakes in southern Ontario, and is home to a variety of plant and animal Species of Concern. As a result, any and all public uses must be carefully planned, implemented and monitored to ensure the long term sustainability of these and other natural features and functions. While these lands remain healthy from an ecological perspective, they face the recreational pressures exerted from a fairly extensive trail system that includes both existing trails and proposed trails. For the most part,

the lands in the planning area have been designated as a Nature Reserve Zone. By providing controlled public access to such sensitive natural areas, trails can provide both valuable educational and aesthetic exposure to our natural heritage system. However the critical issue of not increasing the impacts on these natural areas to the extent that their ecological function becomes disrupted must be addressed and achieved.

As part of the master planning process for the HLCA, the Advisory Committee (with support from TRCA) has developed a trail plan for the area. The Trail Plan complements the overall master plan for the HLCA and offers guidelines for the development of an integrated trail system through the property. The Plan includes local loop trails within the HLCA as well as connections to proposed trails in the City of Brampton and greenspace in the Town of Caledon. The trail systems outlined in the Plan are designed to address the different levels and abilities of hikers, and thus offer a variety of trail lengths, difficulties and types.

The information in the Trail Plan is intended to guide the development and management of trails, access points, signage and related facilities in order to achieve the master plan goals and objectives.

Refer to Map 6.1 for details of the trail plan for HLCA.

6.2 Trail Plan Goal, Objectives and Management Principles

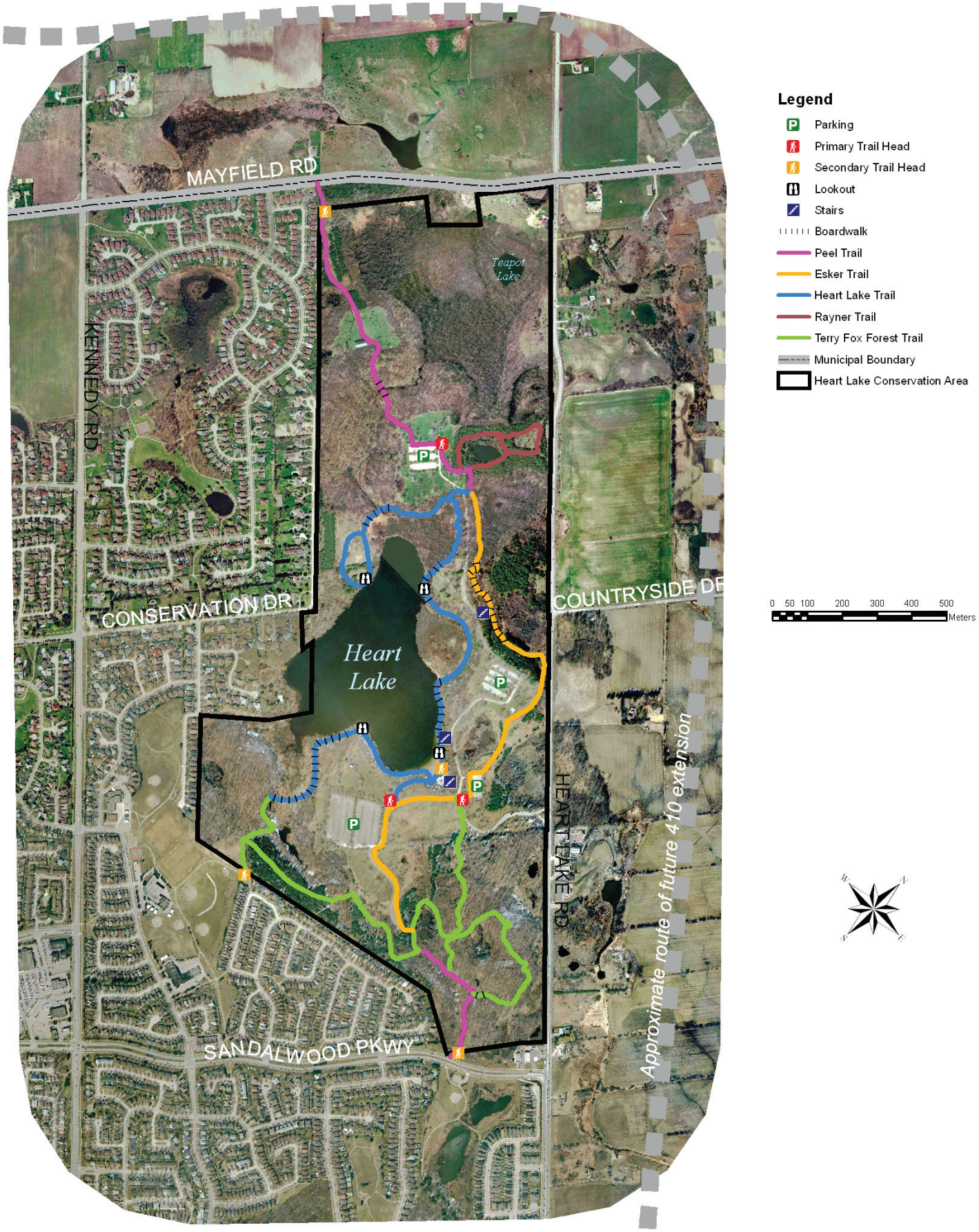
6.2.1 Trail Plan Goal

This plan aims to develop a trail network that allows visitors to travel through the park and to access public use areas and facilities while protecting and promoting awareness of the unique natural and cultural features of the HLCA.

6.2.2 Trail Plan Objectives

- Connect the HLCA trails to local and regional trail systems.
- Provide at least one universally accessible trail.
- Provide trails that can also serve as wildlife access routes and natural linkages.
- Promote limited and passive public uses that have minimal negative environmental impacts.
- Protect the environment by implementing sensitive trail design solutions.
- Design trails that respect aesthetic considerations.
- Reduce social impacts (e.g. privacy, security, etc) on neighbouring properties.
- Involve local community members as trail stewards to help care for and maintain the trail system.
- Develop a comprehensive and integrated approach to interpreting the area's natural values, ecological processes and cultural heritage.

MAP 6.1: Trail Plan for HLCA



6.2.3 Management Principles

- Provide signage and a trail guide to educate and promote appreciation and protection of the natural and cultural environment.
- Post trail head maps at major gateways to the trail system.
- Sign trails appropriately.
- Ensure the cumulative effects of land use and activities within the HLCA are monitored, assessed and managed in a way that protects, restores and enhances the natural environment.
- Provide opportunities for appropriate public use consistent with the master plan.
- Provide a trail system that will withstand an appropriate amount of use and enjoyment by users.
- Assess, analyze and fulfill user needs while ensuring ease of movement, safety, comfort and protection of the environment.
- Utilize best erosion management practices.
- Effectively manage public use safety and liability issues.

6.3 Existing Regional and Local Trail Systems

6.3.1 Existing Regional Trails

City of Brampton's PathWays Master Plan

The City of Brampton commissioned the PathWays Master Plan to outline its plans to create a unique community that builds on its natural, cultural and heritage features. The PathWays Master Plan (2002) acts as a strategic plan to attain a safe, seamless pathway system that best reflects the needs of Brampton and supports inter-modal activities that the community enjoys.

The PathWays system is an important component of the City's open space infrastructure. The pathways entwine parks and valleys together and supply convenient pedestrian and cycling routes across the City.

In the PathWays Master Plan, the City of Brampton designated an east-west City Wide/Community Wide Class I trail through the HLCA that connects Conservation Drive and Countryside Drive. A Class I trail is a multi-use trail. A north-south Neighbourhood/Planning District Class I trail and several short loops to neighbouring communities for recreational activities were also assigned to the HLCA by the City. Within the PathWays Master Plan, the HLCA also represents a major destination and a potential staging area. According to the PathWays Master Plan, some trails surrounding the park are scheduled for short-term (2002 to 2003) and long-term (beyond 2008) initiation dates.

6.3.2 Existing Local Trails

Currently, the HLCA features numerous well-used recreational trails throughout the park. These trails include those established by the TRCA as well as those created by park users. There is a formal trail map for only those trails in the south-east section of the HLCA, known as the Terry Fox Forest. However, due to intensive and prolonged

use by hikers, cyclists, anglers and other recreational users, side trails that are unmarked have become pervasive. Therefore, the network of trails that exists in this area is far more prolific than the map indicates. Additionally, any signage that was present has become degraded.

6.4 Proposed Trail Systems

The proposed trail system for HLCA will include a number of trail loops and connecting trails that will allow trail users to experience many different areas of the park.

6.4.1 The Peel Trail (Multiple Users, 1.59 kilometres)

The Peel Trail is so named because it connects two municipalities in Peel Region – the City of Brampton and the Town of Caledon – and their trail systems. This primary trail will act as the gateway trail to the rest of the trail system at HLCA.

The trail will begin at the southern park entrance off Sandalwood Parkway and travel north for a short distance. The Peel Trail will then fork to the west while the Terry Fox Forest Trail will fork to the east. The Peel Trail will continue northwest to the southern-most parking area. From this point, the trail continues to follow a path alongside the park road, past the community stewardship area, to the upper northwest corner of The Bowl. It is here that the Esker Trail and Heart Lake Trail can be accessed.

The Peel Trail resumes at the northern intersection of the Esker and Heart Lake Trails. The Peel Trail continues north for a short distance, leading to the entrance of the Rayner Trail. From here, the Peel Trail ventures toward and along the edge of the northern-most parking area. Once at the north-west corner of the parking lot, the trail runs north to the northern entrance point on Mayfield Road.

This trail is classified as multiple use. As such, both pedestrians and cyclists may venture on the trail. Appropriate signage will be posted at entry and exit points and at narrow points to advise trail users of this. This trail intersects with numerous secondary trails and loops, providing users alternate types and lengths of trail. Consequently, it will be important that adequate signage be posted for clarity.

Portions of the Peel Trail that traverse watercourses and wet areas will have boardwalks installed. This includes a portion of the northern section of the trail, where a watercourse that feeds into Heart Lake is crossed by the trail. In addition, the northern section of the trail (from the Mayfield Road entrance to the northern-most parking area) will be constructed in such a manner that the trail can be used by emergency vehicles to access HLCA. Trail width and surface will have to be altered to accommodate this use.

6.4.2 Esker Trail (Multiple Users, 1.77 kilometres)

This trail is named after the Brampton Esker, a portion of which is found in HLCA. The Esker Trail will provide cyclists and pedestrians access to the public use areas of HLCA. It will act as the main spine trail for cyclists and as an alternate spine trail for pedestrians.

The trail begins at the upper northwest corner of the Bowl, where it intersects with the Peel and Heart Lake Trails. It then continues east to the park road towards the Programming and Administration Centre and associated parking area. The trail ventures behind the public use area at the Poplar picnic site to the base of the esker that runs through the park. The trail continues along the base, with boardwalks over wet areas and stairs (for pedestrian users) that lead to the park road at several points. The trail ends at the northern intersection of the Peel and Heart Lake Trails.

This trail provides users with views of the wetlands on the eastern side of HLCA. Interpretive signage will be posted along this route so that users can learn more about the habitat that they are viewing. Additional signage will be posted at trail intersections and stairs.

6.4.3 Terry Fox Forest Trail (Pedestrian Only, 2.49 kilometres)

The Terry Fox Forest Trail is named after the forest through which it travels. It recognizes the efforts of the local children who planted trees while attending Terry Fox Public School, which borders on HLCA. This secondary trail is a series of loops that will provide the local community options for lengthening or shortening their hike.

This pedestrian-only trail begins in the south-east portion of HLCA at an intersection with the Peel Trail. A small section to the east of this intersection will require wood chips or a small boardwalk as it becomes very wet in the spring. The trail then ventures along existing trails, creating short and long loops. The trail varies in difficulty in this section due to the variety of elevations.
Further along the Peel Trail, the Terry Fox Forest Trail continues. Here, the trail passes through the plantation forest, paralleling the border of the park. A fork in the trail is located near the end of this trail; the fork to the north continues on to join the Heart Lake Trail while the south fork is an informal and safe access point for neighbouring schools and the HLCA Stewardship Committee. This gate will be locked at all times. Schools will be required to arrange for access to the park via this gate by contacting TRCA. The chair of the HLCA Stewardship Committee will have a key to the gate.

Some local residents and the City of Brampton have expressed interest in having a permanent pedestrian access point on the west side of HLCA. However, such an access point was not included in the master plan because of concerns regarding staffing, safety and park revenues. Additional trail connections east-west through HLCA may have value and will be considered pending, at minimum, the following:

- Completion of a detailed terrestrial natural heritage inventory and analysis.
- Public consultation with the local community and HLCA stewardship committee.
- Appropriate assessment of the proposed connections in the City of Brampton's detailed trail plan development and implementation.

TRCA will work with the local community and City of Brampton to resolve this issue.

6.4.4 Heart Lake Trail (Pedestrian Only, 2.65 kilometres)

The Heart Lake Trail encircles its namesake, Heart Lake. This secondary trail is dedicated for pedestrians only – sensitive flora, fauna and habitat prohibit trail widths that can accommodate multiple users.

At the northwest corner of the Bowl, the Heart Lake Trail can be accessed from its intersection with the Peel and Esker Trails. From here, hikers can travel down the emergency access road to the beach area. Once at the beach, the trail forks; users can travel to the west along the southern lake edge or north along the eastern side of the lake. By using the trail on the southern edge of the lake, users will veer through wet forested areas along boardwalks and eventually lead into the western end of the Terry Fox Forest Trail. Along this route there is a lookout point and fishing access stop.

From the fork at the beach, the Heart Lake Trail follows an established trail route along the eastern shoreline. Here, there will be boardwalks in wet areas and places near steep shoreline. This trail will pass by the Boathouse complex, two marsh areas, and two lookout and fishing points. There will also be three sets of stairs from the trail that access the park road, picnic areas and parking lots. At the northern most point of the Heart Lake Trail, a small fork leads trail users to the northern intersection of the Peel, Esker and Heart Lake Trails at the park road. On the north-west side of the Lake, the trail loops around a meadow area so that trail users can return back along the trail.

Currently, there are three private properties that front onto Heart Lake and whose property boundaries include a portion of Heart Lake itself. TRCA would like to extend the Heart Lake Trail around the entire edge of Heart Lake. Consequently, the TRCA plans to pursue acquiring property rights to these properties through purchase, conservation easement or donation.

6.4.5 Rayner Trail (Multiple Users; Universal Access, 0.69 kilometres)

This trail is named after the previous land owner from whom the TRCA acquired much of the land that makes up the current HLCA. The Rayner Trail will be open to multiple users. It will be considered a universally accessible trail; it will be built to accommodate wheelchair use and a parking lot will be located close by.

The Rayner Trail is a secondary loop trail. It starts and ends at the Peel Trail, just south-east of the parking lot at the Lakemount picnic sites. The trail follows the

existing trail route with a short and long loop available for users. Interpretive signage will be posted along this route so that users can learn more about the wetland and forest habitat they are viewing. Directional signage will be posted at trail intersections.

6.4.6 Trail Heads and Access Points

Map 6.1 features both primary and secondary trail heads, descriptions of which can be found in Section 6.9 Signage. The trail heads will be located at formal and informal access points as follows:

Formal Access Points

- Gate house on the park road
- Southern edge of the park, off Sandalwood Parkway
- Northern edge of the park, off Mayfield Road
- Lakemount parking lot
- Access road to Heart Lake beach from the park road

Informal Access Point

- South-western boundary of the park, off the school properties on Richvale Drive North, where there will be restricted access to the Terry Fox Forest Trail. There will be no trail head located at this access point.

6.5 Planning Recommendations

This trail concept provides a general overview of trail locations and associated recommendations. It is strongly recommended that TRCA's Conservation Parks staff collaborate with other TRCA staff to develop a detailed trail plan. This detailed plan will:

- Address site-specific issues
- Undertake detailed trail routing and investigation
- Outline specific areas for trail realignment or adjustment
- Describe, in detail, the location and type of boardwalk or bridge construction requirements
- Detail the location and content of interpretive posts and signage

Recommendations

- Provide detailed information for inclusion in signage and interpretive materials.
- Create an interpretive trail guide, map and signage for trail heads.
- Ensure that property boundaries and access points of the HLCA are clearly marked through signage or fencing or both, as deemed appropriate through further investigation.
- Clearly sign and distinguish between primary and secondary trail heads.
- Generate a trail map of the HLCA to be posted at primary trail heads.
- Use the gate house, located at the main entrance to the HLCA, as a primary trail head location and information centre. Trail maps and guides, along with trail user code, guidelines and regulations, and other visitor information could be located here.

- Highlight vistas and ecological features located along trails through signage and interpretive posts. Mark these areas on trail maps and guides and provide interpretive information.
- Clearly distinguish and sign the various trails, trail types, trail lengths and level of difficulty in both trail head signage and trail guides.
- In the case of the Multi-Use Trail, designed to accommodate special needs visitors, plantings should occur adjacent to the trail to provide shading, visual interest and a buffer from adjacent public use activities.
- Evaluate the condition of boardwalks located along current trails and make amendments as required.
- Evaluate areas where trails or vistas are located close to slope's edge, lake or wetland to determine if relocation or stabilization is required.
- Close surplus trails with the use of signage, brush piles and native plantings.
- Consistent with efforts to minimize the environmental impact of the trail systems within the HLCA, it is recommended that a system of pulverized gravel/ limestone screening paths be used. Boardwalks may be required where trails pass through wet areas.

6.5.1 Public Uses

Appropriate, passive public uses are permitted along trails including hiking, cross-country skiing, nature appreciation and, in the case of the Rayner Trail, the use of adaptive equipment for people with special needs.

Recommendations

- Provide a natural terrain surface with boardwalks or spot hardening in wet areas.
- Permit hiking and cross-country skiing on trail systems.
- Create a trail system to accommodate people with special needs who are unable to access the more remote trails.
- Permit cycling on designated trails only.
- Disallow horseback riding and all motorized recreational vehicle use on trails.
- Provide signage clearly identifying permitted trail uses at all access points and trail heads.

6.5.2 Trail Linkages

Linkages to other trails and greenspaces should be encouraged wherever possible to provide corridors for animals, birds and humans. Linkages provide a longer hike for the user as well as various experiences and landscapes.

Recommendations

- Encourage trail links to the Brampton and Caledon municipal trail systems.
- Provide information through signage detailing links to adjacent trail systems.
- Promote such linkages through collaboration with adjacent municipalities and regions.

6.5.3 Implementation Strategy

The trail plan will be implemented in phases, building on the existing routes. High-priority areas are located where existing use is heaviest and where major improvements are required, such as erosion repairs and drainage problems. Existing trails through sensitive areas will be closed and rehabilitated to a natural condition. Signage will be used to identify closed trails and to inform users. Trail plan implementation will occur in three phases for the property as follows:

Phase 1 – 2007:

- Develop the Peel, Heart Lake, Terry Fox Forest and Esker Trails.
- Decommission trails through signage and barriers if necessary to discourage use. The trails to be decommissioned are those located in the nature reserve north of Heart Lake and in the forests south of Heart Lake. See Map 6.2 for locations of decommissioned trails.
- Permanently close unofficial entrances to the park including fence holes along the western border.
- Where needed, replace existing boardwalks through wet areas and construct boardwalks and footbridges where necessary to accommodate trail passage over wet and sensitive areas.
- Develop the primary trail head locations.

Phase 2 – 2008:

- Develop secondary trails, including the Rayner Trail and the Heart Lake Trail loop on the northwest side of Heart Lake.
- Develop secondary trail head locations.
- Develop lookout points along the Heart Lake Trail.
- Develop resting spots along the Heart Lake, Esker, Peel and Terry Fox Forest Trails.
- Develop main interpretive sites and accompanying signage, such as for the horseshoe wetlands.
- Improve the trail systems. This will include improving areas of poor drainage or rerouting trails around such areas, improving problems of erosion through surfacing or rerouting and constructing railings or barriers as required to prevent the spread of erosion and trampling problems.

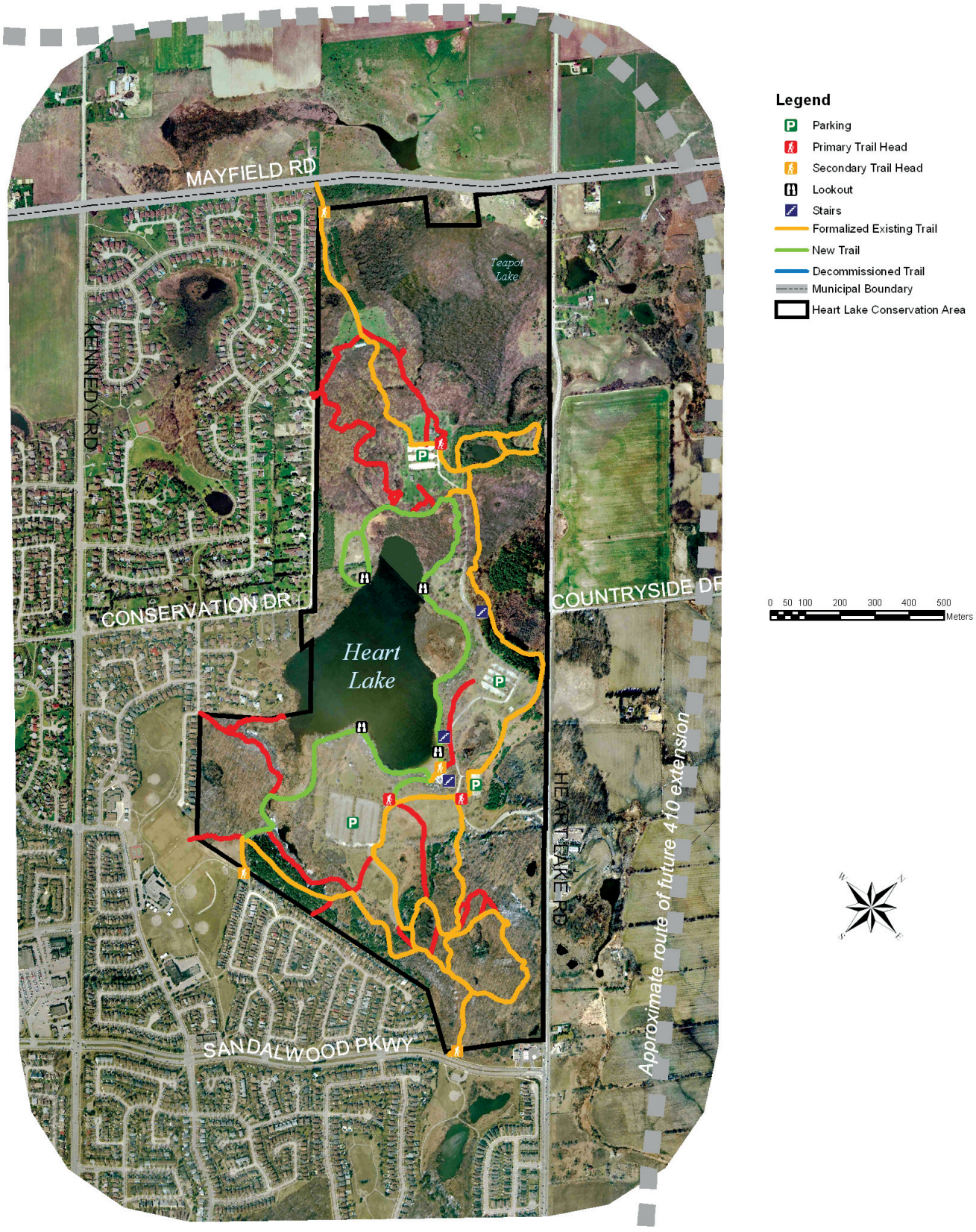
Phase 3 – 2009:

- Monitor, maintain and review all trail systems and amenities.

6.5.4 Monitoring and Review

The trail plan provides initial recommendations for development and management. As implementation occurs and uses change, the plan should be monitored and reviewed. Monitoring and a review of the trail system within the HLCA should be conducted on a yearly basis to assess the success of implementation objectives, trail use and quality. Monitoring and review of the trail plan should be conducted at a minimum of every three years, or as deemed necessary be managers, staff, the Stewardship Committee and partners.

MAP 6.2: Trail Status, HLCA



6.6 Trail Design Standards

6.6.1 Terminology and Definitions

The profile of a typical trail shows the basic components that compromise the user zone for any trail type (see Table 6.1).

Table 6.1: Definitions of Basic Trail Components

TRAIL COMPONENT	DESCRIPTION
Clearing Width	The dimension measured across the trail from which all vegetation, rocks or other obstructions are removed so as not to obstruct movement along the trail.
Clearing Height	The vertical dimension that must be cleared of all branches that would otherwise obstruct movement along the trail.
Tread Width	The horizontal dimension across the trail that provides adequate space for comfortable and safe movement.
Tread	The travelled portion of the trail right-of-way (ROW) typically sloped or crowned to shed water.
Drainage	Provision of methods to manage excessive water runoff (ditch, dip, waterbar, culvert, French drain, etc.).
Clearing Limits	Point at which the disturbance to the natural environment is limited. Defines the trail ROW.

6.6.2 Trail Standards

TRCA's *Trail Planning & Design Guidelines: A Handbook for an Inter-Regional Trail System in the Greater Toronto Area* (1992) provides trail standards and guidelines for the development of trails at HLCA. The following are the general design standards and guidelines for each of the trails. (Note: These are general standards and are not intended for construction. Each trail should be designed based on its type, level of use and specific site conditions.)

Heart Lake and Terry Fox Forest Trails (pedestrian only)

The Heart Lake and Terry Fox Forest Trails will be built to the hiking trail design standards of TRCA (see Figure 6.1).

Figure 6.1: Trail design standards for hiking trails

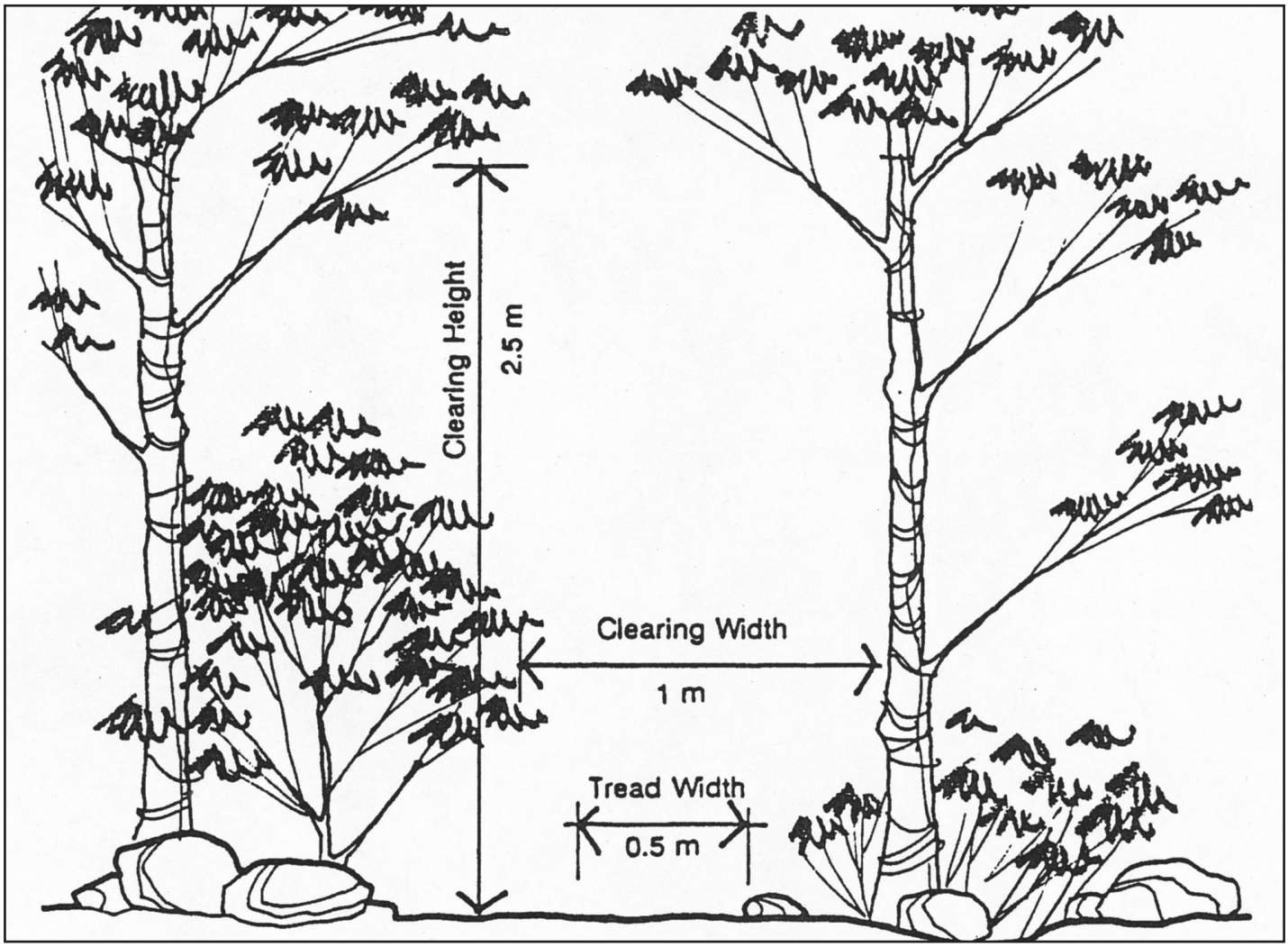
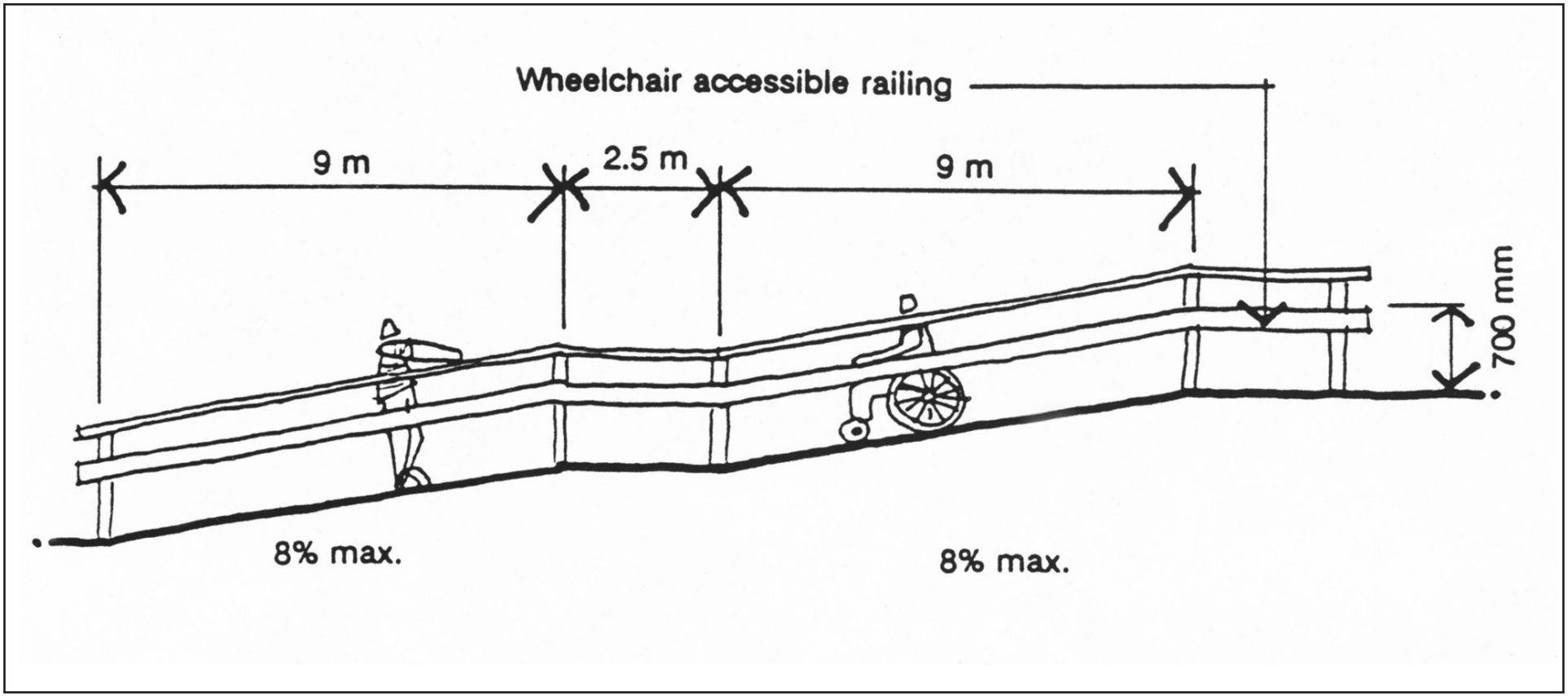


Figure 6.2 Trail design standards for universal access multi-use trails



General Design Standards – Minimum

- Clearing Width: ..... 1 metre
- Clearing Height: .....2.5 metres
- Tread Width:.....0.5 metres
- Tread Surface: ..... natural terrain
- Desirable Grades: 0-20%
- Maximum Sustained Grade:.....25%
- Form: .....linear or loop

Minimum trail standards for a hiking trail provided for a low to moderate level of use is a cleared ROW with minimum grubbing and no special tread surface (i.e., a natural trail). Although multi-use trails generally allow for a natural system of habitat patches, trails may contribute to a reduction in the quality of the natural system. Therefore, careful trail planning, including decommissioning trails which are inappropriately located, is recommended to protect the numerous sensitive areas at HLCA.

Peel and Esker Trails (multiple users)

The Peel and Esker Trails are designated for multiple users. As such, hiking, walking, cycling and other non-motorized activities permitted at HLCA may be enjoyed on these trails. The trails will be designed according to TRCA's combined use trail standards for rural and/or low intensity use areas.

General Design Standards – Minimum

- Clearing Width: .....4.0 metres
- Clearing Height: .....3.0 metres
- Tread Width:.....3.0 metres
- Tread Surface: .....compacted stone fines
- Desirable Grades: 0-3%
- Maximum Sustained Grade:..... 6%
- Form: ..... linear, loop, stacked loop, and satellite loop

Rayner Trail (universal access)

The Rayner Trail will be built to the universal accessibility trail guidelines of TRCA (see Figure 6.2).

General Design Standards – Minimum

- Clearing Width: .....3.0 metres
- Clearing Height: .....3.5 metres
- Tread Width:.....1.5 metres
- Tread Surface: ..... limestone screening
- Desirable Grades: 0-5%
- Maximum Sustained Grade:..... 8%
- Form: .....loop or satellite loop

6.7 Trail Impacts and Mitigation Techniques

The major sources of disturbance to the environment include clearing of the trail route, human contact with wildlife, soil erosion, trail side trampling and shortcutting. Key potential causes of disturbance and their recommended mitigation methods are listed below.

6.7.1 Clearing the Trail Route

Clearing the trail refers to the actual creation of a trail according to the above-noted trail design standards. It may also refer to amendments and repairs to existing trails. Correctly routing the trail and implementing trail construction and clearing will help eliminate many of the potential impacts caused by clearing. Of course, clearing by its very nature will always result in some impact, but the type and extent of impact can be controlled through careful planning, design and implementation.

Recommendations

- Route the trail to avoid important ecological elements, cultural features, rare plants and important habitat zones.
- Strictly control the limit of disturbance to within the defined ROW zone.

6.7.2 Human Contact

Wildlife species and plant communities have different environmental levels of tolerance to human activity that could result in abandonment of habitats or ecological imbalances. As a result, trail routing and accompanying signage should focus on preventing disturbance to sensitive or rare species through avoidance of associated habitats. Education and proactive approaches such as signage and positive interpretation can also help ensure that interactions between humans and wildlife within the HLCA are positive.

Recommendations

- Ensure that detailed trail routing is conducted both on site and using detailed natural heritage mapping to route trails appropriately for species of concern, interior forest, ESAs and other natural features.
- Erect signage and provide interpretive sites along the trail to encourage viewing opportunities that are safe for both humans and wildlife and minimize the potential negative impacts of human contact with wildlife.
- Decommission trails that currently travel through ecologically sensitive areas, including interior forest habitat and other areas deemed ecologically sensitive through the natural heritage approach.
- Apply all of the above recommendations to aquatic as well as terrestrial habitats within the HLCA.

6.7.3 Environmental Impacts Created by Overuse

Environmental impacts caused by overuse can include trampled vegetation, slope erosion, soil compaction, increased root exposure and trail widening around wet areas. These impacts can negatively affect the surrounding natural area and features

over time. The result is a spreading, compacted trail system that not only affects the ecological quality of the surroundings, but also negatively affects the user experience.

Recommendations

- Avoid important habitat zones.
- Favour the natural environment where there is a question regarding specific impacts.
- Locate activities for large groups and noisy recreational activities 100-200 metres away from ESAs.
- Avoid the use of large-scale equipment for construction and schedule construction operations at times that do not conflict with critical phases of seasonal wildlife.
- Provide limited access to sensitive habitat areas through small tributary trails and then only when kept to an acceptable level as determined by qualified TRCA staff, or discourage completely.
- Develop viewing stations to allow visitors to view sensitive areas from suitable distances.
- Control use by turning tributary trails into dead ends to minimize flow-through circulation.
- Design tributary trails to be suitably difficult to encourage only serious users. Lessen trail width and, where applicable, downgrade the trail surface. This will provide an immediate message to the user.
- Monitor trail condition throughout the year and relocate trails as required.
- Restrict access to specific areas during critical seasons of the year and, where necessary, close trails during spring melt or other significant weather events to prevent damage and reduce risk to human safety.

6.7.4 Soil Erosion

Erosion is the natural process through which soil and rock are worn away by wind and water. Trail erosion can be accelerated by a combination of users, water and gravity. When left unmitigated, erosion can destroy a trail and damage the surrounding environment (IMBA 2004).

Erosion affects functional utility, safety, ecological balance and aesthetics. The effects include loss of topsoil, root exposure, stream sedimentation, contaminations of water supplies, and slides and slumping. Erosion is caused by erosion-susceptible soils (especially when wet), excessive removal of vegetation, excessive compaction due to trampling, uncontrolled surface runoff, and improper installation of bridges and culverts. Erosion is often a problem on steep grades. When runoff water concentrates, it cuts into the soil. This forms single or numerous channels referred to as gullies. The development of gullies is common on steep slopes where there is concentrated water runoff (IMBA 2004).

The HLCA has a significant number of groundwater discharge areas. These areas tend to remain wet year round, thus making them particularly sensitive to erosion from

trail use. Trails should be planned and designed accordingly with boardwalks and other construction features offering possible solutions to minimize impacts from trails.

Recommendations

- Locate trails where soils are most resistant to erosion.
- Use tread surfacing or bridging to protect soil. Provide dry walking surfaces in wet areas or poor soil conditions, particularly in groundwater discharge areas.
- Ensure proper control of drainage on sloping trail sections by use of waterbars or culverts. Cross-slope the tread in the direction of the natural grade.
- For areas in and out of a valley only, locate trails diagonally across slopes rather than directly down the face of a slope, at an angle that will sufficiently lower the trail grade to a suitable level.
- For low use hiking trails, incorporate natural trail dips into the trail surface to divert drainage at frequent intervals of 50-75 metres.
- Install "waterbars" to provide trail crossings for runoff where cross slope and grade dips are inadequate. Generally, a waterbar will provide a more efficient means of drainage where the grade along the length of the trail is less that 2 per cent, thus minimizing ponding.
- Use switchbacks on steep slopes to maintain optimum grades.
- Slope cross section of tread a minimum of 2 per cent to direct small amounts of water across the trail surface.
- Intercept excessive runoff with ditches and a central crown and provide periodic crossings of culverts to minimize runoff build-up.
- Maintain vegetation as close to the trail edge as possible to stabilize soil and encourage percolation of water into the soil.
- Ensure proper siting and design of culverts and bridges to provide for adequate peak drainage flows. Minimize disturbance to stream beds and banks; locate on straight sections of streams parallel to flow. Construct bridges as they are more suitable than culverts for large streams.

6.7.5 Trail-Side Trampling

Damage to vegetation and soils occurs when users wander off trails. This happens due to overly narrow trails, overuse, ill-defined trail edges and difficult or unsafe trails (muddy, eroded, blocked, subject to mud slide, etc.).

Recommendations

- Provide trail widths that can accommodate expected traffic volume based on design standards.
- Provide widenings where people are likely to gather (viewing points, features of interest, interpretive displays, etc.).
- Raise the trail tread by using boardwalks.
- Restrict use to optimum levels through management controls such as signage or temporary closures.
- Perform frequent checks to ensure that deadfalls do not block or obscure trails.

- Use logs, branches and rocks to mark trail edges wherever problems occur in keeping users on trails.
- Designate travel routes for maintenance vehicles within the HLCA. Keep vehicles off sensitive terrain and non-designated routes.
- Consider applying special tread surfaces to routes designated for maintenance or emergency vehicle access to reduce compaction and erosion problems.

6.7.6 Shortcutting

Damage to vegetation and soils occurs when users wander off trails. This happens if trails are too difficult or unsafe, if the user is attracted to an interesting feature off trail, or if an easier route is visible.

Recommendations

- Use natural features such as land form and vegetation to block or screen potential shortcut routes. Placing rocks or planting shrubs provides a suitable natural deterrent.
- Restrict construction of switchbacks to only the most essential circumstances as these provide ample opportunity for shortcutting and will generally require numerous introduced deterrents such as planting or rock placement.
- Locate switchbacks with dense vegetation or rough ground between to eliminate the need for constructed barriers.
- Build in rough steps with boulders or logs on switchbacks to channel shortcutting traffic along a predetermined route.

6.8 Trail Construction

In addition to the impact yielded by on-going use, the actual trail construction process results in various impacts to the environment. These can include pruning, removal of vegetation and soil compaction caused by construction machinery traveling repeatedly over the same access route. Great care must be taken to control direct and indirect impacts during the construction process. Work done on existing and new trails should be completed to minimize the amount of disturbance to the site.

6.8.1 Timing

Timing of construction is important.

Recommendations

- Avoid construction during wet/rainy periods and nesting/breeding seasons to minimize impact.

6.8.2 Clearing

The clearing operation refers to cutting of trees and to removing all materials that may obstruct movement along the trail, thus creating a potential hazard. Prior to clearing, a tree impact assessment will be completed to describe the trees, numbers, species, condition and location. The assessment will ensure appropriate trail routing

with acceptable environmental impact. Large trees will be felled and stumps will be cut off flush, or preferably below grade, and removed completely from the trail. Complete flush-to-grade clearing will generally occur on the tread surface, while the rest of the cleared right-of-way (ROW) will only see the removal of trees and large shrubs. Smaller shrubs and groundcover will remain.

Recommendations

- All natural wastes should be removed from the site and disposed of properly. Natural materials can be left on site but spread out so as not to cause a fire hazard.

6.8.3 Surfacing

The existing grade should not be unnecessarily disturbed to obtain a trail base, especially on flat, solid ground. Minimum disturbance will provide the best natural image for the final product. When native soil is not a suitable tread surface to carry a specific user or does not provide adequate support, special tread surfaces can be provided. The surfaces should provide an appropriate level of comfort and safety for the user and should be constructed to blend in with the surrounding environment.

A mulch-type surface (bark/wood chips) is attractive and compatible with the natural environment, but does not compact well. It is therefore not suitable for heavy-use foot traffic, or multi-use trails.

Recommendations

- Wood chips should be placed on the trail in sections where root exposure is extreme or drainage is a slight problem.
- Where wood chips are required they should be laid down the width of the tread at a depth of 50-75 millimetres. Chips should be no larger than 50 millimetres by 10 millimetres thick. Subgrade preparation is generally not required for this application.

6.8.4 Boardwalks

The boardwalks should be constructed on site. Generally, the construction involves untreated timber and planking fixed on timber posts, large flat rocks or concrete piles. A variety of configurations are possible depending on whether the boardwalk is a simple walkway or a lookout platform, and whether it overhangs a slope or a water body. Boardwalk construction should consider the level of use and the potential for vandalism, and should be constructed to withstand both as best as possible. The construction technique for a particular application should conform to local building codes.

Recommendations

- Where drainage becomes a safety concern, boardwalks should be used. Boardwalk construction or improvements are required in a number of locations along HLCA trails.
- A detailed site assessment should be conducted prior to construction.

6.8.5 Barriers

Barriers can be constructed from a variety of materials including rock, timber or steel. Care should be taken to choose a material and appropriate barrier to meet safety requirements while still being able to blend into the natural landscape. "Green" barriers may also be suitable in certain situations (i.e. hawthorn, raspberry bushes, etc.).

Recommendations

- Barrier construction may be required in certain locations in HLCA, such as the proposed Heart Lake Trail to ensure public safety along the lake edge.
- Natural barrier construction will be required along the northern section of the Peel Trail to deter trail users from venturing off the trail into sensitive habitat.
- Careful assessments of all potential barrier sites should be conducted prior to constructing or establishing any barrier.

6.9 Signage

Trail signs are an important element that enhances the trail experience and provides guidance to the user. Signs provide four major functions:

- Identification
- Direction
- Regulations
- Information/Interpretation

Sign location is critically important. All signs should be placed so that they face the anticipated direction of traffic, are unobstructed by vegetation, and are easy to read and understand. The colour and scale must be compatible with the site conditions and the mounting height should fit the specific user.

6.9.1 Primary Trail Head

There should be three primary trail head locations for HLCA, including:

- Gate house at the main entrance to HLCA. This area will be used as a trail head for times when the gates are locked, or for visitors choosing to start a hike from this point.
- Access road to Heart Lake beach from the park road, next to Birchview picnic sites.
- Lakemount parking area, near the waterplay facility.

The facilities that should be provided at the primary trail head include:

- Parking
- General signage with identification, direction, regulations and information about trail length, time and difficulty

- A fully integrated map depicting all named trails and locations of markers along each trail for emergency response.

6.9.2 Secondary Trail Head

There should be two secondary trail head locations for HLCA, including:

- At the southern edge of HLCA, where the Peel Trail enters the park from Sandalwood Parkway
- At the northern edge of HLCA, where the Peel Trail enters the park from Mayfield Road

Necessary facilities at the secondary trail heads include general signage information with identification, direction, regulations and information about trail length, time and difficulty.

6.9.3 Trail Map and Guide

A trail map and guide should be developed and made available to trail users at trail head locations, public buildings and the TRCA web site. Links to the TRCA site from the City of Brampton, Town of Caledon and Region of Peel web sites should be developed. Information should include:

- Location of formal trails, points of interest and rules of conduct for trail use ("take nothing but pictures and leave nothing but footprints")
- Interesting features and facts about the natural and cultural heritage of the area, cross-referenced to numbered sign posts

6.9.4 Interpretive Signs

Interpretive signs should be incorporated into the sign program at a few key locations to:

- Highlight natural and cultural heritage facts and features
- Increase public awareness of conservation
- Increase public appreciation of and respect for natural and cultural resources

Recommendations

- Install an interpretive sign at the fishing node on the northwest shore of Heart Lake. This sign should include partners' logos and some interpretive information about the fish species in Heart Lake and appropriate fishing practices. Include pictures that identify the fish species found in Heart Lake and the fishing seasons of those species. This will help the less knowledgeable angler identify which fish they can keep and which should be put back into Heart Lake.

6.9.5 Trail Markers

Trail markers with distance indicators provide reference information for trail users and emergency response personnel.

Recommendations

- All formal trails should include a trail locator system such as a series of distance markers along the trails to locate and orient trail users.

6.10 Trail Management

Environmental concerns identified in this study include the need for trail rehabilitation and/or closure. Measures such as the rerouting of trails, trail edge definition and structures will help to protect sensitive areas.

A Trail Implementation Sub-Committee of the HLCA Stewardship Committee should be established to report to TRCA about ongoing trail management and maintenance.

6.10.1 User Management

Trail operation involves managing the type, volume and season of trail use to achieve the goal and objectives for trail development and management. The elements of user management include monitoring volume of use, type of use and effects of use on the trail management objectives; implementing trail restrictions; and informing users through newsletters, brochures, maps and signs of the types and levels of use intended for the trail.

6.10.2 Managing Trail Use

Restricted use may be necessary on trails where there is concern for safety, significant conflicts, unacceptable resource damage or when operation and maintenance costs are excessive due to overuse, type of user or seasonal conditions. The trails should be actively monitored and closed as required to protect the environment.

In the case where trails are to be decommissioned, several practices can be adopted:

- Frequent patrolling of trail by maintenance and/or security staff or responsible user groups.
- Remove trail signage or interpretive posts; remove bridges or other access features; allow natural regeneration of the trail; erect barriers (plantings, fences, gates or natural stone blocks); erect positive signage describing the reasons for the closure; and where possible describe nearby alternatives.
- The decommissioning of trails, especially well established, long-term trails, can result in negative reactions from user groups. For this reason, it is important that the process be open and involves public outreach and education. A key group to assist in this work will be the HLCA Stewardship Committee, along with local hiking, cycling or trail groups.
- In cases where trail uses are to be restricted, such as restricting bicycle use while permitting pedestrian use, providing barriers may help restrict the former while allowing the latter access. The decision to erect barriers, in addition to signage in this instance should be carefully considered and analyzed, and any barriers erected must be frequently monitored to ensure that the barrier is successful. In this instance, monitoring will involve determining whether or not the undesired use is in fact being restricted, or whether users are simply creating new trails or access areas.
- Advisory restrictions include posting of notices to warn users of ongoing maintenance works, fallen trees or other natural conditions that potentially

restrict trail use. Positive signage communicates a "good host" image and explains why a particular behaviour is requested. Negative signage should be avoided.

- Community involvement and support for prohibitions prior to taking action will help in enforcing restrictions. Notices of restrictions should be shown on maps as well as newsletters and trail guides.

6.11 Maintenance

A well-designed and constructed trail system is the foundation for many enjoyable years of walking, hiking and cycling. To keep the trails safe, functional and attractive through the years, a routine maintenance program is necessary. Maintenance should be carried out on a regular basis by TRCA staff with the help of the Stewardship Committee to prevent the trails from falling into disrepair.

6.11.1 Surface Treatment

The material on top of the trailbed can provide the desired tread, thereby minimizing the impact of the user on the trailbed and surrounding flora. The three most important factors to consider when providing a special tread surface are firmness, evenness and dryness. Surface treatments can be used to lessen the compaction of soil, provide a dry surface for users, and prevent potential erosion and abrasion. Trails can be surfaced with asphalt, a boardwalk, dirt, rock, gravel, sand, mud, snow, grass and other substances, depending on the user group and their needs (IMBA 2004; TRCA 1992).

A firmer tread and even grades are generally required on trails travelled by bicycles, those with mobility problems and for persons using wheelchairs. Strength of the tread and the underlying soil becomes a factor on trails travelled by maintenance vehicles (TRCA 1992).

Recommendations

- Fill low spots with native soil or woodchip mulch.
- Where root exposure is hazardous, cover with mulch to protect the roots from further damage.

6.11.2 Erosion

As mentioned in Section 6.7.4, erosion affects functional utility, safety, ecological balance and aesthetics. Minimizing and mitigating erosion is important to keeping the trails at HLCA in good working order.

Recommendations

- Monitor trails for erosion damage.
- Fill channels eroded through trails with appropriate compacted material.
- Give prompt attention to serious damage while diverting trail traffic for safety reasons.

- During periods of snow melt or heavy rain fall, such as in spring and fall, close certain trails to minimize damage to trails and risk to human safety.

6.11.3 Litter Removal

A common phrase among hikers is "Take only pictures; leave only footprints." The latter half of this motto applies well to the idea of trash on trails. As more people use the trails at HLCA, there is a greater potential for litter along the trails. While not every trail user will follow the idea of leaving only footprints, the provision of waste receptacles along the trails and at trail heads will help to reduce the trash that lies along the trails and their surroundings.

Recommendations

- Discourage littering though the provision of sufficient and properly located waste receptacles. Receptacles should be located at all parking, access and trail head locations and in areas that will receive higher traffic and that will likely be used as rest stops. Receptacles should be durable and secured to minimize the risk of vandalism and damage.
- Ensure that garbage left along the trails by users or blown in from adjacent properties is picked up on a regular basis.
- Check for garbage periodically, especially in high use areas.
- Separate bottles and tin cans from other garbage for recycling.
- If excess litter becomes a problem, consider organizing clean-up days and providing scavenger-proof disposal bins at access points and trail heads.

6.11.4 Invasive Vegetation Control

These plants include dog-strangling vine, purple loosestrife, garlic mustard, European buckthorn, dame's rocket, Norway maple, Manitoba maple, Russian olive and Japanese knotweed.

Recommendations

- Mechanical methods (digging/hand-pulling) may be useful in controlling or eradicating small infestations, and preventing the establishment of new colonies in unaffected areas. However, many invasive plants are very resilient and can withstand several years of top-growth removal.
- TRCA and the Stewardship Committee should research the application of herbicides.

6.11.5 Pruning and Trimming

All pruning and trimming of trees along trail routes shall be subject to the standards and guidelines established in TRCA's Policy for Managing Hazard Trees and the associated Operational Procedures for Managing Hazard Trees.

Recommendations

- Remove major limbs or trees adjacent to the trail that are in poor condition.
- Remove branches, limbs and any other debris on the trail tread. These can be piled to encourage wildlife use or used as trail edges.

- Using pruners or loppers, prune back branches leaning into the trail ROW and prune off at ground level any woody sapling growth in the ROW.
- Conduct sensitive vegetation control on a semi-regular basis. This is necessary to ensure that the path is not crowded or blocked while maintaining natural character along the path edge.

6.11.6 Windfalls/Hazard Tree Removal

Hazard tree removal along trail routes shall be subject to the standards and guidelines established in TRCA's Policy for Managing Hazard Trees and the associated Operational Procedures for Managing Hazard Trees.

Recommendations

- Monitor trails for fallen trees, limbs and debris, and coordinate their removal as soon as possible.
- If material cannot be removed immediately, eliminate dangerous hanging branches and trunks or "leaners." Cut a path through fallen tree debris to allow user thoroughfare and leave remainder in place. Extra debris in the ROW may be cleaned up at a later date.
- Leave in place tree trunks that have fallen over pedestrian trails, with the exception of the section of the tree blocking the clearing width of the trail, which will be cut and removed to allow pedestrians to cross.
- Redirect trail users during the clearance work or close the trail to ensure user safety.
- Remove debris entirely in trail head areas. In natural areas, the trunk and debris may be left to encourage wildlife use, but they should be deposited out of sight from the trail.
- Ensure the trail is returned to its intended condition after completion of maintenance. This may involve repairs to the trail surface.

6.11.7 Structures

Trail structures may include bridges, drainage structures, raised trails, stairways, retaining walls and barriers. The first consideration of providing a trail structure is to actually determine the need. Structures are expensive and should only be used where they are essential to retain the level of comfort and safety on the trail. The type of structure should be designed to reflect the natural surroundings. As a general rule, natural materials are best, and if possible, local materials should be used (TRCA 1992).

Recommendations

- Inspect all structures for safety and stability on a yearly basis. A monthly check is also useful for preventing major damage or accident.
- Monitor boardwalk decking and support members on a regular basis. Replace broken or rotting wood immediately.

6.11.8 Signage

Trail signs are an important element that enhances the trail experience and provides guidance to the user. There are four major functional types of signs: identification,

directional, regulatory and interpretive (please refer to TRCA's *Trail Planning & Design Guidelines* for more detail). All signs should be placed so that they face the anticipated direction of traffic, are unobstructed by vegetation and are easy to read and understand. Signs should be mounted at a height appropriate to the specific user (TRCA 1992).

Recommendations

- Check to ensure that signs have not been removed or repositioned. Replace missing signs as soon as possible, even if a temporary sign is required.
- Replace or repair damaged signs as soon as possible to maintain trail quality and direction.
- Evaluate signage on a regular, yearly basis to maintain finish and message quality.
- Straighten and secure posts.
- Install seasonal signs with appropriate sign posts. Remove them promptly when their message is no longer appropriate or necessary.

6.12 Monitoring and Management Systems

An operations system is required to plan, schedule, perform and evaluate maintenance activities. The following guidelines outline the development of such a system. TRCA should encourage user groups to actively participate with the Trail Implementation Sub-Committee in this program.

1. Establish Maintenance Objectives

These may vary from trail to trail depending on traffic flow or special trail features such as ESAs. The major objectives will include (1) ensuring user safety and (2) maintaining the trail and its amenities at a level consistent with the design and planning standards. This may also involve undertaking seasonal trail closures if deemed appropriate through monitoring.

2. Evaluate Trail Needs

This process of making lists of maintenance tasks and seasonal requirements would be required to satisfy the maintenance objectives. It may be determined that certain trails will require closure or seasonal signage as a part of this evaluation of trail needs. These would prevent safety hazards and negative impacts on the trail and surrounding ecosystem due to inappropriate use during certain times of the year (i.e., washouts due to rain or snowmelt).

3. Develop a Maintenance Program

Condense the maintenance tasks and seasonal requirements into a preliminary schedule. Use this schedule to determine the number of crews required to complete the program and the number of staff per crew. With this information, an initial inventory of hand equipment and power equipment, including motor vehicles, can be determined. Of course, the maintenance budget becomes a factor in all these decisions.

4. Establish a Trail Monitoring System

To facilitate prompt repairs along a trail system or to determine if a trail needs additional seasonal maintenance, trails must be monitored regularly. This involves a thorough inspection of the trails, reporting all deficiencies and their location in a log format. Specific tasks can be assigned a code number for ease of reference and execution by staff.

5. Schedule and Record Maintenance

Regular maintenance can be scheduled on a yearly basis. This forms the basic structure of the maintenance program for which labour and equipment can be allocated. However, special maintenance (such as windfalls or vandalism, which are unplanned occurrences) must also be given attention during scheduling. Schedules will become the basis for work orders. As the work orders are completed by staff on the trails, work reports should be kept detailing the tasks completed, time required and work conditions (such as sun, rain, brush, bog, etc.). These work reports should be filed according to each particular trail and can be used to develop activity summary sheets or work standards. Activity summaries should be reviewed every two to three years to ensure that they conform to the work on the trails. The summaries can be used to evaluate efficiency or work crews and create time-efficient maintenance schedules.

6. Maintenance Evaluation

The trail logs and work reports should be reviewed on an annual basis, if not more frequently, to determine excessive trail use, vandalism, damage and environmental degradation. This information must be communicated to trail planning and routing authorities so that they can reassess the trail routes. This evaluation may result in trail closures, upscaling, downscaling or rerouting.

6.13 Vandalism

Trails are subject to many forms of vandalism including the carving, defacing and misuse of washrooms, shelters, benches, picnic tables and trees. Such acts of willful or negligent destruction require both preventive and reactive attention.

Although very little will stop the determined vandal, many techniques deter casual vandalism or bring the vandal to justice. Bollards, posts or gates should be used to control unwanted vehicular access. Semi-regular police patrols can be used to monitor trail sections that are particularly attractive to vandals. Strategically placed lighting will discourage destructive activity. Lighting should be placed at main trail head locations, and associated buildings wherever possible. Also, all lighting should function on motion sensors and be directional – directed downward, lighting only the area associated with the building or trail head. Perhaps the most important effort that should be made in the prevention and apprehension of vandalism is the education of the public. Various media, including television and newspaper as well as educational programs in schools, can raise public awareness regarding the issues surrounding vandalism.

Within parks and along trails, orientation displays can be used to educate trail users about the damages of vandalism. Trail brochures and eye-catching posters can also service similar functions. Outreach programs to children in their classrooms, as well as sponsoring outdoor education programs, allow TRCA to teach respect for the facilities and foster pride in the natural environment. Neighbourhood Watch and other volunteer surveillance programs should be encouraged to reduce vandalism.

When vandalism does occur, the damage should be repaired as soon as possible so it does not encourage further damage. Sanding out carvings on wood structures and painting over graffiti eliminates the instigation for others to repeat the offence. Frequently damaged objects or structures can be made less susceptible to damage or constructed in a manner that involves easy repairs.

If vandals are caught, they should be prosecuted as an example for others. Tolerance of destructive acts resembles an open invitation to repeat the vandalism with impunity. Trail staff should be trained to be aware of the causes and types of vandalism and how to handle a vandalism incident if they manage to apprehend someone in the act. These reactive measures can serve to significantly reduce the acts of vandalism on trails.

6.14 Summary and Conclusions

Through collaboration and consultation with the HLCA Stewardship Committee and the local community, TRCA should implement the proposed trail plan and undertake detailed trail design and implementation plans, management and maintenance of the trail at HLCA.

These recommendations will guide the development of the trail system, as well as the decommissioning of some existing trails and the development of signage, trail markers, interpretive sites and so forth. This plan provides an initial development and management strategy for TRCA-owned properties. It is essential that, as the plan is implemented and uses change, the entire plan should be monitored and reviewed.

CHAPTER

7

PLAN IMPLEMENTATION

It is anticipated that HLCA will become a model of sustainability, achieved through protecting and enhancing the park's natural environment while providing environmental, public use and outdoor education benefits to the community through revenue generation and community stewardship. It is therefore imperative that management of the property follow sound environmental management principles and collaboration with partner municipalities, interest groups and the local community. Appendix F includes a detailed implementation plan for the master plan.

7.1 Master Plan Implementation Schedule

The HLCA Master Plan will require the cooperation of TRCA, the HLCA Stewardship Committee and other partners. Table 7.1 summarizes the major projects for implementation that are developed in this plan. Conservation Parks will lead the implementation of the public use facilities. Conservation Land Planning will lead the implementation of the trail and restoration plans, and lead TRCA's work with the stewardship committee.

In addition, there will be annual costs to maintain the implementation of the master plan. Table 7.2 summarizes some of the annual costs associated with plan.

7.2 Stewardship Committee

This plan contains a variety of detailed management recommendations that were established with the assistance and support of the HLCA Master Plan Advisory Committee. All of the recommendations are important management actions that will protect and improve HLCA. An integral part of HLCA management is the establishment of a working stewardship committee to oversee and participate in the management and implementation of the necessary and numerous plan objectives. The committee would assist with specific aspects such as trails, education and communications. It would also assist TRCA to implement site development, maintenance, environmental protection and restoration activities. Finally, the committee would assist in the monitoring of environmental and public use indicators and of plan implementation.

The master plan recommendations provide a basic framework from which the stewardship committee can begin to operate. While the key recommendations are outlined here, it is anticipated that the committee will undertake a complete assessment of the master plan on a regular and ongoing basis and will establish a thorough priority list. The key directions for the stewardship committee include:

- Review the master plan and establish priorities for implementation.
- Implement a detailed trail plan and develop a trail guide for users.
- Develop detailed restoration plans for all Primary Restoration Zones within HLCA, with priority given to:
    - the former group camp area and road to that area, once Camp Ogada is relocated
    - the north-western and southern shorelines of Heart Lake.
- Develop and maintain a HLCA newsletter and communications plan to raise awareness and inform surrounding communities about the area.
- Negotiate with private landowners in and around HLCA regarding stewardship practices, conservation easements, land donations and sales. Priority should be given to those private landowners who front onto Heart Lake.

Table 7.1: Master Plan Implementation Schedule
Please refer to Appendix F for more detail about development and implementation costs.

Item	Anticipated Implementation Time*	TRCA Lead	Supporting Groups and Funding Partners	Anticipated Cost ($)
Heart Lake Waterplay and Pavilion	Immediate	Conservation Parks	Stewardship Committee	1,492,600
Immediate Projects Sub-Total				**1,492,600**
The Programming and Administration Centre and Area	Short Term	Conservation Parks	Stewardship Committee; City of Brampton; Region of Peel	1,863,610
The Beach House and Beach Area	Short Term	Conservation Parks	Stewardship Committee	350,950
The Bowl Restoration	Short Term	Conservation Land Planning	Etobicoke-Mimico Creeks Watershed Team; Conservation Parks; Restoration Services; Stewardship Committee; Region of Peel	50,000
Trail Development	Short Term	Conservation Land Planning	Conservation Parks; Stewardship Committee; City of Brampton; Region of Peel	547,000
Short Term Projects Sub-Total				**2,811,560**
Skills Development Area	Medium Term	Conservation Parks	Stewardship Committee; City of Brampton	150,000
The Boathouse Area	Medium Term	Conservation Parks	Stewardship Committee	75,000
Lakemount Area	Medium Term	Conservation Parks	Stewardship Committee; City of Brampton	299,200
Group Camp Restoration	Medium Term	Conservation Land Planning	Etobicoke-Mimico Creeks Watershed Team; Conservation Parks; Restoration Services; Stewardship Committee; Region of Peel	100,000
Park Road Improvements	Medium Term	Conservation Parks	Stewardship Committee	200,000
Community Stewardship Area	Medium Term	Conservation Land Planning	Etobicoke-Mimico Creeks Watershed Team; Conservation Parks; Stewardship Committee; Region of Peel	10,000
Medium Projects Sub-Total				**834,200**

Table 7.1: (continued): Master Plan Implementation Schedule
Please refer to Appendix F for more detail about development and implementation costs.

Item	Anticipated Implementation Time*	TRCA Lead	Supporting Groups and Funding Partners	Anticipated Cost ($)
Heart Lake Lodge Area	Long Term	Conservation Parks	Stewardship Committee; Region of Peel	734,150
Remaining Restoration Projects	Long Term	Conservation Land Planning	Etobicoke-Mimico Creeks Watershed Team; Conservation Parks; Restoration Services; Stewardship Committee; Region of Peel	250,000
Long Term Projects Sub-Total				**984,150**
Projects Total				**6,122,570**
Design & Engineering, Contingencies (15%)				**918,386**
TOTAL (taxes not included)				**7,040,956**

* Anticipated implementation times are as follows:

Immediate – funding allocated; implementation imminent
Short Term – funding applications and implementation to begin in one to three years
Medium Term – funding applications and implementation to begin in three to five years
Long Term – funding applications and implementation to begin in five to ten years

Table 7.2: Annual Master Plan Implementation Costs

Item	TRCA Lead	Support Groups and Funding Partners	Anticipated Annual Costs ($)
Stewardship Committee & Newsletter	Conservation Land Planning	Etobicoke-Mimico Creeks Watershed Team; Conservation Parks	50,000
Trail Maintenance	Conservation Land Planning	Conservation Parks; Stewardship Committee; City of Brampton; Region of Peel	50,000
Restoration Maintenance	Conservation Land Planning	Etobicoke-Mimico Creeks Watershed Team; Conservation Parks; Restoration Services; Stewardship Committee; Region of Peel	50,000
TOTAL			**150,000**

- Pursue opportunities for land donations and acquisition for the following parcels of land in particular:
  - Private land holdings with frontage on Heart Lake
  - South of Mayfield Road and west of Heart Lake Road, owned by a private citizen
  - Wetlands east of Heart Lake Road and south of Mayfield Road
  - Hazard lands north of Mayfield Road and west of Heart Lake Road.
- Manage forests with a focus on increasing diversity in plantation areas and improving overall health and diversity of native species.
- Establish a list of volunteers willing to aid in a volunteer program.
- Prepare and install natural and cultural heritage interpretive signs.
- Assist TRCA in implementing the various stewardship programs including the Rural Clean Water Program.
- Develop educational resources and tools for private landowners and visitors.
- Build trail heads with signage and appropriate parking.
- Monitor the trails for invasive plant material and prevent their spread with barriers and other eradication techniques.
- Monitor the presence of noxious weeds and remove as necessary.
- Organize celebration events to increase public awareness.
- Assist TRCA in implementing the Terrestrial Natural Heritage Monitoring Program.
- Secure financial and in-kind resources to undertake the work.

7.3 Agency and Municipal Stewardship

The natural, cultural and recreational resources that exist in HLCA provide benefits beyond the TRCA property boundaries; these resources extend into the surrounding landscape. Therefore, integration with the community was considered throughout the planning process. To support TRCA policies, municipalities and government agencies should be encouraged to have regard for the following recommendations when considering new community design:

- Protect, restore and enhance as many natural open spaces as possible to maintain terrestrial natural habitat connectivity and interior habitats.
- Create publicly accessible trail systems that will connect communities to the City of Brampton trail system, the Town of Caledon trail system and other trails in the Etobicoke and Mimico Creeks watershed.
- Promote private land stewardship that increases awareness about best management practices and creates opportunities to engage landowners in protecting and enhancing HLCA and its valuable resources.

7.4 Private Land Stewardship

HLCA will continue to provide opportunities for outdoor recreation, conservation education and nature appreciation to the surrounding communities. It will also provide many health and economic benefits to the community. Adjacent landowners and users of the TRCA property can help to ensure that the surrounding landscape does not negatively impact the environmental quality of this unique natural area.

Their key roles to fulfill the goal and objectives of this master plan include:

- Plant native species on adjacent lands instead of planting exotic vegetation species, some of which are invasive species, such as purple loosestrife and Norway maple.
- Leash pets on site to minimize disturbance to wildlife and promote "poop and scoop" to prevent pet feces from entering watercourses after rainfall.
- Protect and restore private lands identified for natural area regeneration through the application of TRCA's Terrestrial Natural Heritage approach.
- Participate in a private land stewardship program that assists landowners with agricultural best management practices and preservation of woodlots and other wildlife habitat on their property.
- Participate in TRCA's Rural Clean Water Program.
- Assist with the implementation recommendations of the Walkerton Inquiry's Part 2 Report regarding source protection, particularly for private wells.

All priorities should be reviewed and re-evaluated in terms of their feasibility as needed.

7.5 Public Use

Completion and implementation of the public use and recreation plan and the trail plan, which were developed for this master plan, is critical to ensure the protection of the environment, appropriate public use and user safety. Both plans were developed through extensive consultation with all user groups, and the proposed plans are fully supported. If realized, these plans will help TRCA to increase user enjoyment and protect the environment.

7.6 Safety and Security

Discussions will be held with police and other emergency service providers to identify their concerns and questions regarding accessing the lands for patrol and emergency response purposes. As a result of the land's natural character, many areas are inaccessible by conventional response vehicles, such as fire, ambulance and police vehicles. Special considerations are therefore required, including:

- A trail locator system such as a series of distance markers along the trails to locate and orient trail users
- Geographic integration of the trail location system into the emergency response system of the fire, police and ambulance departments. A fully integrated map depicting all named trails and locations of markers along each trail should be installed at all primary and secondary trail heads
- An emergency response plan for HLCA with involvement from local and neighbouring emergency service providers.

7.7 Endorsement and Maintenance of the Master Plan

As a partnership between the Region of Peel, City of Brampton, TRCA, the HLCA Master Plan Advisory Committee, the Etobicoke-Mimico Creeks Watershed Coalition and the community, this master plan required endorsement from a variety of

groups. The public, local community and HLCA users were informed and consulted throughout the process through newsletters, questionnaires, open houses and public meetings held for each phase of the master plan process. Their concerns, comments and suggestions were heard and integrated into the plan.

The Advisory Committee brought the many interests, issues and insights from the broader community to the forefront of the planning process, and their comments and suggestions were also integrated into this plan. The Advisory Committee has given their full support to the HLCA Master Plan.

At Meeting #05-06, held on June 23, 2006, of the TRCA Board, RES. #A133/06 was adopted as follows:

THAT the Heart Lake Conservation Area Master Plan, dated June 1, 2006, be approved;

AND FURTHER THAT funding for the implementation of the plan be included in the Toronto and Region Conservation Authority (TRCA) capital budget plan for Peel Region, 2007-2011.

The City of Brampton endorsed the master plan on June 19, 2006, respectively.

TRCA and the newly formed HLCA Stewardship Committee will continue to work together towards implementing, maintaining and adapting the plan.

7.8 Plan Review and Amendment

Through the HLCA Stewardship Committee, the master plan will undergo a review every five to seven years. If major revisions are necessary to reflect changing environmental, social or economic conditions, they will only be made after consultation with affected groups and individuals. Revisions of the plan will be consistent with the original stated vision, goals and objectives to protect the natural recreational and educational values of the property.

The master plan identifies Public Use Zones, with uses detailed in the Public Use and Recreation Plan. Any additional uses proposed for these zones will be screened and assessed according to the Strategy for Public Use of Conservation Authority Lands (1995). The HLCA Stewardship Committee will provide input on all such proposals. The screening process for specific public uses will ensure that all proposed uses, facilities and landscape changes are thoroughly examined and designed to minimize disruption and to protect, enhance or restore the natural values of the area.

APPENDIX A FLORA SPECIES LIST

LEGEND

LO Local Occurrence
PT Population Trend
HD Habitat Dependence
SD Sensitivity to Development
TS Total Score

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L1	*Drosera rotundifolia*	round-leaved sundew	4	5	5	5	19
L1	*Eriophorum virginicum*	tawny cotton-grass	5	4	5	5	19
L1	*Kalmia polifolia*	bog laurel	5	5	5	4	19
L1	*Pontederia cordata*	pickerel-weed	5	5	5	4	19
L1	*Vaccinium corymbosum*	highbush blueberry	5	5	5	4	19
L2	*Aronia melanocarpa (A. prunifolia)*	black choke-berry	4	5	5	4	18
L2	*Calla palustris*	water arum	3	5	5	5	18
L2	*Chamaedaphne calyculata*	leatherleaf	3	5	5	4	17
L2	*Coptis trifolia (C. groenlandica)*	goldthread	3	5	5	5	18
L2	*Cornus canadensis*	bunchberry	3	5	5	5	18
L2	*Dulichium arundinaceum*	three-way sedge	3	4	5	5	17
L2	*Gaylussacia baccata*	black huckleberry	5	4	4	4	17
L2	*Maianthemum trifolium (Smilacina trifolia)*	three-leaved false Solomon's seal	4	4	5	4	17
L2	*Nymphaea odorata (incl. ssps. odorata & tuberosa)*	fragrant water lily	4	5	5	4	18
L2	*Vaccinium myrtilloides*	velvet-leaf blueberry	4	4	4	5	17
L3	*Allium tricoccum*	wild leek or ramps	2	3	4	4	13
L3	*Alnus incana ssp. rugosa (A. rugosa)*	speckled or tag alder	3	4	4	5	16
L3	*Anemone acutiloba (Hepatica acutiloba)*	sharp-lobed hepatica	2	4	4	5	15
L3	*Aquilegia canadensis*	wild columbine	2	4	3	5	14
L3	*Bromus inermis*	fringed brome grass	3	4	4	5	16
L3	*Cardamine concatenata (Dentaria lacinata)*	cut-leaved toothwort	2	3	5	4	14
L3	*Carex crinita*	fringed sedge	3	4	4	4	15
L3	*Carex lupulina*	hop sedge	2	4	4	4	14

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L3	*Cephalanthus occidentalis*	buttonbush	4	4	4	3	15
L3	*Ceratophyllum dermersum*	coontail	3	4	5	4	16
L3	*Cicuta bulbifera*	bulblet-bearing water-hemlock	3	3	5	4	15
L3	*Claytonia virginica*	narrow-leaved spring beauty	3	4	4	4	15
L3	*Clintonia borealis*	yellow clintonia or bluebead lily	2	5	4	5	16
L3	*Dicentra canadensis*	squirrel-corn	2	4	5	4	15
L3	*Equisetum sylvaticum*	woodland horsetail	3	3	5	4	15
L3	*Euonymus obovata (E. obovatus)*	running strawberry-bush	3	4	4	4	15
L3	*Gymnocarpium dryopteris*	oak fern	2	3	5	5	15
L3	*Ilex verticillata*	winterberry	3	4	4	5	16
L3	*Iris versicolor*	blue flag	2	5	4	5	16
L3	*Juglans cinerea*	butternut	2	4	4	4	14
L3	*Larix laricina*	tamarack	3	4	4	4	15
L3	*Lemna trisulca*	star or ivy-leaved duckweed	3	4	5	3	15
L3	*Lonicera canadensis*	fly honeysuckle	3	4	3	4	14
L3	*Lysimachia thyrsiflora*	tufted loosestrife	3	3	4	4	14
L3	*Mitella nuda*	naked mitrewort	2	4	5	5	16
L3	*Nuphar variegata*	bullhead lily or yellow water lily	3	4	5	3	15
L3	*Picea glauca*	white spruce	3	5	4	3	15
L3	*Polygonatum pubescens*	downy Solomon's seal	2	4	5	5	16
L3	*Polygonum amphibium (P. natans; P. coccineum)*	water smartweed	2	4	4	4	14
L3	*Polystichum acrostichoides*	Christmas fern	2	3	5	5	15
L3	*Potamogeton natans*	floating pondweed	3	4	5	3	15
L3	*Salix lucida*	shining willow	2	4	5	3	14
L3	*Scirpus cyperinus*	woolly bulrush or wool-grass	2	3	4	5	14
L3	*Sparganium eurycarpum*	giant or great bur-reed	3	4	5	4	16
L3	*Spiraea alba*	meadowsweet or wild spiraea	3	4	4	3	14
L3	*Trillium erectum*	red trillium or stinking Johnny	2	4	3	5	14
L3	*Trillium grandiflorum*	white trillium	1	4	4	5	14
L3	*Viola canadensis*	Canada violet	3	4	4	4	15
L3	*Wolffia borealis*	northern or dotted water-meal	4	4	5	2	15

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L4	*Acer rubrum*	red maple	2	4	2	5	13
L4	*Acer saccharinum*	silver maple	2	2	4	3	11
L4	*Acer spicatum*	mountain maple	2	3	4	4	13
L4	*Actaea pachypoda*	white baneberry	2	3	4	3	12
L4	*Asarum canadense*	wild ginger	2	3	4	3	12
L4	*Betula allegheniensis (B. lutea)*	yellow or curly birch	1	4	3	5	13
L4	*Betula papyrifera*	paper or white birch	1	4	2	4	11
L4	*Boehmeria cylindrica*	false nettle	2	4	4	3	13
L4	*Caltha palustris*	marsh marigold	2	4	3	4	13
L4	*Cardamine diphylla (Dentaria diphylla)*	broad- or two-leaved toothwort	2	3	4	4	13
L4	*Carex hystericina (C. hystricina)*	porcupine sedge	2	3	2	5	12
L4	*Carex intumescens*	bladder sedge	3	4	3	2	12
L4	*Carex lacustris*	lake-bank sedge	3	3	3	4	13
L4	*Carex pseudo-cyperus*	pseudocyperus sedge	1	3	3	4	11
L4	*Carex stricta*	tussock sedge	2	3	3	4	12
L4	*Carpinus caroliniana ssp. virginiana*	blue beech or American hornbeam	2	3	4	2	11
L4	*Carya cordiformis*	bitternut hickory	2	4	4	2	12
L4	*Caulophyllum giganteum (C. thalictroides var. giganteum)*	long-styled blue cohosh	2	3	4	4	13
L4	*Cornus amomum ssp. obliqua*	silky dogwood	3	3	5	2	13
L4	*Corylus cornuta (C. rostrata)*	beaked hazel	2	4	3	4	13
L4	*Cystopteris bulbifera*	bulblet fern	1	4	4	4	13
L4	*Diervilla lonicera*	bush honeysuckle	2	3	2	4	11
L4	*Dryopteris intermedia (D. spinulosa var. intermedia)*	evergreen wood fern	2	4	3	3	12
L4	*Dryopteris marginalis*	marginal wood fern	1	3	3	4	11
L4	*Elymus riparius*	riverbank wild rye	2	2	5	2	11
L4	*Epifagus virginiana*	beech-drops	2	3	4	2	11
L4	*Fagus grandifolia*	American beech	1	4	3	4	12
L4	*Fraxinus nigra*	black ash	2	4	4	3	13
L4	*Galium palustre*	marsh bedstraw	2	2	4	3	11
L4	*Glyceria grandis*	tall manna grass	2	3	4	2	11
L4	*Juncus effusus ssp. solutus*	soft rush	2	4	4	3	13

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L4	*Maianthemus canadense*	Canada mayflower	2	4	2	5	13
L4	*Pinus strobus*	white pine	1	4	3	4	12
L4	*Podophyllum peltatum*	May-apple	2	3	3	3	11
L4	*Populus grandidentata*	large-toothed aspen	2	3	4	3	12
L4	*Quercus macrocarpa*	bur oak	1	4	3	3	11
L4	*Quercus rubra*	red oak	1	4	2	4	11
L4	*Rudbeckia hirta (R. serotina)*	black-eyed Susan	2	4	4	3	13
L4	*Sagittaria latifolia*	common arrowhead	2	2	5	4	13
L4	*Salix amygdaloides*	peach-leaved willow	2	2	5	3	12
L4	*Salix discolor*	pussy willow	2	3	4	3	12
L4	*Scirpus microcarpus (S. rubrotinctus)*	barber-pole sedge or bulrush	2	2	4	3	11
L4	*Scirpus validus*	soft-stemmed bulrush	2	2	5	3	12
L4	*Thuja occidentalis*	white cedar	1	4	1	5	11
L4	*Tiarella cordifolia*	foam-flower	2	3	3	4	12
L4	*Tsuga canadensis*	eastern hemlock	+	4	3	5	12
L4	*Typha latifolia*	broad-leaved cattail	1	4	4	4	13
L5	*Acer saccharum ssp. saccharum*	sugar maple	1	3	0	2	6
L5	*Actaea rubra*	red baneberry	2	3	2	3	10
L5	*Anemone canadensis*	Canada anemone	1	2	2	2	7
L5	*Aralia nudicaulis*	wild sarsaparilla	2	3	2	3	10
L5	*Asclepias syriaca*	common milkweed	1	2	0	1	4
L5	*Aster cordifolius*	heart-leaved aster	1	1	0	1	3
L5	*Aster ericoides ssp. ericoides (Virgulus ericoides)*	heath aster	1	1	2	1	5
L5	*Aster lanceolatus ssp. lanceolatus*	panicled or tall white aster	1	2	2	1	6
L5	*Aster macrophyllus*	big-leaved aster	1	3	2	3	9
L5	*Aster novae-angliae (Virgulus novae-angliae)*	new England aster	1	2	2	1	6
L5	*Athyrium filix-femina var. angustum*	northeastern lady fern	1	3	1	3	8
L5	*Bidens frondosus*	common or devil's beggarticks	1	1	4	0	6
L5	*Carex bebbii*	bebb's sedge	1	2	4	3	10
L5	*Carex blanda (C. laxiflora var. blanda)*	common wood sedge	2	2	0	2	6
L5	*Carex cristatella*	crested sedge	2	2	4	1	9
L5	*Carex radiata (formerly C. rosea)*	stellate or straight-styled sedge	2	2	2	2	8

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L5	*Carex rosea (formerly convoluta)*	curly-styled sedge	2	2	3	2	9
L5	*Carex stipata*	awl-fruited sedge	2	3	2	2	9
L5	*Carex vulpinoidea*	fox sedge	1	2	4	1	8
L5	*Circaea lutetiana ssp. canadensis (C. quadrisulcata)*	enchanter's nightshade	1	1	1	1	4
L5	*Clematis virginiana*	virgin's bower	2	2	1	3	8
L5	*Cornus alternifolia*	alternate-leaved dogwood	2	2	1	2	7
L5	*Cornus stolonifera*	red osier dogwood	1	2	0	3	6
L5	*Crataegus punctata*	dotted hawthorn	2	2	3	3	10
L5	*Dryopteris carthusiana (D. spinulosa)*	spinulose wood fern	1	3	2	2	8
L5	*Equisetum arvense*	field or common horsetail	1	2	1	1	5
L5	*Equisetum hyemale ssp. affine*	scouring rush	2	2	1	2	7
L5	*Erythronium americanum ssp. americanum*	yellow trout-lily	1	3	3	2	9
L5	*Eupatorium maculatum ssp. maculatum*	spotted Joe-Pye weed	1	2	3	3	9
L5	*Euthamia graminifolia (Solidago graminifolia)*	grass- or narrow-leaved goldenrod	1	1	4	1	7
L5	*Fragaria virginiana (incl. ssps. glauca & virginiana)*	wild or common strawberry	1	2	0	2	5
L5	*Fraxinus americana*	white ash	1	2	0	3	6
L5	*Fraxinus pennsylvanica var. pennsylvanica*	red ash	2	2	2	3	9
L5	*Fraxinus pennsylvanica var. subintegerrima*	green ash	2	2	2	3	9
L5	*Galium asprellum*	rough bedstraw	2	2	4	2	10
L5	*Geum aleppicum (G. strictum)*	yellow avens	2	3	2	2	9
L5	*Geum canadense*	white avens	2	2	1	2	7
L5	*Glyceria striata (incl. vars. striata & stricta)*	fowl manna grass	2	2	1	2	7
L5	*Helianthus tuberosus*	Jerusalem artichoke	2	1	2	0	5
L5	*Hydrophyllum virginianum*	Virginia waterleaf	1	2	1	2	6
L5	*Impatiens capensis (I. biflora)*	orange touch-me-not (spotted jewelweed)	1	2	0	2	5
L5	*Juglans nigra*	black walnut	1	1	2	1	5
L5	*Juncus articulatus*	jointed rush	2	2	4	2	10
L5	*Juncus dudleyi*	Dudley's rush	2	2	3	1	8
L5	*Juncus tenuis*	path rush	2	2	1	1	6
L5	*Laportea canadensis*	wood nettle	2	3	2	2	9
L5	*Lemna minor*	common or lesser duckweed	2	2	4	2	10

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L5	*Maianthemum racemosum ssp. racemosum (Smilacina racemosa)*	false Solomon's seal	2	3	2	3	10
L5	*Maianthemum stellatum (Smilacina stellata)*	starry false Solomon's seal	2	2	1	3	8
L5	*Matteuccia struthiopteris var. pensylvanica*	ostrich fern	1	2	2	2	7
L5	*Monarda fistulosa*	wild bergamot	2	2	2	2	8
L5	*Oenothera biennis*	common or hairy evening-primrose	2	1	1	1	5
L5	*Ostrya virginiana*	ironwood	1	3	2	2	8
L5	*Parthenocissus inserta (P. vitacea)*	thicket creeper	2	2	0	1	5
L5	*Populus balsamifera ssp. balsamifera*	balsam poplar	1	2	3	2	8
L5	*Populus deltoides (inc. ssp. monilifera)*	cottonwood	2	1	4	1	8
L5	*Populus tremuloides*	trembling aspen	1	3	1	3	8
L5	*Prunus serotina*	black cherry	1	2	0	2	5
L5	*Prunus virginiana ssp. virginiana*	choke cherry	1	2	0	1	4
L5	*Rhus rydbergii (R. radicans ssp. rydbergii)*	poison ivy (shrub form)	1	2	0	2	5
L5	*Rhus typhina*	staghorn sumach	1	1	2	2	6
L5	*Ribes americanum*	wild black currant	2	3	2	2	9
L5	*Rubus allegheniensis*	common blackberry	2	3	0	1	6
L5	*Rubus idaeus ssp. melanolasius (R. strigosus)*	wild red raspberry	1	1	0	1	3
L5	*Salix eriocephala (S. rigida; S. cordata misapplied)*	narrow heart-leaved or Missouri willow	1	1	3	1	6
L5	*Salix exigua (S. interior)*	sandbar willow	2	1	5	2	10
L5	*Sambucus canadensis*	common elderberry	2	3	2	2	9
L5	*Sambucus racemosa ssp. pubens (S. pubens)*	red-berried elder	1	3	2	2	8
L5	*Sanguinaria canadensis*	bloodroot	1	3	3	3	10
L5	*Scirpus atrovirens*	black-fruited or dark green bulrush	2	2	4	2	10
L5	*Solidago altissima*	tall goldenrod	1	2	0	0	3
L5	*Solidago caesia*	blue-stemmed goldenrod	1	2	4	2	9
L5	*Solidago canadensis var. canadensis*	Canada goldenrod	1	2	0	1	4
L5	*Solidago flexicaulis*	zig-zag goldenrod	1	1	3	2	7
L5	*Solidago gigantea*	late goldenrod	2	1	1	1	5
L5	*Thalictrum dioicum*	early meadow rue	1	3	3	2	9
L5	*Thalictrum pubescens (T. polygamum)*	tall meadow rue	2	3	2	2	9

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L5	*Tilia americana*	basswood	1	4	2	3	10
L5	*Ulmus americana*	white elm	1	4	0	2	7
L5	*Viburnum lentago*	nannyberry	2	3	1	2	8
L5	*Viola conspersa*	dog violet	2	2	0	2	6
L5	*Viola pubescens (inc. vars. pubescens & scabriuscula)*	stemmed yellow violet	2	3	1	2	8
L5	*Viola sororia*	common blue violet	1	2	0	2	5
L5	*Vitis riparia*	riverbank grape	1	1	0	0	2
L+?	*Acer negundo*	Manitoba maple	+?	+?	+?	+?	
L+?	*Geranium robertianum*	herb Robert	+?	+?	+?	+?	
L+?	*Phalaris arundinacea*	reed canary grass	+?	+?	+?	+?	
L+?	*Phragmites australis (P. communis)*	common, giant, or great reed	+?	+?	+?	+?	
L+	*Acer platanoides*	Norway maple	+	+	+	+	
L+	*Alliaria petiolata (A. officinalis)*	garlic mustard	+	+	+	+	
L+	*Arctium lappa*	great burdock	+	+	+	+	
L+	*Arctium minus ssp. minus*	common burdock	+	+	+	+	
L+	*Campanula rapunculoides*	creeping bellflower	+	+	+	+	
L+	*Carex spicata*	spiked or European meadow sedge	+	+	+	+	
L+	*Cirsium arvense*	creeping (Canada) thistle	+	+	+	+	
L+	*Cirsium vulgare*	bull thistle	+	+	+	+	
L+	*Crataegus monogyna*	English hawthorn	+	+	+	+	
L+	*Cynanchum rossicum (C. medium; Vincetoxicum rossicum)*	dog-strangling vine or pale swallow-wort	+	+	+	+	
L+	*Dactylis glomerata*	orchard grass	+	+	+	+	
L+	*Daucus carota*	Queen Anne's lace or wild carrot	+	+	+	+	
L+	*Elaeagnus angustifolia*	Russian olive	+	+	+	+	
L+	*Elymus repens (Agropyron repens; Elytrigia repens)*	quack grass	+	+	+	+	
L+	*Epilobium parviflorum*	small-flowered willow-herb	+	+	+	+	
L+	*Festuca pratensis (F. elatior var. pratensis)*	meadow fescue	+	+	+	+	

TRCA Rank (L1-L5)	Scientific Name	Common Name	LO	PT	HD	StD	TS
L+	*Hesperis matronalis*	dame's rocket	+	+	+	+	
L+	*Hypericum perforatum*	common St. Johnswort	+	+	+	+	
L+	*Inula helenium*	elecampane	+	+	+	+	
L+	*Lonicera x bella (L. morrowi x tatarica)*	hybrid shrub or Bell's honeysuckle	+	+	+	+	
L+	*Lotus corniculatus*	bird's foot trefoil	+	+	+	+	
L+	*Lythrum salicaria*	purple loosestrife	+	+	+	+	
L+	*Malus pumila (M. domestica; Pyrus malus)*	apple	+	+	+	+	
L+	*Myriophyllum spicatum*	Eurasian water-milfoil	+	+	+	+	
L+	*Phleum pratense*	timothy grass	+	+	+	+	
L+	*Picea abies*	Norway spruce	+	+	+	+	
L+	*Picea pungens*	Colorado spruce	+	+	+	+	
L+	*Pinus sylvestris*	Scots pine	+	+	+	+	
L+	*Poa pratensis ssp. pratensis*	Kentucky blue grass	+	+	+	+	
L+	*Potamogeton crispus*	curly pondweed	+	+	+	+	
L+	*Ranunculus acris*	tall buttercup	+	+	+	+	
L+	*Ranunculus repens*	creeping buttercup	+	+	+	+	
L+	*Robinia pseudoacacia*	black locust	+	+	+	+	
L+	*Rosa multiflora*	multiflora or Japanese rose	+	+	+	+	
L+	*Rudbeckia triloba*	brown-eyed Susan or thin-leaved coneflower	+	+	+	+	
L+	*Salix alba var. alba*	white willow	+	+	+	+	
L+	*Salix fragilis*	crack willow	+	+	+	+	
L+	*Salix x rubens (S. alba x fragilis)*	European tree willow	+	+	+	+	
L+	*Solanum dulcamara*	bittersweet nightshade	+	+	+	+	
L+	*Syringa vulgaris*	common lilac	+	+	+	+	
L+	*Taraxacum officinale*	dandelion	+	+	+	+	
L+	*Tussilago farfara*	coltsfoot	+	+	+	+	
L+	*Typha angustifolia*	narrow-leaved cattail	+	+	+	+	
L+	*Veronica officinalis*	common speedwell	+	+	+	+	
L+	*Viburnum lantana*	wayfaring tree	+	+	+	+	
L+	*Viburnum opulus*	guelder-rose/Eu highbush cranberry	+	+	+	+	
L+	*Vicia cracca*	cow, tufted, or bird vetch	+	+	+	+	
pL1	*Pinus resinosa*	red pine	4	5	5	5	19
pL3	*Abies balsamea*	balsam fir	2	3	4	5	14

APPENDIX B FAUNA SPECIES LIST

LEGEND

LO	Local Occurrence	MR	Mobility Restriction
PT(N)	Population Trend (National)	StD	Sensitivity to Development
PT(T)	Population Trend (TRCA region)	AP	Additional Points
HD	Habitat Dependence	TS	Total Score
AS	Area Sensitivity	*	species reported by B. Noble

L-rank	COMMON NAME	LO	PTn	PTt	HD	AS	MR	STD	AP	TS	*
L2	grey tree-frog	2	2	3	2	3	3	5	1	21	B. Noble
L2	marsh wren	4	2	3	2	3	3	4	0	21	B. Noble
L2	northern spring peeper	1	2	3	3	3	2	5	1	20	
L2	wood frog	0	2	3	4	3	2	5	1	20	
L3	American redstart	2	3	2	2	2	2	3	0	16	
L3	American woodcock	0	2	3	2	3	2	4	0	16	
L3	black-billed cuckoo	1	3	2	2	3	2	3	0	16	B. Noble
L3	brown creeper	1	2	2	2	3	3	3	0	16	
L3	brown thrasher	1	4	3	1	2	2	4	0	17	B. Noble
L3	common snapping turtle	1	3	2	2	1	2	4	0	15	B. Noble
L3	Cooper's hawk	2	2	2	3	4	1	2	0	16	
L3	eastern milk snake	3	2	3	1	2	2	4	0	17	
L3	great blue heron	4	2	2	2	3	1	3	0	17	B. Noble
L3	least flycatcher	2	3	3	1	2	2	3	0	16	
L3	northern leopard frog	0	3	2	2	1	2	5	1	16	
L3	pileated woodpecker	1	2	2	3	4	2	3	0	17	
L3	pine warbler	1	1	2	3	4	2	3	0	16	
L3	red-bellied woodpecker	5	1	2	1	2	2	2	0	15	B. Noble
L3	Sora	3	2	2	2	2	3	4	0	18	
L3	Virginia rail	1	2	2	2	2	3	4	0	16	
L3	winter wren	2	2	3	2	3	3	3	0	18	
L3	wood duck	2	1	1	3	3	1	4	0	15	
L3	wood thrush	0	3	3	3	3	2	4	0	18	
L4	alder flycatcher	2	1	2	2	1	2	4	0	14	B. Noble
L4	American toad	0	2	2	1	1	2	4	0	12	

L-rank	COMMON NAME	LO	PTn	PTt	HD	AS	MR	STD	AP	TS	*
L4	common yellowthroat	0	2	2	2	1	2	4	0	13	
L4	eastern chipmunk	0	2	2	1	2	2	3	0	12	
L4	eastern cottontail	1	2	2	0	2	2	4	0	13	
L4	eastern garter snake	0	2	2	1	1	2	3	0	11	
L4	eastern phoebe	1	2	2	2	1	2	1	0	11	
L4	eastern screech-owl	1	2	2	3	1	2	3	0	14	
L4	eastern wood-pewee	0	4	2	1	2	2	2	0	13	
L4	great-crested flycatcher	0	2	3	1	3	2	2	0	13	
L4	great-horned owl	2	2	2	1	2	2	1	0	12	B. Noble
L4	green frog	0	2	2	1	1	2	4	0	12	
L4	grey catbird	0	3	1	1	1	2	3	0	11	
L4	indigo bunting	0	2	2	2	1	1	3	0	12	
L4	midland painted turtle	1	2	2	1	1	2	4	0	13	
L4	mourning warbler	0	2	2	2	2	2	4	0	14	B. Noble
L4	muskrat	1	2	2	2	1	3	3	0	14	
L4	northern flicker	0	3	2	0	1	2	3	0	11	
L4	northern mockingbird	4	2	0	1	1	2	1	0	12	B. Noble
L4	northern rough-winged swallow	3	2	3	2	1	1	1	0	13	B. Noble
L4	red-breasted nuthatch	1	1	1	3	3	2	2	0	13	
L4	red-eyed vireo	0	2	2	1	2	2	3	0	12	
L4	red squirrel	2	2	2	0	1	2	2	0	11	B. Noble
L4	rose-breasted grosbeak	0	2	2	2	3	2	3	0	14	B. Noble
L4	ruby-throated hummingbird	3	2	2	1	1	1	2	0	12	B. Noble
L4	savannah sparrow	0	3	1	2	1	1	3	0	11	
L4	short-tailed shrew	1	2	2	1	2	2	4	0	14	
L4	spotted sandpiper	1	2	3	2	1	1	4	0	14	B. Noble
L4	swamp sparrow	0	1	2	2	1	2	5	1	14	
L4	tree swallow	0	2	2	2	1	1	3	0	11	
L4	white-breasted nuthatch	1	2	1	3	3	2	2	0	14	
L4	white-tailed deer	1	2	2	1	3	1	2	0	12	B. Noble
L4	willow flycatcher	0	4	2	1	1	2	3	0	13	B. Noble
L4	woodchuck	1	2	2	1	2	2	3	0	13	
L5	American Crow	0	2	1	0	1	1	1	0	6	
L5	American goldfinch	0	2	2	0	1	1	1	0	7	

L-rank	COMMON NAME	LO	PTn	PTt	HD	AS	MR	STD	AP	TS	*
L5	American robin	0	1	2	0	1	1	1	0	6	
L5	Baltimore oriole	0	2	2	0	1	1	1	0	7	
L5	barn swallow	0	2	2	2	1	1	1	0	9	
L5	black-capped chickadee	0	1	1	1	1	2	0	0	6	
L5	blue jay	0	4	2	0	1	1	0	0	8	
L5	brown-headed cowbird	0	2	2	0	1	1	1	0	7	
L5	Canada goose	0	1	0	1	1	1	0	0	4	
L5	cedar waxwing	0	1	2	0	1	1	2	0	7	
L5	chipping sparrow	0	2	2	0	1	1	1	0	7	
L5	common grackle	0	3	2	0	1	1	1	0	8	
L5	downy woodpecker	0	2	1	1	1	2	1	0	8	
L5	eastern kingbird	0	2	2	1	2	2	3	0	12	B. Noble
L5	grey squirrel	0	2	2	0	1	2	0	0	7	
L5	house finch	0	2	0	0	1	1	0	0	4	
L5	house wren	0	2	1	1	1	2	1	0	8	
L5	killdeer	0	2	2	1	1	1	2	0	9	
L5	mallard	0	1	2	1	1	1	3	0	9	
L5	mourning dove	0	2	1	0	1	1	0	0	5	
L5	northern cardinal	0	2	1	0	1	2	2	0	8	
L5	raccoon	0	2	1	1	1	1	1	0	7	
L5	red-tailed hawk	0	2	2	1	2	1	1	0	9	
L5	red-winged blackbird	0	2	2	0	1	1	3	0	9	
L5	song sparrow	0	2	2	0	1	2	2	0	9	
L5	warbling vireo	0	1	2	0	1	2	2	0	8	
L5	yellow warbler	0	1	1	1	1	2	3	0	9	
L+	rock dove										
unranked	star-nosed mole										B. Noble

APPENDIX C VEGETATION COMMUNITIES

*** Found only in complex / inclusion

TRCA Rank	Code	Community Units	Local Distribution	Geophysical Requirements	Total Score	Local Rank (2002-01)
L1	BOS2-1	Leatherleaf Shrub Kettle Bog	5	2	7	L1
L1	BOT2-1	Tamarack - Leatherleaf Treed Kettle Bog	5	2	7	L1
L1	SWT3-7	Winterberry Organic Thicket Swamp	5	0	5	L1
L2	FOM3-1	Dry-Fresh Hardwood Hemlock Mixed Forest	5	2	7	L2
L2	MAM3-6	Broad-leaved Sedge Organic Meadow Marsh	4	3	7	L2
L2	MAM3-8	Jewelweed Organic Meadow Marsh	4	3	7	L2
L2	MAS3-12	Swamp Loosestrife Organic Shallow Marsh	5	5	10	L2
L2	SAS1-A	Coon-tail Submerged Shallow Aquatic	5	1	6	L2
L2	SWD6-1	Red Maple Organic Deciduous Swamp	5	1	6	L2
L2	SWD6-2	Silver Maple Organic Deciduous Swamp	5	1	6	L2
L2	SWD6-3	Swamp Maple Organic Deciduous Swamp	5	0	5	L2
L2	SWT3-1	Alder Organic Thicket Swamp	3	0	3	L2
L2	SWT3-4	Buttonbush Organic Thicket Swamp	5	0	5	L2
L2	SWT3-A	Spiraea Organic Thicket Swamp	4	0	4	L2
L3	CUT1-F	Silky Dogwood Cultural Thicket	5	1	6	L3
L3	FOD4-I	Dry-Fresh Red Maple Deciduous Forest	4	0	4	L3
L3	FOD7-4	Fresh-Moist Black Walnut Lowland Deciduous Forest	5	0	5	L3
L3	FOD9-1	Fresh-Moist Oak - Sugar Maple Deciduous Forest	3	3	6	L3
L3	FOM5-1	Dry-Fresh Paper Birch Mixed Forest	4	1	5	L3
L3	FOM5-2***	Dry-Fresh Poplar Mixed Forest	4	1	5	L3
L3	MAM3-3***	Rice Cut-grass Organic Meadow Marsh	2	1	3	L3
L3	MAM3-9	Forb Organic Meadow Marsh	3	3	6	L3
L3	MAS3-1A	Broad-leaved Cattail Organic Shallow Marsh	2	4	6	L3
L3	SAM1-2	Duckweed Mixed Shallow Aquatic	4	1	5	L3
L3	SAM1-A	Water Lily - Bullhead Lily Mixed Shallow Aquatic	4	3	7	L3
L3	SAS1-1	Pondweed Submerged Shallow Aquatic	4	3	7	L3
L3	SAS1-4	Water Milfoil Submerged Shallow Aquatic	4	1	5	L3
L3	SWD3-1	Red Maple Mineral Deciduous Swamp	4	3	7	L3

TRCA Rank	Code	Community Units	Local Distribution	Geophysical Requirements	Total Score	Local Rank (2002-01)
L3	SWD3-2***	Silver Maple Mineral Deciduous Swamp	3	3	6	L3
L3	SWM5-1	Red Maple - Conifer Organic Mixed Swamp	3	0	3	L3
L3	SWT3-2	Willow Organic Thicket Swamp	3	0	3	L3
L4	FOC2-2***	Dry-Fresh White Cedar Coniferous Forest	2	0	2	L4
L4	FOC3-1	Fresh-Moist Hemlock Coniferous Forest	2	0	2	L4
L4	FOD2-4	Dry-Fresh Oak - Hardwood Deciduous Forest	3	0	3	L4
L4	FOD3-2	Dry-Fresh Paper Birch Deciduous Forest	2	0	2	L4
L4	FOD5-10	Dry-Fresh Sugar Maple - Paper Birch - Poplar Deciduous Forest	2	0	2	L4
L4	FOD5-3	Dry-Fresh Sugar Maple - Oak Deciduous Forest	2	0	2	L4
L4	FOD5-7	Dry-Fresh Sugar Maple - Black Cherry Deciduous Forest	3	0	3	L4
L4	FOD5-9	Dry-Fresh Sugar Maple - Red Maple Deciduous Forest	3	0	3	L4
L4	FOD7-F***	Fresh-Moist Basswood Lowland Deciduous Forest	4	3	7	L4
L4	FOD8-B	Fresh-Moist Paper Birch Deciduous Forest	3	2	5	L4
L4	FOM6-1	Fresh-Moist Sugar Maple - Hemlock Mixed Forest	2	2	4	L4
L4	MAM2-10***	Forb Mineral Meadow Marsh	2	3	5	L4
L4	MAM2-6	Broad-leaved Sedge Mineral Meadow Marsh	3	3	6	L4
L4	MAM2-9***	Jewelweed Mineral Meadow Marsh	2	3	5	L4
L4	MAM3-2	Reed Canary Grass Organic Meadow Marsh	2	2	4	L4
L4	MAS2-1A	Broad-leaved Cattail Mineral Shallow Marsh	2	5	7	L4
L4	MAS3-1b	Narrow-leaved Cattail Organic Shallow Marsh	3	5	8	L4
L4	SWT2-1	Alder Mineral Thicket Swamp	2	0	2	L4
L5	CUH1-A	Treed Hedgerow	1	2	3	L5
L5	CUM1-A	Native Forb Old Field Meadow	1	2	3	L5
L5	CUP1-3	Black Walnut Deciduous Plantation	5	2	7	L5
L5	CUP3-1	Red Pine Coniferous Plantation	2	5	7	L5

TRCA Rank	Code	Community Units	Local Distribution	Geophysical Requirements	Total Score	Local Rank (2002-01)
L5	CUP3-2	White Pine Coniferous Plantation	2	5	7	L5
L5	CUP3-G	White Cedar Coniferous Plantation	3	0	3	L5
L5	CUP3-H	Mixed Conifer Coniferous Plantation	2	0	2	L5
L5	CUT1-A1	Native Deciduous Sapling Cultural Thicket	1	1	2	L5
L5	CUW1-A3	Native Deciduous Cultural Woodland	2	0	2	L5
L5	FOD3-1	Dry-Fresh Poplar Deciduous Forest	2	1	3	L5
L5	FOD4-2	Dry-Fresh White Ash Deciduous Forest	2	0	2	L5
L5	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest	1	0	1	L5
L5	FOD5-2	Dry-Fresh Sugar Maple - Beech Deciduous Forest	1	0	1	L5
L5	FOD6-5	Fresh-Moist Sugar Maple - Hardwood Deciduous Forest	2	0	2	L5
L5	FOD7-2	Fresh-Moist Ash Lowland Deciduous Forest	2	0	2	L5
L5	FOD7-3***	Fresh-Moist Willow Lowland Deciduous Forest	1	0	1	L5
L5	FOD7-a	Fresh-Moist Manitoba Maple Lowland Deciduous Forest	2	3	5	L5
L5	FOD8-1	Fresh-Moist Poplar Deciduous Forest	2	3	5	L5
L5	MAM2-2	Reed Canary Grass Mineral Meadow Marsh	2	0	2	L5
L5	MAS2-1b	Narrow-Leaved Cattail Mineral Shallow Marsh	1	5	6	L5
L5	SWD4-1***	Willow Mineral Deciduous Swamp	1	3	4	L5
L5	SWT2-2***	Willow Mineral Thicket Swamp	1	0	1	L5
L5	SWT2-5	Red-osier Mineral Thicket Swamp	2	0	2	L5
L+	CUM1-b	Exotic Cool-season Grass Old Field Meadow	1	2	3	L+
L+	CUM1-c	Exotic Forb Old Field Meadow	1	3	4	L+
L+	CUP1-4	Hybrid Poplar Deciduous Plantation	2	4	6	L+
L+	CUP2-f***	Hybrid Poplar – Conifer Mixed Plantation	3	5	8	L+
L+	CUP3-6***	European Larch Coniferous Plantation	3	5	8	L+
L+	CUS1-b	Exotic Cultural Savannah	2	2	4	L+
L+	CUT1-c	Exotic Cultural Thicket	4	2	6	L+
L+	CUW1-b	Exotic Cultural Woodland	2	0	2	L+
L+	MAS3-a	Purple Loosestrife Organic Shallow Marsh	5	5	10	L+
L+	SWT3-c	Exotic Organic Thicket Swamp				

APPENDIX D PUBLIC USE AND RECREATION PLAN STUDY

1.0 STUDY BACKGROUND

1.1 Study Background

Heart Lake Conservation Area (HLCA) comprises 169 hectares of greenspace in the Etobicoke Creek watershed and is located in the City of Brampton in the Region of Peel. Toronto and Region Conservation (TRCA) has owned and operated this property since 1957, attracting visitors from across the Greater Toronto Area (GTA) for picnicking and passive recreation uses. The focal point of the conservation area is Heart Lake, a 17.5 hectare naturally occurring lake that is popular for swimming, boating and fishing. The conservation area includes a number of other significant natural features including forests, wetlands, and marshes.

TRCA's Strategic Plan recognizes that "Conservation Parks" have a specific role in delivering recreation experiences in urbanizing areas. HLCA is the most significant ecological asset in the rapidly urbanizing Etobicoke and Mimico Creek Watershed. This asset and its terrestrial and aquatic habitats are under threat from the ongoing re-development of former agricultural lands to urban neighbourhoods. Some areas of the Conservation Area are not suited to recreation, and activities are no longer compatible with the habitat protection objectives for the site. In addition, HLCA is also suffering from the paradox of wanting to provide a quality recreation experience on a limited budget and with aging facilities.

TRCA has embarked on an overall master plan for HLCA to examine the environmental attributes of the property and to determine compatible public uses and appropriate management of the site. The Master Plan is comprised of a Management Plan, a Trail Plan and a Public Use and Recreation Plan.

TRCA's Terrestrial Natural Heritage Strategy, *The Living City Vision* and the *Greening our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks* provide the context and framework for developing the Master Plan for HLCA.

During the first phase of the master plan process, TRCA undertook extensive background studies and terrestrial and aquatic inventories. The Management Plan describes a series of zones within the lands that are derived from an ecological analysis and interpretation of the site and its attributes and objectives for restoration and enhancement. The Management Plan zones provide the basis for resolving design questions related to future public use activities in this significant conservation park.

The Public Use and Recreation Plan is the focus of this study. It is informed by the Management Plan with respect to natural environment objectives and allowable uses within specific zones of the park. It will be used in conjunction with the Management Plan to inform the future development and management of HLCA.

1.2 Study Process

At the outset of the HLCA Master Plan process, an advisory group was established comprised of TRCA staff, local agency and community group representatives, local residents, and representatives from the City of Brampton, Region of Peel and the Town of Caledon. The HLCA Public Use and Recreation Plan was undertaken as a consultative process, engaging TRCA staff, the HLCA Master Plan Advisory Committee, and the public in a dialogue on use issues and site potentials. The study built on preceding work on the Management Plan, and the consultation components were integrated with public review of the Management Plan recommendations.

The Public Use and Recreation Plan study was undertaken in three phases with the following key components of work.

Phase 1: Public Recreation Use Information Gathering and Analysis

- Review of local demographics and recreation trends influencing HLCA
- Review of existing recreation uses at HLCA, and assessment of physical site conditions
- Identification of site issues and opportunities
- Stakeholder workshop (HLCA Master Plan Advisory Committee)
- Preparation of a Phase 1 Summary Report.

Phase 2: Preparation of Conceptual Alternatives

- Evaluation of public use and recreation opportunities
- Preparation of public use and recreation program options and alternative site concept plans
- Review with TRCA and HLCA Master Plan Advisory Committee
- Presentation of Phase 1 findings and concept options at a Public Open House.

Phase 3: Preferred Site Design and Implementation Strategy

- Preparation of the preferred Public Use and Recreation Site Plan
- Review with TRCA Working Group and Advisory Group
- Presentation of the Public Use and Recreation Site Plan at a Public Open House
- Preparation of the Final Public Use and Recreation Plan report, including:
  - Capital cost estimate
  - Implementation and phasing strategy
  - Funding and revenue sources.

2.0 SITE ATTRIBUTES

2.1 Natural Heritage

Teapot Lake and Heart Lake are the only two natural lakes in the Brampton Esker (on which HLCA is situated). Both of these lakes have been identified as kettle lakes, which are depressions in glaciofluvial deposits, formed by the melting of buried blocks of ice during the glacial retreat. Kettle lakes are typically steep-sided, with no surface water inlets or outlets and are predominately groundwater fed. The shallow (perched)

groundwater in the Brampton Esker is believed to flow northward, opposite the flow in the deeper groundwater flow system.

Heart Lake is 17.5 hectares in size and has a maximum depth of approximately ten metres, with an average depth of between five and six metres. A small earthen dam was constructed in 1959 at the original outlet on the south end of the lake to raise the water level.

Although small at 0.7 hectares, Teapot Lake at its centre is 12.6 metres deep. Like Heart Lake, Teapot Lake is sustained predominantly by groundwater from the deep glaciofluvial aquifer and has no surface water inflows or outflows. These attributes have resulted in Teapot Lake being meromictic, or lacking in vertical turnover of the water stratification on a seasonal basis. As a result the bottom sediments are never mixed and contain a complete sediment record of the region over the last 12,000 years (Gartner Lee Limited 2005).

Both Heart Lake and Teapot Lake experience high nutrient loading, with the phosphorus load to Heart Lake more than double that of Professor's Lake and ten times the load of other lakes in Brampton (Gartner Lee Limited 2005). The loading is attributed to the large catchment area of these lakes, which still includes some agricultural lands as well as the immediate forest, wetlands and manicured parklands that comprise HLCA.

Heart Lake has one of the most diverse fish communities of all the Brampton lakes, comprised of several types of warmwater fish species and one coldwater species. The most common species of fish identified in the Brampton City-wide Lake Assessment Study was pumpkinseed, which accounted for over 70% of the observed catch. The study notes golden shiner and central mudminnow as present in Heart Lake, while not identified in any other lake in Brampton. Largemouth bass were also noted as abundant in Heart Lake along with rainbow trout, which are stocked in the lake to support the recreational fishery.

Fish habitat in Heart Lake includes a range of nearshore areas of submergent and floating aquatic vegetation that provide spawning/rearing habitat as well as forage and feeding areas. The beach shoreline at the south end of the lake also provides good spawning habitat for largemouth bass and pumpkinseed, while the deeper and cooler areas of the lake support the stocked populations of rainbow trout.

HLCA supports high-quality forest and wetland plant communities, designated as the Heart Lake Woodland Environmentally Significant Area (ESA) (TRCA 1984). The upland areas support mature stands of sugar maple and red oak, while the lowland areas are dominated by soft maple species. The Heart Lake Woodlands ESA also includes a complex of deciduous swamp and marsh associations. The wetland complex is identified as a Provincially Significant Wetland (PSW). The Ontario Ministry of Natural Resources (OMNR) recognizes HLCA as the Heart Lake Forest

and Bog Area of Natural and Scientific Interest (ANSI), and a significant part of HLCA as the Brampton Buried Esker ANSI (Earth Science) (Varga and Mewa 1998).

Within the forest and wetland areas of HLCA, a number of significant flora and fauna species have been identified, including a heronry at the north end. Teapot Lake is important for both its meromictic characteristics and its rare habitats. Fourteen locally significant plant species were identified in Teapot Lake and the associated near shore habitat, including three uncommon species, nine rare species and one species not known to occur in the Region of Peel. The lake's sensitivities are such that the immediate area is considered off-limits to public uses within the Management Plan. In the near shore areas of Heart Lake, nine locally significant plant species were identified including two uncommon species, six rare species and one species not known to occur in the Region of Peel.

Development of new neighbourhoods to the west has led to the migration of non-native and invasive species into the woodland areas, particularly around the perimeter. There are also pine plantations and remnant orchard areas in association with former farm properties that comprised the land acquisition for HLCA.

2.2 Existing Recreation Facilities and Uses

2.2.1 Beach / Lake

The sand beach at Heart Lake is one of the conservation area's most popular draws. However, the water quality at the lake is frequently poor and there are periodic summer closures. Anecdotal information and recent site observations suggest that it is primarily children that wade or swim in the lake, although local residents historically recall it as a popular swimming place, even for adults.

The beach is accessed by steep wooden staircases on the east and west sides via a trail, and the emergency access road from the central portion of the site. The north end of the lake is accessed by an informal trail system from adjacent picnic areas. A boardwalk has been constructed beginning at the beach along the east edge of the lake for viewing and fishing that links to the trail at the north end. Interpretive signs highlight shoreline restoration efforts.

A beach centre is located lakeside, on the sand beach. The building houses washrooms, changerooms, concession area and office space, although only the washrooms/ changerooms are in use. The building condition is being reviewed as part of this study. However, it is generally known to be in poor shape and is suggested for removal.

Rowboats are offered for rental at the boathouse on the west side of the lake, and fishing is allowed on a day permit basis. The lake is stocked with rainbow trout in the spring and fall to improve the fishing potential. The trout release in the spring is undertaken at the annual PCWF, which is hosted by the TRCA and the Region of Peel. The PCWF attracts thousands of schoolchildren and visitors over a six-day period.

The lake and its facilities are also used annually for one weekend in the fall for the Heart Lake Dragon Boat Festival.

2.2.2 Picnicking

HLCA offers picnicking both informally and through 11 bookable group sites, three of which contain picnic shelters. The picnic sites can accommodate both small groups and gatherings of several hundred people when two or three sites are combined. HLCA is marketed as being able to accommodate group picnicking for up to 5,000 persons. The annual combined attendance at the picnic sites totaled more than 21,000 people in 2005.

Most of the picnic sites are serviced by large parking lots that can accommodate anywhere from 100 to 400 cars. Only one site does not have a parking lot located immediately opposite it. All picnic sites have access to washroom facilities and offer open lawn areas for activities. There is also a children's playground located close to one of the picnic areas.

2.2.3 Ogada Wilderness Centre

The Ogada Wilderness Centre is operated by the City of Brampton on open lands at the north end of HLCA, with a separate entrance off Mayfield Road. The Centre runs year-round, serving up to 10,000 children annually in nature-based, outdoor education and skills development within both summer and school-year programs. The TRCA receives an administration fee per child attending the Ogada programs ($2.25 in 2005).

The Ogada Wilderness Centre has a low ropes/challenge course with removable ropes and nets, and a serviced Quonset hut with several divided rooms including office, first-aid room, open concept staff/kitchen area, storage rooms for outdoor equipment, and a meeting room that can accommodate 100 at tables and benches. The building and ropes course are owned by the City of Brampton. TRCA provided a new two-unit washroom building when facilities were upgraded in the rest of the conservation area that is used in conjunction with two privies.

The facilities and area are also offered to outside groups, for a group camping fee, when not fully utilized by Ogada programs. In the event that the camp moves elsewhere in the conservation area, Ogada would look to replacing these facilities.

PROGRAMS

Summer Day Camp

Offered during July and August, the camp can accommodate up to 150 children. Typical registration is 25 to 50 per week. Older children in the "Survivor" program have a one-night sleepover.

Outdoor Education

Through the school year, the Centre offers one, two, and three-day outdoor education programs for school children. The program is curriculum based and offered in three streams: Education, Adventure, and Team-Building. The primary use of the program is

by kindergarten to grade eight elementary school children with occasional use by high schools. The program operates daily September to November and in May and June; weekly in January, February and March. It does not operate in April and December due to slushy winter conditions.

The Ogada programs include canoeing and kayaking on Heart Lake (using their own boats), orienteering, and nature hikes with snowshoeing offered in winter. Campers do not swim in the lake due to poor water quality and supervision issues and are bused to Loafers Lake recreation centre for swimming in the indoor pool. During the summer camp, participants remain primarily in the north end of the park and do not intermingle within the more public areas of the park, outside of periodic visits to Heart Lake.

2.2.4 Trails and Access Points

There are a series of trails that currently exist within HLCA. A few have been formally developed, but most are random trails throughout the wooded areas. The Management Zones propose formalizing a managed trail system through appropriate areas and closing those in sensitive locations. Although not permitted, many trails are used for mountain biking. There is interest by the City of Brampton in seeing both a north-south trail spine, and an east-west trail developed through the Conservation Area to provide continuous access and to meet the objectives of the City's 'Pathways Master Plan'.

The only formal access point at the Conservation Area is off Heart Lake Road. With the current volume of traffic, the entrance is hazardous for left turns in and out. There is no safe pedestrian route to the entrance gate at this point in time. However, Highway 410 will be extended north of Sandalwood Parkway and Mayfield Road in the near future. This may help to alleviate some of the traffic congestion on Heart Lake Road, thereby allowing for a safe pedestrian access point at the existing formal entrance.

The conservation area is almost fully fenced. However, the fence has been breached in a number of locations on the west side and south side of the park, particularly along the adjacent school properties and at locations throughout the neighbourhood where open space or roads intersect with the park boundary.

The Ogada camp area to the north has a gated, proprietary laneway for its use only off Mayfield Road. However, the existing informal trail system links into this area from the south.

2.3 Cultural Heritage

There are several known pre-historic archaeological sites on HLCA lands, and with the presence of two kettle lakes, there is a high probability of additional sites being discovered. Archaeological investigations within and adjacent to the HLCA indicate human occupation in this area for at least 8,000 years.

There were ten land acquisitions between 1956 and 1982 to comprise the HLCA. The largest acquisition, a total of 64 hectares, was made in 1956 and 1957 and was derived from surrounding farms.

An existing heritage farmhouse is located on HLCA lands at the eastern end of Conservation Drive, where it turns north to parallel the park boundary. The house is situated on one of the properties that was acquired for the conservation area and is currently leased.

3.0 SITE ISSUES AND OPPORTUNITIES

HLCA has supported water-based recreation in the form of swimming, boating, and fishing for almost 50 years. With its burgeoning communities, the City of Brampton has derived great benefits from the lake and its activities. The question for future public use and recreation is "What are the long-term sustainable activities and facilities that are compatible with TRCA's mandate?" TRCA's definition of conservation parks is: *"landscapes capable of providing a broad range of outdoor recreation opportunities supported by the development of facilities and services"*. This definition needs to be tested against the capability of the asset to sustain a growing intensity of use.

One of the main challenges for HLCA is the perception by its neighbours that it is a local park, rather than a conservation area where 70 per cent of the lands are designated as an environmentally sensitive area. With ongoing water quality issues, swimming may not be sustainable in the long term, and other facilities such as a children's waterplay may need to be built to address lost water-based recreation functions.

Although formally closed to vehicular traffic, the park is well used in the winter months for tobogganing and cross-country skiing (when conditions permit) as well as for hiking and dog walking. Although adjacent residents walk in, many arrive by car and park on the entrance road where there is limited space.

Use of trails for mountain biking is an ongoing issue through the rest of the year, creating concern for the sensitive forest slopes. There are opportunities to expand the wooded areas of the site onto the tableland to provide buffers to the slope forests.

There continues to be strong demand at the HLCA for festival and group activities such as picnicking. Many visitors experience the park during special events such as the PCWF, the annual Dragon Boat Festival, school or Scouting events, and the City of Brampton-run summer day camp, Ogada Wilderness Camp. Most of the facilities that support these functions are temporary or seasonal in nature. HLCA would benefit from a more permanent, multi-purpose building that would serve outdoor recreation activities. Such a building could be designed to accommodate day camp activities during the summer months, as well as community group, corporate functions or private rentals. TRCA has several such facilities within their landholdings, and there are other examples in natural environment parks owned and operated by not-for-profit and municipal agencies.

The existing buildings and facilities are aging and require upgrading to support their continued function, as well as future additional opportunities. The Beach Centre occupies a large area of the shoreline and is accessed primarily by steep wooden staircases. Staff

maintenance areas and buildings have been developed in an *ad hoc* fashion and require organization and better attention to environmental issues. Although ostensibly off-limits to the public, the staff area disrupts the desired trail routes that tie into the residential communities to the south.

The Management Plan has identified locations that are suited to more active uses and it is important through the Public Use and Recreation Plan to design these locations to offer expanded recreation activities and/or provide other compatible uses such as specialized trails, nature interpretation, and focal/support areas for festivals.

In Brampton, there continues to be growing pressure for lands that can sustain both passive and active recreation in close proximity to sub-urban areas. The most desirable areas are those with close proximity to residential areas and with attractive natural features as a setting for recreation and leisure. HLCA is situated within the developing northern limits of Brampton with future expansion anticipated to the east in Brampton, and to the north in the new Mayfield West community of Caledon. Public use of the lands for festivals and passive, nature-oriented recreation activities requires supporting amenities such as parking areas, trail heads and washroom facilities. Consideration of new activities and amenity areas will need to ensure compatibility with the conservation park's environmental resources and with the overarching objective to create an ecologically sustainable environment.

Furthermore, there are also opportunities to approach active recreation functions in a conservation park by applying "environment first" principles to facilities and maintenance procedures. This may include designing to recognized sustainable design standards, such as Audubon Certification for site related design, or LEED™ (Leadership in Energy and Environmental Design) standards for any new buildings and facilities.

4.0 RECREATION NEEDS AND OPPORTUNITIES

As part of the Phase One study work, a recreation needs and opportunities assessment was undertaken. The purpose of the assessment was to provide a high-level scan of recreational needs and opportunities and identify considerations that would assist the larger study team and the client to select options for further evaluation. The assessment was prepared as a standalone discussion paper. The findings are summarized in this report.

The recreation needs and opportunities assessment was based on four streams of analysis:

- A review of socio-demographic characteristics of Brampton and Caledon, the two municipalities most directly served by HLCA. The socio-demographic characteristics were documented to determine if they suggest particular recreational needs that might be addressed at HLCA.
- An assessment of leisure trends based on the literature and secondary source information. This assessment was undertaken to track changes in participation

patterns and interests in leisure time activities that may have a bearing on future developments at HLCA.
- A review of other relevant studies undertaken in the area. Master plans and other studies investigating recreational needs were reviewed to identify needs that might be addressed at HLCA.
- Limited discussions with stakeholders and with TRCA staff.

No primary research was undertaken in this component of the study. Comprehensive, statistically accurate survey information was not solicited from HLCA users or residents that might be potential users of the conservation area. However, there was some contact with the stakeholders through the HLCA Master Plan Advisory Committee.

The needs assessment also did not consider the financial implications associated with alternative recreational developments. While capital and operating costs are a consideration, specific costs were not identified or used to select among possible projects.

4.1 Summary of Background Information for the Assessment

The background information compiled for the needs assessment focused on four key aspects:

- Socio-demographic profiles in Brampton and Caledon
- Trends applicable to outdoor recreational activities that might be accommodated at HLCA
- Research on recreational preferences among new Canadians
- Previous recreation studies.

Appendices D1 – D3 include detailed summaries of this information. The implications for HLCA are discussed below.

4.1.1 Socio-demographic Information

The demographic information provides a useful context for the discussion. However, this information can be simply summarized by indicating that there is a wide range of recreational needs that could be accommodated at HLCA that would be entirely consistent with existing and emerging markets. Further, because the population of both Caledon and Brampton is growing rapidly, and HLCA is a unique open space resource in the midst of an expanding urban community, there is considerably more demand than opportunity to meet that demand. Virtually any recreational opportunity consistent with the broad objectives of the TRCA that was provided at HLCA and appropriately managed and promoted would be extremely well used. Indeed, the primary challenge for this plan is not to ensure that future developments have a market but rather to ensure the demands of users do not overwhelm the natural resources of the site and the ability of TRCA to manage new facilities.

HLCA is located next to Brampton's rapidly growing residential communities, home to an increasing number of new Canadians of multi-ethnic backgrounds. Recent census data indicates that almost 40 per cent of Brampton's population notes English as a second language. In the absence of an up-to-date Parks and Recreation Master Plan to provide insight into the City of Brampton's changing recreation needs, limited research was conducted for this study to understand how a multicultural community might influence recreation activities at HLCA.

Although some observations were drawn from the research, the following is noted with respect to the available data:

- Research on the topic of recreation preferences amongst multicultural communities is limited overall and not always relevant because multicultural communities will vary significantly from one country to the next. Much of the American literature is focused on race, with an overwhelming emphasis on Black and Hispanic individuals. This research likely has limited application in Canada. Canadian research is even more limited.
- There is insufficient experience with some multicultural populations to provide a credible basis for longitudinal research. This would generally be the case for new Canadians in the Brampton area. Consequently, it is difficult to draw conclusions relative to assimilation and changing participation patterns in the second and third generation.
- Research is often focused on active recreation and sport and therefore not always applicable to the HLCA situation.

4.1.2 Observations Relevant to HLCA

The following are observations drawn from the research on ethnicity and recreation preferences that may be applied to consideration of activities at HLCA:

- Canadians of Anglo-European descents prefer nature-based, individualistic recreation activities such as walking, hiking, and biking. These individuals are more likely to value time alone, individual activities and participate in outdoor recreation activities for exercise, fitness and fun.
- New Canadians of East and South Asian descent prefer organized passive and social outdoor activities such as picnics, barbeques, and social gatherings. These activities are focused around community and the extended family and they reinforce cultural values, social interaction, language and religion. Large group picnics, festivals, and cultural events would be in highest demand.
- Second generation new Canadians and perhaps older children of first generation Canadians find themselves caught between the conflicting pressures of family and their parent's cultural norms and their peer group. Consequently, there is growing interest in sports and athletics as these individuals attempt to integrate into mainstream society. This is reflected in levels of participation in soccer, cricket, tennis, badminton or other cultural relevant activities that are apparently comparable to or exceed Canadians of Anglo-European descent. There is, however, still pressure from the family to commit leisure time to culturally and socially-focused family activities that are more closely associated with their

ethnic group. This, plus other barriers to participation in "mainstream" sports leagues, may explain the existence of soccer programs within ethnic communities in Brampton that have no relationship or affiliation with the City.

- The literature emphasizes the recreational and social-cultural role that festivals play in the lives of new Canadians by reinforcing ties to language, religion, and culturally significant customs and values. These will continue to be in high demand.
- There is not a great deal of literature specifically focused on outdoor swimming, fishing and boating. Notwithstanding the comments noted above, these activities would appear to be of interest to new Canadians. Nothing would suggest significantly lower levels of interest or participation in these activities.
- Research in Canada shows a strong preference for sport and recreational activities such as swimming, cricket, badminton and soccer among West Asian and Middle Eastern groups. However, these activities are often pursued in the context of larger group family gatherings or events that are specific to their cultural or ethnic group.

In general, these finding would suggest that first generation new Canadians may use HLCA in a somewhat different manner than Canadians of Anglo-European descent, with the former having a stronger focus on picnics, social activities, festivals, etc. and the latter more drawn to walking trails, recreational boating, ropes courses, etc. There is no evidence to suggest, however, that these types of facilities and programs would not be of interest to all potential users of HLCA, whether drawn from the local area or beyond.

4.1.3 Recreation and Leisure Trends

Considerations noted in the research that indicate sustained and growing demand for recreational opportunities at HLCA include:

- Virtually all outdoor recreational activities consistent with natural areas (e.g. walking, hiking, nature appreciation, bird watching, fishing, social gatherings and picnicking) are expected to grow in popularity. Increasing demand will also be positively correlated with age, income and education – all factors that suggest even higher levels of participation in the GTA and the general vicinity of HLCA. Without question, the demand for these recreational opportunities in close proximity to developed urban areas will far exceed the available opportunities.
- Aquatics generally and recreational swimming specifically will continue to be one of the most popular recreational activities in Ontario and, while it will not grow as quickly as some other leisure time pursuits, participation will be sustained. Outdoor opportunities for recreational swimming will likely be less available in the future as municipalities decommission outdoor pools and reinvest these resources in indoor facilities. Similarly, water quality issues will likely contribute to declining outdoor opportunities. Consequently, should outdoor swimming opportunities be expanded or developed at HLCA, they will be consistent with market trends and may increasingly represent one of few opportunities for this activity.

- There is likely to be a renaissance in outdoor educational opportunities that will be founded in a renewed environmental ethic, a new relationship with the outdoors, and a much stronger orientation to adult programming. The focus on outdoor survival skills and curriculum-based outdoor education associated with school children that characterized programs in the past will increasingly be replaced by new initiatives. Demand can be expected for a wide range of educational initiatives aimed at adults with a stronger environmental ethic wanting to incorporate sustainability into all aspects of their lifestyle. There will be growing demand for courses and demonstrations with an environmental focus and associated with gardening, landscaping, home design, energy conservation, etc. While these courses and demonstrations could be offered at a number of venues and are not dependent on HLCA's natural setting, they could be consistent with and complementary to other aspects of the area's development. If appropriate facilities were available, HLCA would also be an attractive venue for corporate retreats for special events, team development, and other such activities.
- In addition to the traditional recreational uses noted above, there are specialized pursuits that could be pursued at HLCA and would be consistent with market trends. Ropes courses continue to be popular for both recreational activities and for programs associated with team building and self-esteem. Other risk or extreme recreational activities, such as rock climbing, are also popular, particularly among the youth.
- Finally, while undoubtedly not the priority use for open space at HLCA, a wide range of active recreation and sport facilities could be accommodated and would be in high demand due to the limited supply of parks and open space areas to accommodate these facilities in developing urban areas.

All of these developments are consistent with growing markets and could be accommodated at HLCA. As noted above, the challenge is to select a recreational use concept that is consistent with TRCA's service and program objectives, the constraints imposed by the site, and financial resources. Significant among site constraints will be available space suitable for development. Many of the identified opportunities – such as an artificial lake or outdoor pool – will require a good deal of land, and likely cannot be accommodated without sacrificing other current uses or the areas that support these uses (e.g., picnic areas and associated parking).

4.1.4 Recreation Planning Studies

As noted above, the City of Brampton has no recent recreational needs assessments that would be relevant to this study, although a Parks, Culture and Recreation Master Plan is currently underway and scheduled for completion in 2006. The Town of Caledon completed a Parks and Recreation Master Plan in 2004, but this primarily dealt with local needs and the recommendations are not directly relevant to this study.

4.2 Considerations Affecting Recreational Needs and Opportunities at HLCA

Table D1 is a recreational opportunities matrix. Opportunities that were identified in initial discussions pertaining to HLCA are listed and for each of these the following considerations are noted:

- Market served – whether the opportunity serves local, regional or special markets. Opportunities that serve local markets are generally not specific or unique to HLCA, would frequently be provided by municipal recreation departments, and would only attract users to HLCA because it is a convenient and accessible location. Opportunities serving regional markets are more unique and specific to HLCA. They also have broad appeal and would attract users from a wide area to participate in a relatively unique recreational experience. Opportunities directed to specialized markets do not have general appeal but would be a unique attraction and draw interested users from a wide area.
- Recreational use concept – the type of recreational experience that is provided by each opportunity varies, as indicated in the matrix.
- Cost and operational considerations – the extent to which capital and operating costs may be high, moderate or low, and the complexity associated with both managing and developing the opportunity.

The matrix differentiates among opportunities at a very high level. Costs and operational considerations, in particular, can vary widely depending on the scope of the development. Nonetheless, the matrix may provide some basis for choosing among recreational opportunities. However, as noted above, the preferred recreational uses will balance several considerations – the service or program objectives of TRCA, the site constraints, public preferences and the available financial resources. These considerations are identified and evaluated in Table D1 and further discussed in the sections following.

4.3 Considerations in Selecting Opportunities to Pursue

Local versus Regional Market

TRCA is a regional-serving body and places a priority on regional and special markets as defined above. A number of the identified recreational opportunities, such as active sports fields, would almost exclusively serve a local market and presumably would not be pursued for this reason. In addition, these facilities would require a good deal of space and likely could not be accommodated without sacrificing other, more desirable opportunities. To the extent that these fields were for organized use, they would not provide an added amenity for HLCA visitors. This is not the case for some of the other local market opportunities, including an outdoor pool, spray pad and sport pad. All of these features would be available to potential users through the local parks and recreation system, and from this perspective there may be little purpose in providing them at HLCA. However, these features could also be

considered as ancillary features to support the social or other recreational uses of the conservation area, including picnics.

Recreational Uses/Users

As indicated in Table D1, there are a number of recreational uses that could be accommodated at HLCA. While all of these uses have a market, depending on the anticipated scale of development it may not be possible to accommodate the full range at HLCA, given the ecological objectives for the site. Based on the stakeholder and public input to this study, a range of uses was supported, although the general message was that passive recreation, nature appreciation and perhaps outdoor education opportunities should be given priority over developed recreation facilities such as a swimming pool or outdoor aquatic facility. Others felt that lake swimming was important, and in its absence should be replaced with other waterplay opportunities, particularly for children. Many noted the importance of maintaining opportunities for picnics and social events, with some seeing opportunities to significantly expand special events such as concerts and festivals at the site.

A New Recreational Use Concept versus Expansion and Refinement of the Existing

While there is a market for all of the uses noted in Table D1, and there is no reason to assume they would not be well used if provided at HLCA, the site constraints demand that choices be made, particularly with respect to the scale of the facilities.

Some of the potential opportunities that would serve a regional market would require a significant departure from the current park program. For example, a concept that would see HLCA evolve as a training and educational centre for a wide range of environmentally-focused activities and courses dealing with environmental ethics, alternative lifestyles, sustainability, holistic medicine, etc., could be consistent with TRCA's service objectives, compatible with the site and would almost certainly attract a strong market in the GTA. However, such a regionally serving facility might unduly compete with the newly developed facilities at the Kortright Centre for Conservation. On the other hand, a smaller scale, more flexible facility such as the conference/ banquet centre at Albion Hills Conservation Area (AHCA) could serve a more focused market, complement the existing recreational uses, and provide additional revenue generation opportunities. This is also true for a ropes course, particularly if the programming opportunities extend beyond recreational uses to encompass opportunities for corporate team building or therapeutic recreational uses.
An exploration of other creative opportunities for compatible facilities that would increase regional visitation was suggested, with the replica Iroquoian village at Crawford Lake Conservation Area as an example. However, these facilities would undoubtedly require additional and significant site interventions and would require a thorough investigation of the financial implications to establish cost-benefits.

Table D1: Recreation Opportunities Matrix

	Opportunity	Market Served			Recreational Use Concept									Cost/ Operational Considerations			
		Local	Regional	Special	Active	Passive Recreation	Social	Nature Appreciation	Outdoor Education	Special Events	Conference/ Retreat	Other	Capital Cost	Operating Cost	Management Complexity	Development Complexity
Aquatic	Spray Pad	X			X	X							M	L	L	L
	Artificial Lake		X		X	X							H	H	H	H
	Outdoor Pool	X			X	X							H	H	H	M
	Natural Lake		X		X	X							L	M	L	L
Recreation/ Sports	Sports Fields	X			X								M	L	L	H
	Sport Pad	X			X								L	L	L	L
	Ropes Course		X	X	X						X	X	M	L	M-H	M
	Fishing		X			X		X					L	M	L	L
	Boating		X			X		X					M	L	L	L
	Trails	X	X		X	X	X	X					M	L	L	L
Social/ Educational	Picnics		X				X						L	L	L	L
	Outdoor Education		X					X	X				L	M	M	L
	Conference/ Teaching		X	X					X		X		H	H	H	M
Special Events	Concerts/ Performances	X	X				X			X			M	M	M	H
	Sports/ Competition	X	X							X			L	L	M	M
	Community	X	X	X				X	X	X			L	L	M	L

Furthermore, these types of unique, one-of-a-kind facilities do not fit with public preferences toward a plan that would see the continuation of existing activities with expanded picnicking, improved waterplay and better facilities to support these activities. As well, the landbase required to undertake the development of major new facilities would also likely impact the area available for existing passive picnic uses, shifting from the current park focus. A willingness to embrace an entirely new concept for HLCA was not indicated by TRCA staff, with the intent expressed to continue at this time to maintain HLCA as a three-season operation, without significantly increasing staffing and operational costs.

Cost Considerations

We understand that TRCA must generate revenues from users to support recreational activities at HLCA. Consequently, opportunities that represent lower capital costs, while still attracting and potentially increasing the regional visitorship, might be preferred. For this reason, a traditional outdoor pool with programming capabilities similar to those found in municipalities would presumably be a low priority, although a splash-pad or a ropes course that would support existing park functions are relatively low-cost facilities from both a capital and operational cost. It should be noted that due to high operating costs and the short season of use, most municipalities in Ontario are retiring their older outdoor public pools, and very few are being replaced or newly developed. Splash-pads are, however, replacing these as outdoor waterplay opportunities.

It is difficult to determine the desirability of some of the higher cost facilities opportunities in the absence of a more detailed market and financial analysis. An outdoor artificial lake for recreational swimming, similar to that provided at Petticoat Creek Conservation Area (PCCA), would be very attractive and well used at HLCA. However, it is unlikely that the facility could recover operating costs based on user revenues and virtually certain that capital costs could not be recovered. If these are constraining factors, the opportunity may not be viable. Other high cost options, such as expanded conference and training facilities, might prove to be profitable if a more detailed business plan was prepared.

Operational Complexity

A number of the recreational use concepts in Table D1 are an extension of the current activities of TRCA (e.g., most passive recreation uses and social uses). These could be expanded or further developed with limited operational impact, assuming that TRCA has the resources to support additional staff or other operating costs. Other opportunities represent a significant departure from past practices at HLCA and, unless assigned to a partner, would presumably require new staff resources to implement. This would be the case for the ropes course, an aquatic facility, the conference/training facilities, and some of the special events.

4.4 Comparable Facilities

The following are representative facilities within driving distance of HLCA, which offer a range of outdoor education activities, conference facilities, skills development, swimming, and nature-oriented day camp programs in an urban, nature based park or conservation area setting. They are highlighted, not as examples of unique or trend-setting facilities, but as a demonstration of the type of expanded programs and modest facilities that are compatible with the existing uses and site issues at HLCA. They generally represent the values expressed for the site through the consultation process, and which could be successfully integrated within an expanded program at HLCA, if thoughtfully designed.

The sites include both TRCA owned, as well as other recreation providers. In essence, these sites could be considered the regional competition for HLCA. All generally offer a broader range of both facilities and activities.

4.4.1 TRCA

Albion Hills Conservation Area

AHCA is set in the Caledon Hills on the banks of the Humber River off Highway 50, south of Palgrave. It is one of the oldest conservation areas in North America, first offering residential programs in 1963. The 446 hectare park offers the following recreational activities:

- Cross Country Skiing and Tobogganing - 27 kilometres of groomed, track-set cross country trails. Refreshment facilities. Offers trails for beginners, intermediate, expert-level with ski rentals and heated chalet.
- Hiking & Bird Watching - 27 kilometres of marked, maintained trails.
- Mountain Biking - 20 kilometres of marked, maintained trails.
- Camping - Family and group camping facilities. Over 230 campsites, most with water and electrical hookups, laundry facilities, showers and a campground store. Nightly, weekly, monthly and seasonal rates.
- Fishing - Lake stocked with trout. All fishers 18 to 64 years must have a fishing license.
- Swimming – Unsupervised, chlorinated swimming area with natural sandy beach and bottom. The swimming area is formed by a dam on the river and separated from the natural waterway of the Humber River by a curtain. The bathing water is chlorinated to ensure bacteria levels are kept to a minimum.
- Picnic Areas - Picnic tables, large barbecues, and shelters. Group picnic sites can be reserved.
- Paddle Boat and Canoe Rentals
- Chalet - Banquet hall and meeting room rental can accommodate up to 135 guests. Available for weddings, seminars, meetings, and workshops.
- Field Centre - Red cedar and granite building, 920 square metre (10,000 square foot) centre, with lounge and dining room can accommodate 40 participants and four leaders. Programs and bookings available for school, Guides, Scouts, church, community and business groups.

Bruce's Mill Conservation Area

Located in Stouffville, Bruce's Mill Conservation Area (BMCA) includes forests, fields, streams, and a developed wetland area. The YMCA of Greater Toronto runs a day camp program in partnership with TRCA that is oriented to York Region residents.

BMCA includes a new salt water swimming pool, with qualified lifeguards, that serves the day camp and is available for group rentals in association with group picnicking. The pool is available Monday to Friday 4 pm to 7 pm and Saturdays, Sundays and holidays 9 am to 7pm for $95/hour (+GST and including a lifeguard), and can accommodate up to 50 people.

Petticoat Creek Conservation Area

PCCA is located on the bluffs of Lake Ontario at Petticoat Creek in the City of Pickering. The centre piece of the area is a 0.6-hectare supervised swimming pool – advertised as the largest outdoor pool in Ontario. The pool complex includes change rooms and a refreshment booth, with a playground located nearby.

4.4.2 City of Brampton

Professor's Lake Park

Professor's Lake Park is located off North Park Drive in Brampton, east of Dixie Road. The lake offers a guarded swimming area with slide and raft, a sand beach, and rentals of sailboats, windsurfers and paddleboats. The park includes a washroom/changeroom, showers and snack bar. The beach is open weekends from June 4, and daily July to Labour Day. Admission rates are $3.50 for adults, $2.50 for youth and seniors, and $7.50 for families/small groups. Wednesdays are $2.00 for adults, $1.00 for children. The park also hosts several water-related events throughout the summer months, such as the Wacky Boat Day and Sand'n'Sun.

Eldorado Park

Eldorado Park is located on a wooded and open site along the Credit River, off Creditview Road in Brampton's west end. The park is oriented to picnicking, wading, and nature trails. It includes the City of Brampton's only outdoor pool. Admission rates to the pool are $2.00 for adults, $1.00 for youth and $1.50 for students and junior seniors (56-69). Seniors over 70 are admitted free. Families and small groups are $5.00.

The City of Brampton has considered closing the pool a number of times over the years, due to operational costs and needed upgrades. However, its popularity and fit with the other activities of this picnic park have resulted in the facility remaining in place.

4.4.3 Other

YMCA Cedar Glen Outdoor Day Camp

Located in the Town of Caledon just east of Bolton, the YMCA Cedar Glen is a year-round outdoor discovery centre set on 107 hectares of land with forests, fields, and

streams featuring frog and beaver ponds, a bog walk, and lookout point. The YMCA Camp at Cedar Glen serves ages four to 17 and includes hiking, swimming, crafts, games, orienteering, rock climbing, outdoor cooking, archery, nature arts, adventure program, digital photography, leadership development and more. There are both day camp and residential camp programs. The site includes outdoor swimming pool, teepees, 12-metre climbing wall, and low and high ropes challenge courses.

When camps are not in session, there is a large conference room/auditorium and smaller meeting rooms available for meeting room space rental. Also, overnight accommodation is available for up to 100 people.

Seneca College

Seneca College Recreation Services Department runs an outdoor Education centre at the King Campus. The campus includes 284 hectares of mixed forest, open fields, two natural lakes, and a system of trails.

The outdoor education centre delivers a wide range of programs for schools, community groups, corporate clients, and students in Seneca's academic programs, including:

- **King Day Camp** – This camp offers outdoor, nature-oriented programs to age groups from six to 13. Some programs include one day or two-day overnight camps.
- **Outdoor Skills Program** – This program offers canoeing, kayaking, outdoor climbing tower, orienteering, ropes activities (zip line and giant team swing), and canoe trip preparation courses. There is a ratio of one instructor to 12 students. The program costs $22.00 per person for a six-hour session. The minimum number of participants is 12. The program runs Spring through Fall, but does not run in July and August during day camp season.
- **Corporate Training Programs** – This includes a day long program involving mentally and physically challenging tasks in an outdoor setting that encourage thinking and acting as a unified group, including trust-building exercises, personal or group challenge activities, reflection sessions and debriefing. There is a ratio of one instructor to 12 students. The cost is $32.00 per person for a full day session. There is a maximum of 24 participants. The program runs Spring through Fall, but does not run in July and August during day camp season.

4.5 Conclusions

The demographic information and the trends reviewed for this assessment indicate a very wide range of recreational needs that could be accommodated at HLCA and would be entirely consistent with existing and emerging markets. Further, because the population of both Caledon and Brampton is growing rapidly and because HLCA is a unique open space resource in the midst of an expanding urban community, there is considerably more demand than opportunity to meet the demand. Virtually any recreational opportunity consistent with the broad objectives of TRCA that was

provided at HLCA, and appropriately managed and promoted, would be extremely well used.

The preferred recreational uses at HLCA will balance three considerations – the service or program objectives of TRCA, the site constraints, and the available financial resources. At this preliminary level of analysis it appears that preference would be assigned to opportunities serving regional or special needs, with relatively low capital and operating costs, limited operational complexity and spatial requirements that could be accommodated within the constraints imposed by the site. This would suggest continuation and enhancement of existing activities - picnicking, trails, improved swimming or waterplay activities, and lake-focused activities such as boating and fishing, combined with improved outdoor education program opportunities. The latter suggesting that new moderately scaled facilities that promote skills development such as a ropes course, and improved indoor space for existing events and programs, would be successful additions to the park. Given the poor and aging state of the existing buildings and structures, it is also a given that the basic park amenities such as washrooms, picnic shelters and administrative and maintenance areas will need to be replaced to both support existing uses and to meet visitor expectations for a quality experience. However, additional study may also be required to confirm the financial implications and viability of the larger scale opportunities identified to date, such as an outdoor pool, a conference/training facility, or an outdoor education centre, which could also be compatible additions to the conservation area.

5.0 CONCEPT DEVELOPMENT

5.1 Concept Options

Early discussion on public use opportunities and preferences took place with the HLCA Master Plan Advisory Committee during the drafting of principles and strategies for the Management Plan. The Management Plan identifies the ecological attributes and sensitivities of the conservation area, and establishes the areas of the site that are best suited to recreation along with recommendations for protection and enhancement initiatives.

The Public Use and Recreation Plan process built on the primary directives of the Management Plan and the findings of Phase One of this study to develop public use concept alternatives for the site. The concepts incorporated a number of basic assumptions that responded to:

- Recommendations within the Management Plan that have influence on public use and recreation
- The emerging trail system being considered through the Trail Plan
- Assessment of physical site conditions
- Findings of the recreation needs analysis.

The basic assumptions were further developed into two concept options that highlighted the range in scale, type and location of potential new or enhanced facilities.

Plan Framework

The following assumptions formed the underlying framework for the development of the public use and recreation concept options and the recommended Public Use and Recreation Plan:

Natural Heritage

- Naturalization of Heart Lake to support a self-sustaining, warm water fishery (i.e., restore shoreline to a more natural state)
- Intensification (consolidation) of public use areas to allow for an increase in forest cover and the creation of habitat areas
- Removal of the floating dock from Teapot Lake, removal of trails, maintenance of a forested buffer around the lake
- Naturalization of areas of the Bowl in a manner that allows for winter tobogganing.

Cultural Heritage

- Protection and conservation of all archaeological sites (known and unknown)
- Undertaking of archaeological assessments where all ground disturbances are planned, such as trail routes, picnic shelters, and built facilities
- Interpretation of heritage for public education.

Public Use

- Focus on passive recreation activities that support core function of the site as a conservation area and are sustainable from an ecological and economic perspective
- Maintenance and enhancement of picnicking, fishing, and nature-based activities as a core focus of the park
- Consolidation of new facilities in existing managed tableland areas
- Reduction in size and formalization of parking areas to provide land area for new facilities development
- Maintenance of TRCA dogs-on-leash policy
- Relocation of Ogada Wilderness Centre activities to the main area of the park
- Potential for limited opening of park in winter months to support Ogada activities and 'walk-in' public use.

Park Entrance

- Redesign of park entrance to accommodate gate house and gates further into park (to address security and safety issues)
- Potential improvements to Heart Lake Road with a turning lane into HLCA and trail or walkway to facilitate cycling or walk-in access.

Trails and Access Points

- Establishment of a north-south walking trail that links Sandalwood Parkway to Mayfield Road
- Consideration of pedestrian-only park entrances at Sandalwood Parkway, Mayfield Road, and west-side of HLCA

- Potential for controlled school access point (with locking gate) on west side
- Closing of undesirable trail routes and establishment of nature trail loops, including trail to fishing access point on west side of HLCA
- Establishment of trail head areas with trail map, trail and park conduct, and educational information about the conservation area and its attributes.

Park Amenities

- Closing or demolition of beach centre and replacement with open-air picnic shelter
- Establishment of a centralized building facility (designed to LEED™ standards) on the tableland to accommodate year-round Ogada activities, PCWF administration activities, washrooms, and possible additional community space
- Addition of a waterplay facility to replace formalized lake swimming
- Addition of a ropes course/skills development area and program.

CONCEPT OPTIONS

The following additional amenities and/or alternatives were proposed within each of the concept options. Schematic plans for each of the concepts are provided in Appendix D4.

Option 1

- Relocation of Ogada Wilderness Centre summer day-camp to north parking and picnic area
- Development of Outdoor Centre on east side of park to accommodate Ogada Wilderness Centre outdoor education activities, PCWF administration and storage, and flexible community meeting space (i.e., corporate/community bookings), similar to AHCA
- Development of an outdoor aquatics area with waterplay and splash-pad, possible swimming pool and supporting washrooms and changerooms adjacent to large south parking area
- Development of a ropes course and skills course in area currently occupied by the Operations area (with park operations relocated to other side of the road). This set-up would support a TRCA operated program
- Relocation of boathouse and rentals closer to beach area
- Addition of an open-air picnic pavilion or other building facility to support the beach area
- Incorporation of community garden space, e.g. Aboriginal Medicine Wheel Garden proposal;
- Main north-south granular trail spine linking feature areas of the park with boardwalk and trail adjacent to Heart Lake edge
- Maintenance of leased property on west side of Heart Lake.

Option 2

- Relocation of Ogada Wilderness Centre summer day-camp to west side of lake
- Development of a controlled access, permanent ropes course on west side of

Heart Lake (this set-up would allow for a City of Brampton-run or private operator facility)
- Addition of a central Park Lodge including washrooms and changerooms; PCWF administration/storage activities, and community space, with adjacent picnic area and events space (on open lawn and parking area)
- Relocation of boathouse and rentals to beach area and addition of staging area to support boat launching and Dragon Boat events
- Addition of a open-air pavilion or other building facility and beach volleyball court to support the beach activity area
- Incorporation of community garden space, e.g. Aboriginal Medicine Wheel Garden proposal
- Main north-south granular trail spine linking feature areas of the park with boardwalk and trail adjacent to Heart Lake edge.

5.2 Summary of Public Consultation

At the outset of the study, a survey was prepared to help identify current uses and preferences in the conservation area. The survey was distributed at the PCWF in May, at each of the public information meetings, and through a limited intercept survey undertaken by a volunteer over one or two weekends during the summer. In addition, the concept options were presented and comments sought at a public meeting mid-way through the study, and the final public use and recreation plan was presented in the same way at a second public meeting. Although there was considerable opportunity for written feedback through these forums, the overall number of completed formal surveys was low (40) which is not surprising given the overall level of satisfaction with HLCA that was expressed by most respondents.

Most of the respondents were from the Brampton area and visit the park a few times a year or for special events such as the PCWF. A few were from Mississauga and Caledon, and several noted that they were first time visitors.

In general, support was positive for the underlying framework for public use and management of the site that was presented and for the upgrading of existing facilities. As well, the types of new facilities under consideration were generally deemed compatible with environmental management objectives and the ecological context of the conservation area. The general message was one of improvement and upgrading of existing facilities. New, moderately scaled facilities to support existing recreation and outdoor education opportunities, and designed to be compatible with the ecology of the site, were seen as a benefit by some.

The following sections summarize the comments received, both in writing and at the public forums, by theme.

Public Use

A number of members of the public noted their vision for HLCA as being natural in character with low impact facilities and passive recreation. Most frequent uses include walking, hiking, tobogganing, beach use and swimming, and attendance at special events.

When queried on new activities and facilities, a few respondents suggested increased sport uses (e.g. cross country ski; ice skating; basketball and tennis courts; canoe rental) along with camping, and a trail around Heart Lake. Additional child -friendly play areas and events were suggested. A leash-free dog area was also suggested.

A number of respondents noted that they cycle at HLCA and some suggested the addition of more bike trails maintained to a higher standard. However, there were also expressions of concern related to increases in cycling activities due to ecological impacts in sensitive areas. Motorized uses within the CA were also noted by some as inappropriate. Some respondents expressed dissatisfaction with the daily fees with vehicle or parking fees, in lieu of a per-person fee, supported by several people. Adjacent neighbours expressed an interest in having walk-in access to the park on the west and/or south side, noting that Heart Lake Road was unsafe for pedestrians and cyclists.

Facilities and Amenities

The proposed waterplay facility was noted by several people as not compatible with their passive vision for the Conservation Area. Preference was noted for retaining the beach and bringing the lake up to swimming standards. Others recognized the benefit of a swimming pool or splash-pad, if lake swimming was not possible. Some saw HLCA as benefiting from extended hours and season of operation (including associated rental services) and the addition of a snack bar as well as centralized facilities (e.g., near the beach). The need for improvements to the washroom facilities and the installation of drinking fountains was also noted.

Safety and Security

Safety and vandalism were seen as potential issues, especially with new facilities in the area. Noise regulation and security were important, particularly to neighbouring residents to the west who did not support the addition of new or relocated amenities such as the Ogada Wilderness Centre, or a ropes course on the west side of Heart Lake.

Signage and Interpretation

Several people noted a lack of visible signage within HLCA, both on trails and in the parking lots. Incorporation of cultural and natural elements along trails was suggested, as well as a nature centre with a focus on interpretation for children noted by some.

Partnership and Volunteerism

Some members of the public noted the importance of partnerships with TRCA. Others expressed interest in participating in a volunteer stewardship group.

APPENDIX D1 Outdoor Recreation Trends

The review of trends highlights key observations and data documenting changes in participation and interest in outdoor recreation. The information is summarized from the North American literature and the experience of the consultants. The discussion of trends is presented in four parts:

- Outdoor Recreation Participation
- Outdoor Recreation Facility Design and Development
- Activity Participation Trends
- Outdoor Education Programming

1.0 Trends in Outdoor Recreation Participation

- Value shifts toward personal growth and improved quality of life contribute to a personal wellness trend that is supportive of activities that promote an active lifestyle. For adults, this active lifestyle often focuses on individual rather than team activities, as well as activities that are less structured and therefore fit more easily into busy, unpredictable schedules.
- One of the primary complaints among Canadians regarding daily life is "not enough time". In 1995, two thirds of Canadians reported they were working longer hours. Sixty percent of Canadians polled in 1996 said their leisure time had shrunk. This leisure-time deficit has led to greater interest in activities that can be pursued alone and relatively easily, around more fixed-time commitments and increasingly hectic schedules. With *lack of time* often cited as one of the prime reasons for not participating in recreational activities, Canadians tend to adopt activities that can be easily integrated into their daily lives. Unstructured activities, often taking place outdoors and on an individual basis or with family/friends, are increasingly popular. Facilities that support access to the out-of-doors must be flexible in terms of access and available on weekends, when participants have the free time to participate in outdoor pursuits.
- Barriers to participation have been documented by various researchers. "Too busy with work", "cost of equipment and supplies" and "facilities overcrowded" were the most common barriers to participation in self-directed outdoor pursuits.
- Cost will increasingly be a constraint to participation in outdoor recreation activities, particularly as the population ages. Low cost, casual and self-directed activities will be more popular than those with higher costs.
- Participation in outdoor recreation is correlated to age, income and education. 84.8% of Ontarians over the age of 15 participate in nature-related outdoor recreation activities. Canadians under the age of 45 years are most likely to participate in outdoor activities. As age increases beyond 45 years, participation decreases.
- As income and level of education increases so does one's likelihood of participating in outdoor recreation activities. Canadians with an education beyond secondary school and those with personal incomes of $30,000 or more are more likely to participate in nature-related outdoor pursuits.

- The 2000 Alberta recreation survey provides a good comparison with Ontario statistics. Outdoor pursuits with the highest levels of household participation include walking for pleasure, overnight camping, picnicking, day hiking, jogging/running and fishing. Respondents with a household income of $30,000 to $50,000 participated in the widest variety of outdoor activities.
- Outdoor active pursuits relevant to this study that are becoming more popular include bicycling, jogging/running, day hiking and cross country skiing (various sources).
- Continued advances in medical science that positively affect individual quality of life and longevity and technological advances that affect communication and transportation will lead to growing participation in nature-based outdoor pursuits. This will offset the decline in participation due to the aging of the population. The outdoor recreation activities that will continue to be popular with older adults will be the more passive activities such as birdwatching, nature study and walking for pleasure.
- Growing concern for the environment will continue to positively influence participation in nature-based outdoor pursuits.

2.0 Trends in Outdoor Recreation Facility Design and Development

- Increasingly, new and redeveloped facilities for outdoor education and recreation are adopting sustainable building practices to support the natural environment and demonstrate the principles of conservation. Sustainable building practices include the following:
    - Sensitivity to the ecology of each building site
    - Use of recycled and recyclable materials
    - Use of interior finishes that promote a healthy interior environment
    - Use of locally derived material
    - Use of passive solar design for energy efficiency
    - Use of active solar, wind and water systems to fulfill energy require ments, where possible
    - Use of ecologically sensitive wastewater treatment systems, where possible
    - A high degree of user participation in learning about and caring for the building.

- Reductions in traditional funding sources (taxes, provincial and federal grants) have encouraged facility providers to look increasingly to partnerships to assist in providing services and facilities. Through the strengthening of Foundations and "friends of" organizations, potential corporate partners and public donors have been provided opportunities to contribute to all aspects of facility development and program delivery. Outdoor education facility providers are increasingly looking to these alternative funding sources to ensure future sustainability.
- Today's facilities are designed to be aesthetically pleasing and welcoming, rather than utilitarian, to meet the need for quality, relaxing experiences. Facilities

that can be considered a destination and that convey a sense of having arrived somewhere will be more appealing than those that do not focus the visitor's time and attention.

- There is a shift away from single purpose facilities to spaces that blend a multitude of spaces and uses. Facilities that are flexible, both in terms of access and programming, will be more appealing and financially viable than those designed for a single purpose. Flexibility in terms of building components may involve such things as movable doors, rooms with movable partitions, designs that allow for future expansion, etc.
- Risk management and liability issues will continue to affect the future provision of outdoor educational/recreation programming and facilities.
- As the corporate sector becomes more aware of how leadership development enhances corporate culture, the demand for outdoor-based facilities and programs to serve the corporate sector will increase. Leadership development, team building, conflict resolution, delegation of skills and developing strategy are all examples of the types of corporate training sessions that can be accommodated and enhanced through an outdoor setting.

3.0 Activity Participation Trends

UNSCHEDULED OUTDOOR ACTIVITIES

Unscheduled recreation activities refer to those that people undertake spontaneously, using facilities provided for this purpose. Participation rates in all trail-based activities, such as walking, running, cycling and in-line skating have increased rapidly in recent years, and this trend is anticipated to continue into the future. In addition to the natural fit between hectic lifestyles, environmental stewardship and trail activities, demand for this type of involvement is also being driven by the needs of an aging population. Activities such as walking and cycling are suitable for participation among older adults. Similarly, an aging population is generating greater participation in other unstructured and more passive forms of leisure. These include activities such as golf, gardening and visits to public gardens and attendance at cultural or leisure events.

Among youth, participation in activities such as skateboarding and basketball has increased dramatically in recent years. These types of activities offer the preferred type of involvement among youth – unstructured and social, with a loose affiliation to the group. Activities like skateboarding also provide a desired element of risk. While future trends suggests continued growth in these areas of activity, concurrent concerns regarding increasing obesity among youth due to sedentary lifestyles emphasizes the importance of providing appropriate, attractive facilities to encourage increased participation by this age group.

Walking: Between 1998 and 2001, walking was reported as the most popular activity among Ontario adults, with proportions of those reporting participation in the past year ranging from 69% to 86%. 89% of those aged 15-17 and 60% of those aged 12-19

reported walking as the most popular activity in 2000 and 2001 respectively. Walking among men increased 3.8% from 26.2% in 1987 to 30.1% in 2000. For women, walking increased 6.6% during the same time period, from 40.4% to 46.9%. As a result of the aging population, participation in walking as a recreational activity is expected to be one of the fastest growing areas of outdoor recreation**.** More than 80% among 65,000 Americas 12 years of age or older surveyed in the continuous National Survey on Recreation and the Environment (formerly the National Recreation Survey) walk, and walking for pleasure was noted as a favourite among seniors. While teenagers consistently indicate walking as their most common activity, over half of Canadian teenagers reported getting less than 1 hour of walking time per day.

Running/jogging: National trends indicate increased participation in road running. Major road race events (Sporting Life 10 km in Toronto, Scotia Bank marathon in Toronto, Vancouver Sun Run) have experienced 20% to 40% growth in the number of participants. This increase is in large part due to increased involvement of women in the 25 to 34 year age category. The focus is on participation and health rather than competing to win. From 1998 to 2001, between 13% and 36% of Ontario adults had participated in running/jogging in the past year. 53% of those aged 15-17 and 42% of those aged 12-19 had participated in running/jogging in 2000 and 2001, respectively.

Cycling: Between 1998 and 2001, cycling was reported as the sixth most popular activity among Ontario adults. Proportions of those reporting participation in the past year ranged from 21% to 50%. In 2001, 49% of those aged 12-19 had cycled in the past year; in 2000, 88% of those aged 5-17 had cycled in the past year.

Rollerblading: In-line skating/rollerblading is growing in popularity both as a form of recreation and a mode of transportation. From 1998 to 2001, between 6% and 20% of Ontario adults had participated in in-line skating in the past year. 62% of those aged 15-17 and 27% of those aged 12-19 had participated in rollerblading in 2000 and 2001, respectively. In-line skating/rollerblading is the most popular extreme sport in the United States.

Triathlon: Triathlon participation is experiencing an increase in membership numbers. Out of the four disciplines (triathlon, duathlon, long distance and aquathlon), triathlon holds the most number of participants.

Skateboarding: Popularity and legitimacy of skateboarding has been growing in recent years, likely as a result of movement away from organized structured, comparatively more expensive team-based activities. Skateboarding offers the preferred type of involvement for youth aged 10-17 as it is unstructured and social, provides a desired element of risk, and results in a loose affiliation to a group. Growing concerns about the sedentary lifestyles of youth and the consequential child obesity rates emphasize the importance of providing appropriate, attractive facilities to encourage participation.

Municipalities all over Ontario are beginning to invest in safe, well-lit places for youth

to enjoy this activity. Skateboarding is the third most popular extreme sport in the United States.

Climbing Walls are also growing in popularity across North America. Climbing walls can be added to gymnasia or built as stand-alone outdoor facilities located in parks. Climbing walls are not always "walls" – some are free-standing, multi-sided structures that can be permanent or moved from site to site. While climbing walls usually involve protective gear and rappelling lines, there are walls designed for the edge of pools for use without gear and lines. Fitness climbing walls attract adults as well as children and youth and are more likely to be combined with other facilities (e.g., field houses, gymnasia) rather than as stand-alone structures.

Basketball: Basketball Ontario has experienced strong growth in the past ten years. The number of participants has climbed from 3,050 in 1993 to 8,775 in 2002. Basketball is a youth-oriented sport as 43% of its participants are between the ages of 15 and 18.

Spray Pads: Spray pads are increasingly being developed to replace more traditional outdoor aquatic facilities. Spray pads offer an extended season of use from May to September, reduce the need for supervision and are safer for children. They are increasingly being provided as "community cool zones" in response to warmer than normal summer months.

Public Gardens: Admission revenues increased by 11% from 2000 to 2001 at attractions such as the Royal Botanical Gardens. Visits to historical sites, wineries and botanical gardens are expected to increase as the population ages. Increasingly, communities across Ontario and Canada are participating in gardening programs and initiatives, such as Communities in Bloom.

Heritage/Historical Properties Preservation: Provincially and nationally there is a continuing trend to preserve heritage and historical properties. Events such as "Doors Open Toronto" are encouraging and increasing the use of, and visits to, heritage and historical properties. Of 23.3 million Canadian adults in 2000, about 11% are interested in Heritage Tourism. Of these, 8 in 10 have indicated taking a leisure trip within Canada during the past 2 years.

Festivals and Special Events: Festivals and events in Ontario benefit their communities in many ways. They attract tourists, help to revitalize communities, increase sales for local businesses and provide increased leisure opportunities for local residents. Increased participation is anticipated in Ontario. Cultural activities with the greatest appeal to tourists include museums, festivals, fairs and markets.

ORGANIZED SPORTS AND RECREATION PURSUITS

With the exception of beach volleyball, noted below, we have not summarized recreational activity trends for active sports because we assume that these facilities would not be provided by the Conservation Authority. However, within the local market we

should anticipate very strong and sustained demand for soccer and, in part due to the multicultural character of the community, growing demand for cricket, field hockey and lacrosse. If space were made available for active sports fields of this type, they would be very well used and in very high demand. Other outdoor sports, such as baseball and tennis are declining in popularity but even in these areas there could be local demand due to the population growth and the limited supply of municipal parkland.

Beach volleyball is one of the fastest growing areas of volleyball and is played on any number of beaches or sand courts in Ontario. As with indoor volleyball, the majority of players participate in recreational divisions and therefore are not represented in the provincial statistics. Women comprise almost half of the participants. The active sport, which attracts people between the ages of 15 and 34, can be played at Olympic caliber, as doubles competition, or as recreational co-ed pick up. This is an activity that may be consistent with other recreational uses at Heart Lake and for which growing interest can be anticipated.

4.0 Trends in Outdoor Education Programming

- The history of outdoor education or environmental programming begins with the growing environmental movement of the 60s and 70s, with origins in the Scouting and Guiding programs and early camping initiatives. The original impetus was survival skills, and then nature study and exploration became the main thrust of the educational movement. At the time when progressive educators legitimized the introduction of science laboratories and other experiential methodologies to schooling, environmental education programs were taking root in education system. Environmental education has at its heart two relationships: the ecosystem relationships of the interdependence of all living organisms, and the relationships between humans, human society and the natural resources of the environment.
- Environmental educational programming has taken many forms over the years. Program themes have included survival skills, leadership development and team building, sensory awareness and experiential learning, identification and classification. Today, outdoor education programming is grounded in natural sciences and ecology, is geared to the public educational curriculum and is becoming increasingly targeted to specific age groups and types of users.
- The large organizations involved in outdoor education such as Scouts and Guides, Outward Bound, Project Adventure, and NOLS all faced a very difficult decade in the 1990s. The “big movers” now are the medium-sized, specialist organizations. Very small operators are going to continue to suffer greatly with all the increasing administrative and legislative challenges of running programs. The larger organizations will not become extinct – they will simply continue to adapt and fractionate.
- The role and purpose of nature in outdoor education will become more apparent. As society becomes more disconnected from natural environments, the primary importance of human experience in nature becomes more highly valued and studied. While the U.S. dominance of outdoor education during the 1960’s-1990’s led to adventure programming approaches that place little emphasis

on human relationship with nature, it is predicted that the role of nature will emerge during the next decade as being more critical in outdoor education theory and practice.

- Children growing up today in the developed nations of the world have a much greater global awareness and social conscience than they did in the previous decade, and are more aware of their ecological place in the world. Much of this awareness stems from a growing sense of humanity's devastating impact on the natural world.
- Outdoor education centres that can successfully target their programs to meet specific curriculum requirements for specific grades, and that can tailor programs to meet the needs and challenges of specific user groups, will fare better than those that provide generic programming. Flexibility will be the key to remaining successful in the future.

APPENDIX D2 Demographic Profile: City of Brampton and Town of Caledon

This appendix provides a demographic profile for selected indicators based on 2001 census data for Caledon and Brampton. While both municipalities are rapidly growing, future projections for the socio-demographic indicators described in this appendix are generally unavailable.

Table D2 indicates basic age distributions for the 2001 population of both Brampton and Caledon.

TABLE D2 – POPULATION AGE DISTRIBUTION		
Age	**BRAMPTON 2001**	**CALEDON 2001**
Age 0-4	24,475	3,630
Age 5-14	50,745	7,965
Age15-19	23,410	3,530
Age 20-24	23,025	2,660
Age 25-44	110,550	16, 415
Age 45-54	43,835	7,575
Age 55-64	26,720	4,830
Age 65-74	14,215	2,525
Age 75 and Over	8,455	1,470
Total	**325,425**	**50,595**

Source: Statistics Canada 2001

Table D3 provides household statistics divided by family type for Brampton and Caledon.

Table D3 – Selected Household and Family Characteristics		
	Brampton (2001)	**Caledon (2001)**
Total – all private households	97,550	16,115
couple with children	42,955	7,610
couple without children	22,070	4,950
one-person households	12,090	1,655
other household types	20,440	1,895
Median household income ($)	$69,646	$84, 381
Total – number of families	90,815	14,715
Married/common law families	69,965	12,225
Median income couple families ($)	$71,221	$87,756
Lone-parent families	13,925	1,380
Median income lone-parent families ($)	$38,589	$51,513

Source: Statistics Canada 2001

Table D4 presents education statistics identifying attainment levels in trades, college and university for both Brampton and Caledon.

Table D4 – Selected Education Level Indicators		
	Brampton (2001)	**Caledon (2001)**
% of population 15 years and over attending school full time	9.0%	8.3%
% of population aged 20-34 with:		
trades certificate or diploma	8.3%	10.2%
college certificate or diploma	19.6%	22.7%
university certificate, diploma or degree	19.8%	21.1%
% of population aged 35-44 with:		
trades certificate or diploma	11.1%	11.6%
college certificate or diploma	20.9%	25.6%
university certificate, diploma or degree	18.3%	19.9%
% of population aged 45-64 with:		
trades certificate or diploma	12.2%	12.0%
college certificate or diploma	15.7%	18.3%
university certificate, diploma or degree	16.3%	20.7%

Source: Statistics Canada 2001

Table D5 provides statistics for languages spoken at home on a regular basis for both Brampton and Caledon.

Table D5 – Language Characteristics		
	Brampton 2001	**Caledon 2001**
Language spoken most often (%):		
English	64.6%	80.0%
French	1.2%	1.0%
Other Languages	34.1%	18.9%

Source: Statistics Canada 2001

Table D6 provides immigration, ethnicity and aboriginal statistics for both Brampton and Caledon. Included are the largest visible minority populations in each community with the exception of Filipino, which is only a major visible minority status in Brampton and West Asian, which is only a major visible minority status in Caledon.

Table D6 – Ethnicity Characteristics		
Immigration Characteristics	**Brampton 2001**	**Caledon 2001**
Canadian-born population (%)	59.6%	80.1%
Foreign-born population (%)	39.9%	19.6%
Visible Minority Characteristics		
Total visible minority population (%)	40.0%	5.0%
Black	24.6%	1.5%
South Asian	48.5%	1.4%
Chinese	1.7%	0.4%
West Asian	0.3%	0.4%
Latin American	1.6%	0.4%
Filipino	5.3%	0.09%
Aboriginal Population (%)		
Aboriginal identity population	0.5%	0.3%

Source: Statistics Canada 2001

Table D7 provides earnings characteristics for both Brampton and Caledon based on salaries of people 15 years and over who worked 49-52 weeks either for pay or self-employed.

Table D7 – Earning Characteristics		
Worked full year – full time	**Brampton 2001**	**Caledon 2001**
Average Earnings ($):		
All people with earnings	$44,100	$56,430
Male with earnings	$50,323	$64,254
Female with earnings	$35,618	$44,761

Source: Statistics Canada 2001

Table D8 provides the number of private occupied dwellings, ratio of dwellings owned and rented expressed as a percentage and construction and real estate indicators for both Brampton and Caledon.

D8 – Dwelling Characteristics		
	Brampton 2001	**Caledon 2001**
Total number of dwellings	97,555	16,110
% of dwellings owned	77%	90%
% of dwellings rented	23%	10%
Number of dwellings constructed	25,520	5,090
Average value of dwelling ($)	$218,799	$295,583

Source: Statistics Canada 2001

APPENDIX D3 Recreation Needs Assessments in Study Area

Introduction

Recent, comprehensive recreational needs assessments in Brampton and Caledon were reviewed for their possible relevance to this study. Brampton has just initiated a comprehensive master plan for parks and recreation services and is part way through a cultural planning study. While information has been assembled in Brampton in recent years to consider recreation and open space needs, a comprehensive planning study and definitive recommendations for the future are not currently available.

The Town of Caledon completed a Recreation and Parks Master Plan in 2004. Recommendations of possible relevance to this study are summarized below.

Town of Caledon 2004 Recreation and Parks Master Plan Recommendations of Potential Relevance to Heart Lake Master Plan

Facility and Park Requirements

- Continue to work with the Conservation Authority as an interim solution until the Town secures additional parkland for playing fields to address the Town's current shortage of larger park spaces and playing fields (e.g., soccer).
- Develop two multi-purpose fields that can accommodate a range of sporting activities including soccer, rugby, lacrosse and football.
- Develop soccer fields in the *Mayfield West Area* to meet future needs.
- Work with ball groups to prioritize facility improvements. *This assessment should also consider the provision of facilities for casual play.*
- Develop five additional tennis courts, ideally in newly developing areas.
- Ensure that there is a good distribution of multi-purpose pads to meet the needs of youth throughout the Town by developing four to six new multi-purpose pads.
- In order to provide access to splash pads for all Caledon residents, develop two additional splash pads in the short-term – *one in Mayfield West* and another in Caledon East. Appropriate locations should provide adequate parking.
- Continue to expand the Town's supply of primary trails as an opportunity basis in accordance with the Trail Master Plan.
- Continue to work in co-operation with community partners to expand the Town's network of trails.

Programming Recommendations

- Offer more family-oriented recreation opportunities such as family walks and special events.
- Offer *youth programming opportunities* marketed to appropriate age groupings: 12-14, 15-16 and 17-18 to increase their participation.
- Work with the community to develop an active senior's leisure group to offer a broad range of active living opportunities including fitness classes and *walking groups*.

Option One

Heart Lake Conservation Area Public Use & Recreation Plan

ENVISION the hough group | dmA Planning & Management Services | Joseph Bogdan Associates Inc.

Option Two

Heart Lake Conservation Area Public Use & Recreation Plan

APPENDIX E SUSTAINABLE DESIGN MEASURES

LEED® CANADA GREEN BUILDING SYSTEM RATING CRITERIA & Sustainable design measures

Further details on each section are available from the LEED™ Canada - NC V 1.0 Green Building Rating System (Canada Green Building Council 2004).

SUSTAINABLE SITE	
Erosion and Sedimentation Control	Apply erosion and stabilization control measures during construction e.g. preservation of natural vegetation; seeding; mulching; geotextiles; silt fences; drainage swales; sediment basins.
Site Selection	Do not develop in areas identified as ecologically sensitive; habitat for endangered species, within 1.5 metres (vertical) of 100 year floodplain, or 0.9 metres (vertical) of 100 year floodplain, within 30.5 metres of a wetland.
Development Density	N/A
Redevelopment of Contaminated Site	N/A
Alternative Transportation: Public Transportation Access	Develop within 400 metres of two or more bus lines TBD. *Brampton Transit has plans to expand service along Mayfield Road and Sandalwood Parkway in future.*
Alternative Transportation: Bicycle Storage & Change Rooms	Provide secure bicycle storage and shower/change facilities for 5 per cent or more of building occupants to encourage cycling.
Alternative Transportation: Alternative Fuel Vehicles	Hybrid or alternative fuel for 3 per cent or more of building occupants*. More applicable to corporate policy.*
Alternative Transportation: Parking Capacity	Meet but don't exceed local parking by-law AND provide designated parking for car-share or car pool lots equal to 10% of non-visitor parking. For rehabilitation projects demonstrate that no new parking capacity was added AND provide designated parking for car-share or car pool lots equal to 10 per cent of non-visitor parking.
Reduced Site Disturbance: Protect or Restore Open Space	Limit site disturbance including earthwork and clearing to within 12 metres of building perimeter; 1.5 metres of existing roadways, curbs; and 7.5 metres of constructed permeable surfaces, i.e. drainage swales OR on previously developed sites restore 50 per cent of disturbed site area by replacing impervious surfaces with native or adapted vegetation.

Reduced Site Disturbance: Development Footprint	Design with minimal building footprint and designate area of adjacent open space equal to building footprint
Stormwater Management (SWM): Rate and Quantity	Demonstrates that post-development peak discharge rate and quantity doesn't exceed pre-development peak discharge rate and quantity. Examples of SWM measures include: *infiltration trenches, vegetated swales, porous paving, detention areas, constructed wetlands*, re-use of stormwater for non-potable use, e.g. irrigation, toilet flushing.
Stormwater Management: Treatment	Remove 80 per cent of post-development total suspended solids. Examples of SWM measures include: *infiltration trenches, vegetated swales, porous paving, detention areas, and constructed wetlands*.
Heat Island Effect: Reduce heat islands to minimize effect on wildlife and vegetation	**Non-roof:** Shade parking and hard-surface areas, Use high albedo materials, and open grid (50% porous) materials over minimum 30 per cent of impervious areas, walkways, plazas, parking, etc. Examples of permeable materials: gravel, porous asphalt, pavers '(ecopavers, turfstone') for paths. **Roof:** Use Energy Star ® compliant, highly reflective and low emissivity roofing over 75 per cent of the surface area. *Note: 'Green Roofs' are also credited but will be more difficult to achieve*
Light Pollution Reduction	Eliminate light trespass from building and site, improve night sky access, and reduce impacts on nocturnal environments. Measures include: lowering light levels, shielding of lights and windows, and reducing light displacement through fixture selection.

WATER EFFICIENCY	
Water Efficient Landscaping: Reduce by 50 per cent, or no irrigation	Rainwater harvesting system from roofs for use in irrigation (cisterns) or direct to bioswales in parking areas Directing/re-use of stormwater and waterplay wastewater to bioswales in parking areas or planted areas Use of greywater recycling system (from buildings) for irrigation Low maintenance native, drought resistant species xeriscaping landscaping around buildings
Innovative Wastewater Technologies	Reduce potable water use by 50 per cent or 100 per cent on-site treatment: through such measures as: on-site grey-water treatment units; dual flush toilets; composting toilets
Water Use Reduction: 20-30 per cent	Reduce potable water use through such measures as: ultra-low flow fixtures, metered faucets, composting toilets, waterless urinals, re-use of stormwater/greywater for non-potable water use

ENERGY & ATMOSPHERE	
Fundamental Building Systems Commissioning	Best practice commissioning procedures: Required
Minimum Energy Performance	Design building to CBIP program. Required
CFC Reduction in HVAC&R Equipment	Zero use of CFC refrigerants. Required
Optimize Energy Performance	Design building envelope and building systems to maximize energy performance Highly reflective & highly emissive roofing to reduce heat islands High performance windows to limit winter heat loss and summer solar gain (may involve glazing, shading and framing) Specialized insulation measures to support thermal conservation (specialized exterior walls and roof) Building orientation measures (e.g. south-facing orientation for roof; east/west windows with overhangs to block out summer sun)
Renewable Energy: 5 per cent - 20 per cent of on-site renewable energy source to reduce dependency on fossil fuels	Passive solar measures, i.e. windows, skylights, thermal storage in flooring or walls Solar electric (photovoltaic) systems Wind energy Geothermal heat pump Heat Recovery Ventilators (HRVs)
Best Practice Commissioning	Implement a commissioning plan during design and post-occupancy
Ozone Protection	Reduce ozone depletion, through use of non HCFCs
Measurement and Verification	Optimize monitoring of building energy and water consumption performance through metering / implementation of a Measurement and Verification Plan
Green Power	Purchase certified Green Power (OPG Evergreen) or alternate supplier

MATERIALS AND RESOURCES	
Storage and Collection of Recyclables	Designate area for storage and collection of recyclable materials
Building Re-use: 50 per cent - 95 per cent	N/A
Construction Waste Management	Divert 50 per cent to 75 per cent of construction waste from landfill through recycling
Resource Re-use	5 per cent to 10 per cent use of salvaged or recycled materials such as: wood beams, flooring, etc.
Recycled Content	Use materials with recycled content: 7.5 per cent to 15 per cent post-consumer plus 1/2 post-industrial, e.g. recycled concrete, steel rebar

MATERIALS AND RESOURCES (continued)	
Regional Materials	10 per cent to 20 per cent extracted and manufactured regionally. Criteria range from within 800 kilometres to 2400 kilometres.
Rapidly Renewable Materials	Products made from rapidly renewable materials, such as bamboo, linoleum, wheatboard, wool carpet. Reduce use of scarce natural resources Use renewable resources or those that require less energy to produce.
Certified Wood	Use of FSC-certified wood for lumber
Durable Building	Develop a Building Durability Plan

INDOOR ENVIRONMENTAL QUALITY	
Minimum IAQ Performance	Establish minimum requirements for indoor air quality, based on ASRAE 62-2001
Environmental Tobacco Smoke (ETS Control)	Required: Prevent or minimize exposure (smoking is prohibited by by-law)
Carbon Dioxide Monitoring	Install carbon dioxide monitoring system
Ventilation Effectiveness	Optimize air exchange effectiveness through mechanical or natural ventilation, to required standard
Construction IAQ Management Plan	Develop Indoor Air Quality monitoring program during construction, and pre-occupancy
Low-Emitting Materials	Specify low-VOC emitting adhesives and sealants, paints, coatings, carpet, composite wood and laminates
Indoor Chemical and Pollutant Control	Minimize migration of airborne biological and chemical contaminants from building systems
Controllability of Systems	Provide a high level of control for thermal, ventilation and lighting systems for individual and group spaces, both perimeter and non-perimeter
Thermal Comfort: Compliance and Monitoring	Comply with ASHRAE Standard 55-2004 Provide permanent monitoring system to ensure building performance
Daylight and Views	Ensure connection between indoor spaces and outdoors through daylighting of 75% of regularly occupied spaces Provide open concept spaces with views to outdoors from 90% of regularly occupied spaces

INNOVATION AND DESIGN PROCESS	
Innovation in Design	Points for exceptional design and/or innovative performance beyond the requirements of the LEED™ Green Building Rating System
LEED® Accredited Professional	One principal team member has successfully completed the LEED™ Accredited Professional Exam

APPENDIX F DETAILED IMPLEMENTATION PLAN

Construction and Planning Projects

Immediate Projects (funding or partial funding is allocated)

- The Pavilion and waterplay, including redevelopment of the parking lot and surrounding area to incorporate sustainability measures
- Initiation of HLCA Stewardship Committee

Short-term Projects (one to three years)

- The Programming and Administration Centre
- The Beach House, open-air picnic pavilion or other building facility
- Detailed trail construction plans including cost estimates, trail development and trail head implementation
- Restoration of the Bowl
- Interim location of the ropes course on the tableland to the south of the main parking area (to be relocated in conjunction with the development of the Programming and Administration Centre)
- Establishment of stewardship committee and Terms of Reference

Medium-term Projects (three to five years)

- Skills Development Area (permanent location for the ropes course and fitness trail)
- Relocation of Camp Ogada summer operations
- Naturalization of former group camp area
- Parking lot redevelopments

Long-term Projects (five to ten years)

- The Lodge
- The Boathouse
- Restoration of north-eastern corner of park, and forest at Terry Fox Forest Trail park entrance

On-going Projects

- Stewardship committee
- Stewardship newsletter
- Natural restoration maintenance
- Trail maintenance

Tables F1 – F7 detail the anticipated development and implementation costs associated with the programs and facilities detailed in the master plan. Detailed costs estimates will be developed when site plans and funding applications are developed.

Table F1: Public Use and Recreation Site Development Costs, Heart Lake Road Entrance Area

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
Building and Facilities					**1,710,000**
Programming and Administration Centre (includes park office and space for some Ogada and PCWF operations)	lump sum	1	1,700,000	1,700,000	
Gate house	lump sum	1	10,000	10,000	
Roadway & Parking Areas					**135,000**
Refurbishment of parking lot adjacent to Programming and Administration Centre - 50 spaces (granular surface, wheel stops)	each	1	60,000	60,000	
Picnic Area Improvement					**38,750**
Bike racks	each	2	500	1,000	
New potable water service	each	1	2,750	2,750	
Picnic shelter	each	1	35,000	35,000	
Walkways & Paving					**11,000**
Porous concrete & unit paving at the Programming and Administration Centre	square metres	100	110	11,000	
Signage					**11,000**
Heart Lake Road entry sign	each	1	10,000	10,000	
Information and interpretive signs	each	1	1,000	1,000	
Soft Landscape Area					17,160
Shrub & tree plantings	allowance			15,000	
Restoration seeding, open lawn & picnic areas	square metres	1,800	1.20	2,160	
Heart Lake Road Park Entry Improvement					**15,700**
Paving	square metres	120	110	13,200	
Shrub planting	allowance			2,500	
TOTAL					**1,863,610**

Table F2: Public Use and Recreation Site Development Costs, "The Pavilion" Area

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
Building and Facilities					**600,000**
The Pavilion	lump sum	1	600,000	600,000	350,000
Waterplay Areas					**500,000**
Waterplay facilities (including paved sundeck area)	lump sum	1	500,000	500,000	
Parking Areas					**225,000**
400 spaces (paved = porous asphalt, curbs, infiltration trenches)	each	1	225,000	225,000	
Picnic Areas Improvement					**122,500**
Bike racks	each	5	500	2,500	
Picnic tables	each	100	150	15,000	
New picnic shelters	each	3	35,000	105,000	
Signage					**3,000**
Information and interpretive signs	each	3	1,000	3,000	
Soft Landscape Areas					**42,160**
Shrub & tree planting	allowance			10,000	
Restoration seeding, open lawn areas & picnic areas	square metres	1,800	1.20	2,160	
Bioswales & wetland demonstration planting	lump sum	1	30,000	30,000	
Miscellaneous					**10,000**
Community stewardship area	allowance			10,000	
TOTAL					**1,502,660**

Table F3: Public Use and Recreation Site Development Costs, Lakefront and Beach Area

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
Building and Facilities					**525,000**
The Beach House shelter and washroom complex	lump sum	1	300,000	300,000	
The Boathouse and docks	lump sum	1	75,000	750,000	
Skills development area and ropes course	lump sum	1	150,000	150,000	
Beach Areas					**10,000**
Beach improvements	allowance	1		10,000	
Walkways & Paving					**25,200**
Access road paving	square metres	840	30	25,200	
Picnic Areas Improvement					**3,250**
Bike racks	each	2	500	1,000	
Picnic tables	each	15	150	2,250	
Signage					**5,000**
Information and interpretive signs	each	2	2,500	5,000	
Soft Landscape Areas					**7,500**
Shrub & tree plantings & restoration seeding	allowance			7,500	7,500
TOTAL					**575,950**

Table F4: Public Use and Recreation Site Development Costs, Heart Lake Lodge Area

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
Building and Facilities					**550,000**
The Lodge	lump sum	1	550,000	550,000	
Parking Areas					**56,250**
100 paved spaces *(paved = porous asphalt, curbs, infiltration trenches)*	each	1	56,250	56,250	
Picnic Areas					**108,500**
Bike racks	each	1	500	500	
Picnic tables	each	20	150	3,000	
Picnic shelter	each	3	35,000	105,000	
Signage					**2,000**
Information and interpretive signs	each	2	1,000	2,000	
Soft Landscape Areas					**17,400**
Shrub & tree plantings	allowance			15,000	
Restoration seeding	square metres	2,000	1.20	2,400	
TOTAL					**734,150**

Table F5: Public Use and Recreation Site Development Costs, Lakemount Area

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
Building and Facilities					**200,000**
Ogada summer camp & large group pavilion	each	1	200,000	200,000	
Parking Areas					**20,000**
200 spaces (13,520 m^2) *(granular paving, wheel stops)*	each	1	20,000	20,000	
Picnic Areas					**77,200**
Picnic tables	each	48	150	7,200	
Picnic shelter	each	2	35,000	70,000	
Signage					**1,000**
Information and interpretive signs	each	2	500	1,000	
Soft Landscape Areas					**1,000**
Restoration seeding for open lawn & picnic areas	sq. metres	833	1.20	1,000	
TOTAL					**299,200**

Table F6: Public Use and Recreation Site Development Costs, Trails

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
Peel Trail					**60,720**
1.5 metre granular trail	square metres	301	20	6,020	
2.7 metre granular trail	square metres	1,285	20	25,700	
Primary trail head	each	1	6,000	6,000	
Secondary trail head	each	2	3,500	7,000	
Boardwalk & wooden bridge (2 metres wide)	square metres	80	200	16,000	
Esker Trail					**95,320**
1.5 metre granular trail	square metres	1,466	20	29,320	
Primary trail head	each	1	6,000	6,000	
Boardwalk & wooden bridge (2 metres wide)	square metres	300	200	60,000	
Heart Lake Trail					**230,420**
1.5 metre granular trail	square metres	1,796	20	35,920	
New boardwalk sections (2 metres wide)	square metres	850	200	170,000	
Secondary trail head	each	1	3,500	3,500	
Lookout decks	each	3	7,000	21,000	
Terry Fox Forest Trail					**21,940**
1.5 metre natural surface trail	square metres	2,488	5	12,440	
Primary trail head	each	1	6,000	6,000	
Secondary trail head	each	1	3,500	3,500	
Rayner Trail					**138,600**
2 metre boardwalk trail	square metres	693	200	138,600	
TOTAL					**547,0 00**

Table F7: Public Use and Recreation Site Development Costs, Additional Items

Item	Unit	Quantity	Unit Cost ($)	Item Cost ($)	Total ($)
General Park Improvements					**600,000**
Park road improvements	lump	1	200,000	200,000	
Restoration and habitant improvements	lump	1	400,000	400,000	
TOTAL					**600,000**

REFERENCES

Canada Green Building Council. 2004. *LEED Canada-NC® v1.0 Green Building Rating System*. <http://www.cagbc.org/building_rating_systems/leed_rating_system.php?id=14&press=1&draw_column=3:3:2>. Accessed August 15, 2006.

City of Brampton. 2002. *Brampton's PathWays Master Plan*. Brampton, ON: City of Brampton.

City of Brampton. 2004. *Brampton Transportation & Transit Master Plan*. Brampton, ON: City of Brampton.

Gartner Lee Limited. 2005. *Brampton Lakes Citywide Lake Assessment/Management Study* (Interim Report, December 2005). Markham, ON: Gartner Lee Limited.

IMBA (International Mountain Biking Association). 2004. *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*. Boulder, CO: International Mountain Biking Association.

Statistics Canada. 2002. *2001 Community Profiles* (released June 27, 2002). Ottawa, ON: Government of Canada.

TRCA. 1992. *Trail Planning & Design Guidelines: A Handbook for an Inter-Regional Trail System in the Greater Toronto Area*. Toronto, ON: TRCA.

TRCA. 1994. *Valley and Stream Corridor Management Program*. Toronto, ON: TRCA.

TRCA, 1995. *The Strategy for Public Use of Conservation Authority Lands*. Toronto, ON: TRCA.

TRCA. 2001. *TRCA Business Plan 2002-2006*. Downsview, ON: TRCA.

TRCA. 2002. *Greening Our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks, Including the Etobicoke-Mimico Report Card*. Downsview, ON: TRCA.

Varga, S., and K. Mewa. 1998. *List of Provincial & Regional Life Science ANSIs in the Greater Toronto Area. Aurora District, Ontario Ministry of Natural Resources*. Toronto, ON: Queen's Printer.

ACKNOWLEDGEMENTS

Appreciation and thanks are extended to all of the members of the Heart Lake Conservation Area Master Plan Advisory Committee, which included the following individuals:

Dr. Lewis Molot, York University - Chair
Bette-Ann Goldstein, Etobicoke-Mimico Creek Watershed Coalition - Vice-Chair
David Barnes, TRCA Tenant
Cleve Battick, Local Resident
Leslie Bissegger, Boy Scouts Canada
Leigh Booth, Caledon Cycling Club
Trupti Desai, Local Resident
Larry Dupuis, Local Resident
Ryan Giles, City of Brampton
Melissa Hollis, Local Resident
John Hutton, Local Councillor
Mike Kasunic, Brampton Environmental Community Advisory Panel
Damian MacSeain, Local Resident
Chris McGlynn, Local Resident
Tim Manley, Town of Caledon
Bob Noble, Etobicoke-Mimico Creek Watershed Coalition
Leo O'Brien, Friends of Heart Lake
John Pisapio, Ministry of Natural Resources
Vi Sholdice, Local Resident
John Spencer, City of Brampton
John Sprovieri, Local Councillor
Sean Stuart, Local Resident

Past Members
Lorraine Bayliss, Peel District School Board
Sonja Loessl, Region of Peel
Heidie Kazman, Peel District School Board
Colleen Murray, City of Brampton

Additional Advisory Committee Members/Alternates
Bryan Smith, City of Brampton

The TRCA's Heart Lake Master Plan Working Group included TRCA staff who provided technical information and advice to the Advisory Committee. This group also provided technical information for the development of *The Heart Lake Conservation Area Master Plan Background Report*. Members of the Working Group included:

Mike Bender, Conservation Land Planning
Deanna Cheriton, Conservation Land Planning
Lori Colussi, Property and Asset Management

Cathy Crinnion, Archaeological Resources Management
Ron Dewell, Property and Asset Management
Derek Edwards, Parks and Culture
Laurian Farrell, Ecology
Don Ford, Ecology
Quentin Hanchard, Development Services
Tom Hildebrand, Restoration Projects
Dushan Jojkic, Etobicoke and Mimico Creeks Watershed
Sarah Kear, Education
Margie Kenedy, Archaeological Resources Management
David Lawrie, Ecology
Doug Miller, Parks and Culture
Rick Portiss, Restoration Projects
Paul Prior, Terrestrial Natural Heritage Group
Chandra Sharma, Etobicoke and Mimico Creeks Watershed
Rick Wilson, Geographic Information Systems

The Public Use and Recreation Plan was prepared by a team from ENVision – The Hough Group, dmA Planning & Management Services, and Joseph Bogdan Associates Inc., which included:

Donna Doyle, ENVision – The Hough Group
Nelson French, ENVision – The Hough Group
Caroline Marshall, ENVision – The Hough Group
Jim Morgenstern, dmA Planning & Management Services
Eha Naylor, ENVision – The Hough Group
Eli Newman, Joseph Bogdan Associates Inc.
Christina Pilz, ENVision – The Hough Group

In addition to the Advisory Committee members, special thanks and acknowledgment should be given to the following individuals, whose assistance and input were vital in the development of this master plan:

Joshua Campbell, Planning and Development Services
Jim Dillane, Finance and Business Services
Ronald Domerchie, Marketing and Communications
Elyssa Elton, Conservation Land Planning
Adele Freeman, Watershed Management
Kristin Geater, formerly TRCA
Rosemary Hasner, Marketing and Communications
Lisa Hastings-Beck, Marketing and Communications
Lia Lappano, Humber River Watershed
Joanna Parsons, Etobicoke and Mimico Creeks Watershed
Deanne Rodrigue, formerly TRCA
Dana Sewell, Marketing and Communications
Carolyn Woodland, Planning and Development Services
Paul Willms, formerly TRCA




TORONTO AND REGION Conservation
for The Living City

Member of
Conservation ONTARIO
Natural Champions