

TORONTO AND REGION CONSERVATION AUTHORITY

East Duffins Headwaters Management Plan Update

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Executive Summary

The East Duffins Headwaters (EDH) is a group of Conservation Lands totaling over 1400 ha in size in the Region of Durham. These lands sit between Brock Road and Lakeridge Road along the Uxbridge-Pickering Townline. Over 1100 ha of the study area is made up of largely intact forest cover and represents some of the most unspoiled lands in the Greater Toronto Area. All the properties in the EDH are located within the Oak Ridges Moraine and make up valuable parts of the headwaters of not only the Duffins Creek but also the Lynde Creek, Pefferlaw River and Lake Scugog Watersheds. Further underscoring the environmental significance of the property, the EDH intersects with major sections of both the Uxbridge Kames Environmentally Sensitive Area and the provincially designated Uxbridge Glen Major Forest Area of Natural and Scientific Interest. The area is home to several regional species of concern and Ontario Species at Risk.

The East Duffins Headwaters (EDH) Management Plan Update is being developed to address property management, public safety, site securement and restoration issues as well as respond to future demands for nature based recreation in the region. It will establish a framework for appropriate environmental protection and restoration techniques, facilitate public input regarding appropriate use, and create a framework for public stewardship of the lands. The update will be guided by recommendations outlined in TRCA's *A Watershed Plan for Duffins Creek and Carruthers Creek (2003)*. In addition, the Management Plan Update will integrate plans such as the Province of Ontario's *Places to Grow Plan (2006)*, *Oak Ridges Moraine Conservation Plan (2002)* and *Greenbelt Plan (2005)* which are designed to manage growth and development in Ontario.

The Management Planning process has been undertaken in 3 phases. Each phase outlines a set of deliverables to achieve within a specified timeline. The following is an overview of the main deliverables for each phase planning process.

Planning Phase	Deliverable & Timelines
Phase One	<i>Updating of Property Inventories, Committee Strike Up, and development of Stewardship Committee Terms of Reference, Update to Vision, Development of Background Report</i> (October 2008 – March 2012)
Phase Two	Review, and Update of Management Zones & Recommendations , Integration of Watershed Management Recommendations, Site Securement and Protection Plan Development, Trail Plan Development. (December 2008- June 2012)
Phase Three	Update Management Recommendations, Site Securement and Protection Plan Finalization, Trail Plan Finalization, Management Plan Document Finalization (July 2011 to March 2013)

East Duffins Headwaters Management Plan Update - Vision, Goals & Objectives

During the Management Plan Update process for the EDH a vision, a series of goals and objectives (VGO) were developed to guide the management of the properties. These VGO were created with input from the public, municipal partners and neighboring Conservation Authorities. These statements will provide not only immediate direction on how the lands will be managed but will also provide a filter for future decision making on the properties.

East Duffins Headwaters Management Plan Update – Vision

As part of the Toronto and Region Conservation Authority's vision for The Living City, the East Duffins Headwaters properties will be a model for achieving biodiversity protection, enhancement and management on a provincially significant landform while providing for sustainable, healthy and enjoyable public experiences.

East Duffins Headwaters Management Plan Update – Goal

To protect, enhance and steward the EDH properties to achieve watershed integrity and biodiversity in an engaged community, ensuring overall sustainability and public enjoyment.

East Duffins Headwaters Management Plan Update – Objectives

Natural Heritage

To protect existing key natural heritage features and restore the natural ecosystem by ensuring the integrity and diversity of native species, habitats, landscapes, hydrological integrity and ecological processes. Ensure the connection of natural heritage features to one another and to adjacent areas;

Cultural Heritage

To identify and, where appropriate, protect the cultural heritage features for their inherent value and depiction of the long-term human use and occupancy of the area;

Land Use

To ensure protection of the ecological integrity and cultural values of the land through innovative planning, increase in protected lands, management and appropriate conservation, recreation and other land uses;

Education

To encourage 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;

Stewardship

To encourage and facilitate the ongoing public involvement towards a partnership that will foster sustainable living, and will accomplish watershed management objectives, as well as implement Management Plan recommendations;

Public Use

To provide opportunities for appropriate and accessible public uses, which are consistent with

all other objectives.

East Duffins Headwaters Management Plan Update - Management Zones

Management zones are developed as part of the management plan to guide how the property is managed. These zones identify where ecological features must be protected, where public use and trails will be permitted, or where restoration efforts will be focused. The zones are distinguished by their different levels of ecological protection, management need and acceptable levels and types of public use.

The EDH property has been designated with 9 different management zones including:

- Nature Reserve Category #1;
- Nature Reserve Category #2;
- Natural Environment Category #1;
- Natural Environment Category #2;
- Cultural Heritage Preserve;
- Restoration;
- Lease – Residential;
- Lease – Agricultural; and
- Public Use.

These management zones are based on the existing natural and cultural heritage resources of the site. The definition of each management designation is outlined in Chapter 3.

While the EDH represents a largely intact natural area, these lands have undergone significant land-use changes in the past. Some of the factors that have affected the lands include pioneer related deforestation, wind erosion, subsequent reforestation and in some cases gravel extraction and associated aggregate site restoration. These land uses have left a set of properties that are largely of very high quality, and some that may still need improvement or restoration works to achieve their full ecological potential. A priority in drafting these Management zones was to develop a system that will continue to protect or increase protection for the undisturbed and intact environments on the site while still providing some opportunities for public access via a system of approved trails.

East Duffins Headwaters Management Plan Update - Site Securement and Protection Plan

The purpose of the Site Securement and Protection Plan (SSPP) is to identify any encroachments, built structures, gates, access points, boundary fence conditions, waste or any other issues that may be a safety concern or provide opportunities for unauthorized use of the properties. Any features identified were evaluated and prioritized for resolution, or if need be, removal.

Property data for the SSPP was collected using Global Positioning System (GPS) devices. Data was then tabulated and prioritized for resolution. Boundaries will be secured based on need and available resources. All identified access points will be reviewed for inclusion within the trail plan, those deemed inappropriate for inclusion will be decommissioned. All waste encroachments located on TRCA owned lands will be removed and, where required, restoration efforts may be implemented to improve the site. Neighbouring residents will be informed if and when encroachments are identified through a soft approach. If encroachments persist, enforcement or police will subsequently be involved.

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All buildings on the property will be secured and investigated for their future utility. Those deemed to be unnecessary or a hazard may be scheduled for removal pending all appropriate studies and approvals. A request for proposal to convert certain structures, most notably the Historic walker Saw Mill and accessory structures into interpretive features will be developed.

East Duffins Headwaters Management Plan Update - Trail Plan

The development of a trail plan is integral to maintaining the protection of the most sensitive areas on the property. The trail plan was guided by the Management Zone development process and subsequently directs users to areas which are appropriate for passive public use by avoiding areas that should be protected.

The stated goal of the trail plan is to develop a safe, accessible, enjoyable and educational year-round trail system that promotes and protects the environment as well as the cultural features of the East Duffins Headwaters. Also part of the goal is to develop a system will become an integrated part of the trails located within Uxbridge, the Trails Capital of Canada.

Approximately 108km of trail exist throughout the EDH. With the establishment of management zones and the creation of the trail plan, comes the recommendation to close approximately 14km of existing trail and create approximately 4 km of new trail in the core lands. An additional 10km of cycling focused trail is also to be developed on the TRCA Dagmar properties. While the number of trails in the EDH is to remain stable at approximately 108 km, the new trail system will shift trail use away from the most sensitive areas in the core of the properties to less sensitive areas closer to access points or on the periphery of the properties.

Some of the key features being provided in the trail plan include:

- A trail system that provides recreational use while protecting the cultural and natural heritage resources on the properties
- Linkages to interregional trail systems and neighboring natural areas via the Oak Ridges Trail and the Trans Canada Trail.
- Various trailheads which will provide access to different trail loop options, connected by linkage trails, to offer a variety of experiences for different skill levels.
- Recreational opportunities for the permitted low impact trail uses such as hiking, cycling, horseback riding, snow shoeing, cross-country skiing, wildlife viewing and on-leash dog walking within permitted trail corridors.

1. Introduction

1.1. Overview

This report is an update to the existing *Duffins Headwaters Management Plan for TRCA Properties (2003)*. Whereas the 2003 plan was a document meant to guide the management of all TRCA lands within the Duffins Creek Headwaters, this Management Plan Update is focused on the TRCA managed lands in the upper reaches of the East Duffins Creek Subwatershed.

The East Duffins Headwaters (EDH) Management Plan Update will address property management, public safety, site securement and restoration opportunities as well as respond to future demands for nature based recreation in the region. It will establish a framework for appropriate environmental protection and restoration techniques, facilitate public input regarding appropriate use, and create a sense of stewardship among users and adjacent land owners. The update is guided by recommendations outlined in *A Watershed Plan for Duffins Creek and Carruthers Creek (2003)*. In addition, the management plan update will integrate plans such as Ontario's Places to Grow Program (PTG), the Oak Ridges Moraine Conservation Plan (ORMCP) and the Greenbelt Plan (GBP) which are designed to manage growth and development in Ontario.

The EDH represents some of the most unspoiled lands in the Greater Toronto Area. The lands make up over 1400 ha, over 1100 ha of which is made up of largely intact forest cover. The properties are entirely located within the Oak Ridges Moraine and make up valuable parts of the headwaters of not only the Duffins Creek but also the Lynde Creek, Pefferlaw River and Lake Scugog Watersheds. Further underscoring the environmental significance of the property, the EDH intersects with major sections of both the Uxbridge Kames Environmentally Sensitive Area and the provincially designated Uxbridge Glen Major Forest Area of Natural and Scientific Interest. The area is home to several regional species of concern and various Ontario Species at Risk.

In addition to the regional natural heritage asset that the property represents, the property also boasts a rich cultural legacy and as such, eight individual areas have been identified in the EDH as areas of cultural value that are to be protected.

The study properties currently provide the opportunity for passive, year-round public use. There is an extensive 100km long multi-use trail system that links the majority of the EDH lands. Permitted trail uses include hiking, horseback riding, leashed dog-walking, cycling and cross-country skiing. In addition, TRCA trails are connected to an inter-regional trail system via the Oak Ridges Trail and the Trans Canada Trail.

The updated Management Plan will complement a number of TRCA initiatives, including:

- *The Living City vision;*
- *A Watershed Plan for Duffins Creek and Carruthers Creek (2003);*
- *Fisheries Management Plan for Duffins Creek and Carruthers Creek (2004);*
- *The Terrestrail Natural Heritage System Strategy; and*
- *The Former Timbers Brother Gravel Pit restoration project.*

Deliverables of the EDH Management Plan update include the following:

- Identification of existing property features, including natural and cultural heritage resources;
- Evaluation of the property based on conservation planning policies, landscape features and functions, site environmental opportunities and constraints, community needs, and municipal policies, plans and requirements;
- A site securement and protection plan;
- Refinement of conservation land management zones;
- Management guidelines and recommendations for each management zone;
- Expanded trail plan including hazard management and emergency response.

The management plan process will follow the study approach used by TRCA for the preparation of management Master Plans for Heart Lake, Bruce’s Mill and Greenwood Conservation Areas.

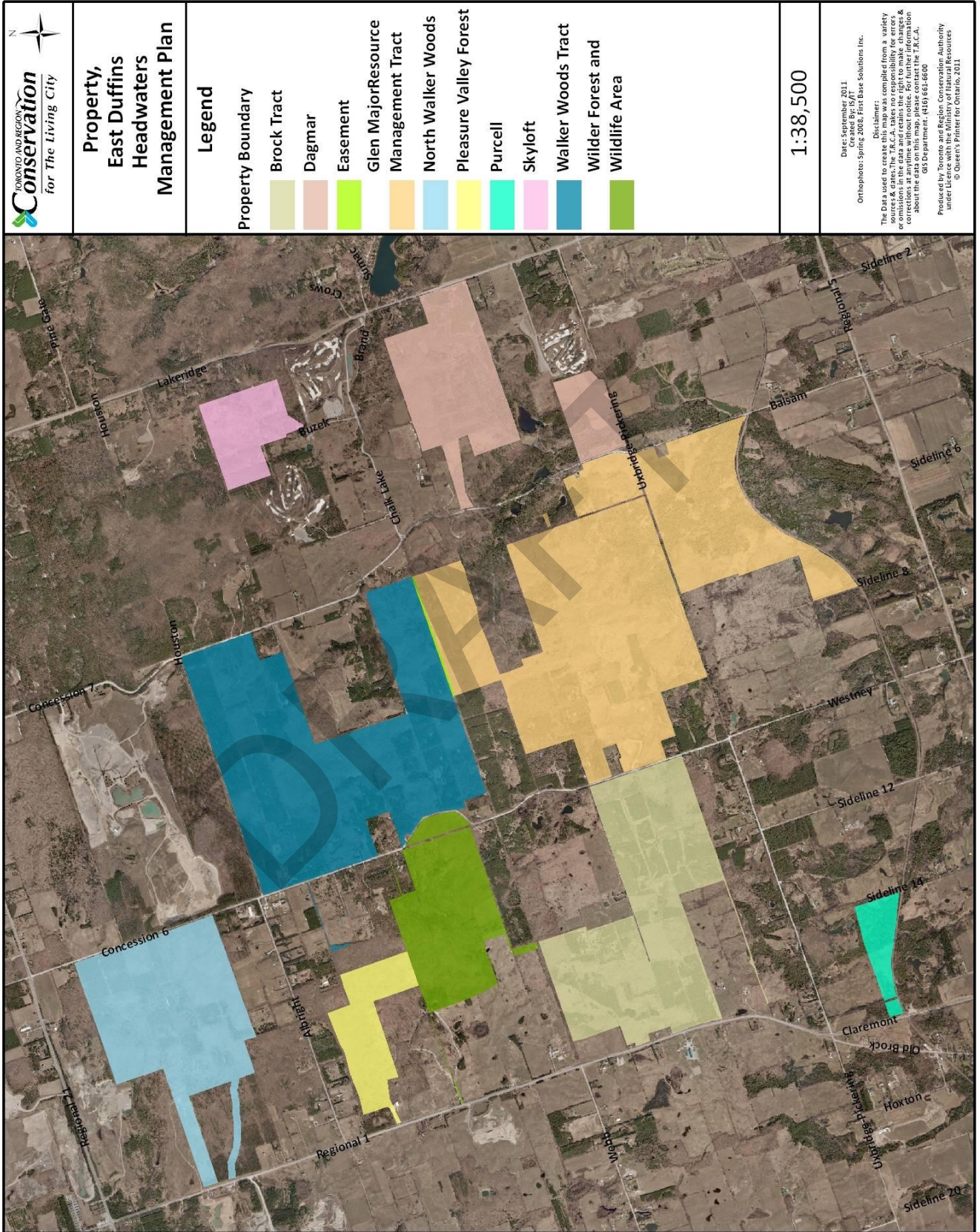
The EDH Management Plan Update will guide the management and use of the property for approximately 15 years. Various plan components, such as Management Zones, Management Recommendations, Trail Plan and Site Securement and Protection Plan have been included so that related management issues likely to arise in the future have already been discussed, and recommendations are provided. This Management Plan Update process has been one which has extensively engaged technical staff of the TRCA and its partners, as well as local interest groups and the public. Although this plan is designed to be in place for 15 years, recommendations and implementation strategies may need to be revisited from time to time to ensure it is adaptable to issues not addressed in this plan.

1.1.1. Site Description

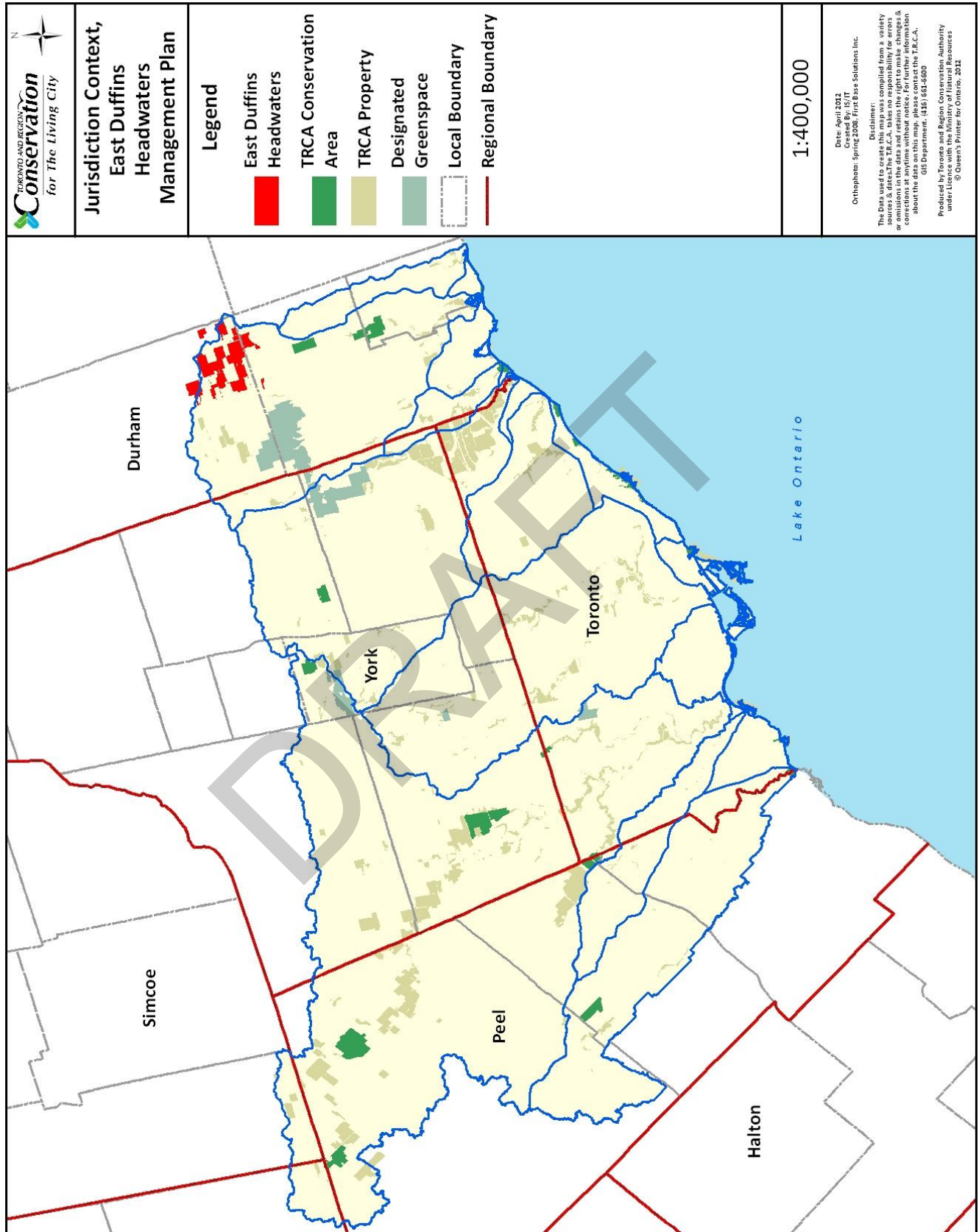
The lands that encompass the EDH are located within the headwaters of the Duffins Creek watershed on the southern slope of the Oak Ridge Moraine. All the properties are with the Regional Municipality of Durham. Seven of the nine holdings are located completely within the Township of Uxbridge. A small portion at the south end of the Glen Major Resource Management Tract is located in the Town of Pickering as well as the Purcell Property are located in the City of Pickering (Map 1.1).

The following holdings are included in the East Duffins Headwaters (EDH). The entire planning area is approximately 1460 ha in area. The individual holding areas are listed in table 1.1.

Table 1.1 EDH Property Names and Areas	
Property Name	Size (ha)
North Walker Woods	163.3
Walker Woods	311.4
Glen Major Resource Management Tract	439.4
Brock Tract	207.1
Wilder Forest and Wildlife Reserve	102.3
TRCA Dagmar	48.3
TRCA Pleasure Valley	127.7
TRCA Skyloft	40.5
Purcell	20.3



Map 1.1 East Duffins Headwaters Study Boundary



The Management Plan Update has been developed to be consistent with TRCA's vision for The Living City as well as the *Watershed Plan for the Duffins and Carruthers Creek (2003)*. The visions, goals and objectives of all of the supporting reports were reviewed and incorporated as part of the process for developing the EDH Management Plan Update.

1.2.1. Living City Vision

The quality of life on Earth is being determined in the rapidly expanding city regions. The vision of TRCA is for a new kind of community – The Living City® – where human settlement can flourish forever as part of nature's beauty and diversity. This 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.

The TRCA maintains the responsibility to ensure the conservation, restoration and responsible management of Ontario's water, land and natural habitats located within the TRCA's jurisdiction. This is accomplished through the development and implementation of programs and reports that aim to balance the human, environmental and economic needs.

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

- *Terrestrail Natural Heritage System Strategy (2007)*
- *A Watershed Plan for Duffins and Carruthers Creek (2003)*

1.2.2. TRCA's Terrestrail Natural Heritage System Strategy (2007)

This Management Plan Update 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. This 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 sub-watershed
3. Municipal areas.

A key component of the TRCA Terrestrial Natural Heritage Approach is the scoring and ranking of vegetation communities and fauna species. This 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 subsequently analyzed and used to determine appropriate management zones and trail alignments.

1.2.3. A Watershed Plan: For Duffins Creek and Carruthers Creek (2003)

The Vision and Recommendations created within the *Watershed Plan for Duffins Creek and Carruthers Creek (2003)* has been integrated within the EDH Management Plan Update to ensure a consistent watershed management approach. The *Watershed Plan* was designed to evaluate the potential effects of current and future watershed activities, and identifies management actions needed for watershed protection and enhancement. The watershed vision, developed by a task force of elected representatives, is as follows;

“It is envisioned that the Duffins Creek and Carruthers Creek watersheds will be healthy, dynamic and sustainable watersheds that continue to have clean, safe water with functioning wetlands and diverse self-sustaining communities of native plants, fish and wildlife, where natural and human heritage features are protected and valued. Residents

will recognize the watersheds as essential community resources that enhance their quality of life. All stakeholders will participate in the stewardship of the watersheds and growth and development will reflect this vision and the importance of protecting and enhancing this priceless legacy.”

This vision is supported by a management philosophy that promotes five key elements.

1. Net Gain
2. Environment First
3. Balanced Land Use
4. Human Health and Safety
5. Everyone Counts — Ownership, Commitment and Follow Through

Indicators, targets and measures for management actions were set in the *Watershed Plan*. Integral management actions, which are the top priorities for implementation, can be found in A Watershed Plan for Duffins and Carruthers Creek (<http://www.trca.on.ca/dotAsset/25961.pdf>).

1.2.4. Duffins Creek Headwaters Management Plan for TRCA Properties (2003)

The Duffins Creek Headwaters Management Plan for TRCA Properties (2003) provided direction on the management of the properties in the upper reaches of the entirety of the Duffins Creek. This included not only lands within the East Duffins Headwaters, but also lands such as the Secord Forest and Wildlife Area, Goodwood Resource Management Tract, Clubine Agreement Forest and the Claremont Field Centre. The plan provided general management recommendations; management zones a trail plan, and an implementation plan for the properties.

While still valid to this day, upon conducting a 5 year review, it was determined that significant enough changes by way of property acquisitions, major restoration efforts, and changes in recreational users warranted a focused management plan update for the properties within the East Duffins Headwater Area. The strengths and structure of the existing management plan have been incorporated into the update and have been built upon in a more refined and detailed level.

Other plans, strategies, and documents, similar to those mentioned above, have been reviewed and incorporated into the EDH Management Plan Update. Items and information reviewed, not mentioned in this section are outlined in the East Duffins Headwaters Management Plan Background Report (2012), which can be obtained by contacting the TRCA.

1.3. Study Process

Experience has shown that there is not only a demand for access to public lands, but also an increased awareness with the public for the preservation and protection of the

remaining natural green space within the Greater Toronto Area. Simultaneously there has been a growing interest from various user groups, businesses, and municipalities for outdoor recreation and education opportunities on public lands.

TRCA initiated the preparation of a comprehensive Management Plan Update for EDH in 2008. The goal of this process was to effectively protect the natural features on TRCA owned lands, while meeting the changing needs of the community with the updating of a the management strategy for the properties.

At Authority Meeting #08/08 resolution #A237/08 was adopted directing Staff to:

“establish a Project Steering Committee and a Public Advisory Committee to facilitate the opportunity for public input, which would include members of the Glen Major Forest and Walker Woods Stewardship Committee, interested community groups, business representatives, community residents, agency staff, municipal staff and area councillors to assist with the completion of the East Duffins Creek Management Plan Update for Toronto and Region Conservation Authority (TRCA) properties;

AND FURTHER THAT the final version of the management plan be presented to the Authority for approval.”

The East Duffins Headwaters Management Plan Update was undertaken in three phases as follows:

Phase One (October 2008 – March 2009)

- update property inventories including natural heritage data, geo-reference trail locations, cultural heritage data, forest management data, restoration opportunities information and site securement data;
- establish staff steering groups and a management plan advisory committee and host meetings;
- update plan vision, goals and objectives;
- establish and circulate a study newsletter;

Phase Two (December 2008 – June 2011)

- review and update management zones;
- integrate updated watershed management recommendations;
- develop a site securement and protection plan including public use and hazard management;
- review and update an overall trail plan for the properties including plans for emergency response;
- host staff steering and advisory committee meetings;
- circulate a study newsletter update;
- host one public meeting to review draft material.

Phase Three (July 2011 – March 2013)

- review and update management recommendations;
- finalize draft management plan document;
- finalize site securement and protection plan;
- finalize trail plans;
- host staff steering and advisory committee meetings;
- host public meeting to present final draft plan;
- obtain partners and TRCA board endorsement and / or approval of the plan;
- circulate a study update newsletter.

1.3.1. Consultation and Engagement

Consultation and engagement with project partners and stakeholders has been an intricate part of developing the EDH Management Plan Update. The following outlines the consultation process undertaken during the development of the EDH Management Plan Update and those who were engaged.

1.3.2. Project Steering Committee

The PSC for EDH consisted of an internal working group of staff from key divisions within the TRCA including Property Services, Restoration Services, Ecology, Archaeology, Stewardship and Enforcement. This group commented on or contributed to every component of the management plan update and guided the Management Plan Update throughout the planning process. The PSC was integral to the development of key management plan components such as the vision goals and objectives for the properties, the management zones and management recommendations for the properties.

1.3.3. Public Advisory Committee (Glen Major and Walker Woods Stewardship Committee)

The Public Advisory Committee (PAC) worked with TRCA staff to develop the vision, goals and objectives, management zones and management recommendations. Since the PAC is composed of the user groups which will be actively using the lands members of the PAC played an important role in the development of all plan components, but in particular the trail plan. The committee also provided some technical input and assisted with the public consultation program for the Management Plan Update.

In summary, the advisory committee was responsible for the following major functions:

- Ensuring that appropriate staff and members at their respective user group/agencies/associations were adequately informed throughout the process
- Providing commentary and input on suggestions brought to the 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.

The Management Plan Update advisory committee consisted of or had input from representatives from the following groups and municipalities:

- Durham Mountain Biking Association
- Green Durham Association
- Oak Ridges Moraine Land Trust
- Oak Ridges Trail Association
- Ontario Heritage Trust
- City of Pickering Staff
- Region of Durham Staff
- Trans Canada Trail - Ontario
- Uxbridge Horseman's Association
- Township of Uxbridge Environmental Advisory Committee
- Township of Uxbridge Council and Staff
- Township of Uxbridge Watershed Advisory Committee
- Local Residents

This study is the result of many months of work and commitment by this dedicated committee. Copies of the minutes for the PAC meetings have been compiled and can be obtained from TRCA upon request.

1.3.4. Public Consultation

At the outset of the Management Plan Update, it was identified that public use, enjoyment and stewardship of EDH would be important to the community. As a result, public input would become a priority in the development of integral plan components.

The public consultation program included:

- Meetings with interested organizations and user groups in the community to provide comment on specific plan components. During the planning process TRCA staff met with the cycling, equestrian and hiking communities to discuss proposed plans and public interest in the properties;
- Information sessions, newsletters, and mailings to the community to share information and updates on the Management Plan Update;
- An in depth trail use survey incorporating both infrared trail counting technology and in person/ online surveys was developed to gain a better understanding of how many people and who is using the property;
- Two rounds of public information sessions. The purpose of the first meeting was to present and gain feedback from the public on draft components. The second round of meetings was conducted to present the updated and revised plan components;

In summary, the public was supportive regarding the development of the Management Plan Update and its components. The public, local community and users were kept well informed through regularly scheduled stewardship committee meetings and consulted throughout the Management Plan Update process. Concerns, comments and suggestions raised to TRCA throughout the update process were integrated into the plan wherever possible.

1.3.5. Aboriginal Engagement

Several cultural heritage features have been recorded onsite, and as a result it was established that Aboriginal communities may have a special interest in the planning process. TRCA utilized various consultation methods to engage a number of Aboriginal groups.

A letter introducing the project and a brief synopsis of the vision, goals and objectives was sent to Aboriginal groups in early 2012. A number of groups requested additional information and consultation regarding the project. As a result, a meeting with interested Aboriginal groups and TRCA staff was held in June 2012.

Those Aboriginal groups initially contacted were also sent an update package in January 2013. The information sent included an update on completed plan components and an updated progress schedule.

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2. Vision, Goals, and Objectives

2.1. Vision

During the Management Plan Update process for the East Duffins Headwaters (EDH) a vision and a series of goals and objectives (VGO) were developed to guide the management of the properties. These VGO were created through a consultative process that included input from both the Project Steering Committee and the Public Advisory Committee. These statements will provide not only immediate direction on how the lands will be managed but will also provide a filter for future decision making on the properties.

It is important that the vision for the EDH be consistent with the vision for the *Watershed Plan for the Duffins and Carruthers Watersheds (2003)*.

A VISION FOR THE TRCA-OWNED PROPERTIES IN THE EAST DUFFINS CREEK HEADWATERS:

As part of the Toronto and Region Conservation Authority's vision for The Living City, the East Duffins Headwaters properties will be a model for achieving biodiversity protection, enhancement and management on a provincially significant landform while providing for sustainable, healthy and enjoyable public experiences.

Values:

This vision will be achieved by managing and caring for the lands in ways that value:

- A Environment first approach;
- Protection and enhancement of integrated ecosystems, habitats and biodiversity;
- Large continuous and connected areas of core Oak Ridges Moraine lands;
- Community engagement and participation that fosters trust, respect and consensus;
- Public and private land stewardship efforts, which improve the entire natural system and environmental function;
- Lifelong educational opportunities and experiences about nature and culture;
- Sustainable, safe and appropriate public uses;
- Scientific innovations and a commitment to work together to improve conservation;
- The protection of native species and biodiversity against the threat of invasive non-native species;
- A property which is safe and secure.

2.2. Goal and Objectives

The goal of the plan helps build on the main points acknowledged in the vision, while remaining consistent with TRCA's *Living City Vision* approach and the *Watershed Plan for the Duffins and Carruthers Watersheds (2003)*. The goal is followed by a number of key objectives intended to guide the development of specific components of the management plan update.

2.2.1. Goal

To protect, enhance and steward the EDH properties to achieve watershed integrity and biodiversity in an engaged community, ensuring overall sustainability and public enjoyment.

2.2.2. Objectives:

Natural Heritage

To protect existing key natural heritage features and restore the natural ecosystem by ensuring the integrity and diversity of native species, habitats, landscapes, hydrological integrity and ecological processes. Ensure the connection of natural heritage features to one another and to adjacent areas;

Cultural Heritage

To identify and, where appropriate, protect the cultural heritage features for their inherent value and depiction of the long-term human use and occupancy of the area;

Land Use

To ensure protection of the ecological integrity and cultural values of the land through innovative planning, increase in protected lands, management and appropriate conservation, recreation and other land uses;

Education

To encourage 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;

Stewardship

To encourage and facilitate the ongoing public involvement towards a partnership that will foster sustainable living, and will accomplish watershed management objectives, as well as implement Management Plan recommendations;

Public Use

To provide opportunities for appropriate and accessible public uses, which are consistent with all other objectives.

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3. Management Zones

3.1. Mapping and Defining the Management Zones

Table 3.1 summarizes the 9 Management Zones designated for use within the EDH lands. The Management Zones outline the resources typically found onsite and how management of these lands will be directed in the future. The table gives a description of each zone type, identifies the permitted intensity of use and describes the permitted resource use within each zone.

Table 3.1 EDH Management Zone Descriptions and Permitted Resource Uses			
Management Zone	Description	Permitted Intensity of Uses	Resource Uses
Nature Reserve – Category 1	Areas which have significant or unique natural features, landforms, species or habitats that require careful management to ensure long-term protection	None to low intensity	Fish, wildlife, cultural heritage research and forest management. Public access is restricted.
Nature Reserve – Category 2	20m area surrounding authorized corridor and boundary trails. Intended to act as transition areas to buffer public impact on Natural Reserve and Environment zones.	Low intensity limited to trail use only	Fish, wildlife and cultural heritage research, forest management, walking, hiking, cycling, leashed dog walking, horseback riding, cross-country skiing on authorized local and interregional trails and the use of associated low impact comfort stations only.
Natural Environment – Category 1	Large core habitat areas and corridors that are natural in character but do not meet the criteria of the natural reserve zone. Category 1 Natural Environment areas have a trail density threshold of <120m/ha	None to low intensity	Fish, wildlife, cultural heritage research and forest management.. Intrusion into interior habitat will be minimized. Public access is restricted to walking, hiking, cycling, leashed dog walking, horseback riding, cross-country skiing on authorized trails and the use of associated low impact comfort stations only.
Natural Environment – Category 2	Large core habitat areas and corridors that are “natural” in character but do not meet the criteria of the natural reserve zone. Category 2 Natural Environment areas may have a trail density threshold of > 120m/ha	None to low intensity	Fish, wildlife, cultural heritage research and forest management. Intrusion into interior habitat will be minimized. Public access is restricted to walking, hiking, cycling, leashed dog walking, horseback riding, cross-country skiing on authorized trails and the use of associated low impact comfort stations only.
Cultural Heritage Preserve	Areas of cultural heritage significance. Intended to act as an area to protect and highlight the cultural heritage resources of the management zone.	None to low intensity	Fish, wildlife, cultural heritage research and forest management. Intrusion into this zone will be minimized and any resource use will avoid cultural heritage resources and interior habitat. Public access is restricted.

Table 3.1 EDH Management Zone Descriptions and Permitted Resource Uses			
Management Zone	Description	Permitted Intensity of Uses	Resource Uses
Restoration	Locations identified as priority sites for potential forest management and habitat improvement projects to take place. It should be noted that restoration projects may take place across all other zones if identified as necessary.	None to low intensity	Fish, wildlife, cultural heritage research and forest management. Appropriate restoration efforts. Public access is determined by the zone upon which the restoration designation is superimposed.
Lease - Residential	Areas containing a residential dwelling which is leased by TRCA.	Low to moderate intensity uses associated with normal residential activities	Fish, wildlife, cultural heritage research and forest management. low to moderate intensity uses associated with residential properties. Public access is restricted.
Lease - Agricultural	Areas containing existing agricultural leases	Moderate to high intensity uses associated with normal agricultural land uses	Fish, wildlife and cultural heritage research, forest management, crops, horticultural nursery operations, and associated buildings. Public access is restricted.
Public Use	Areas associated with large access points and parking lots.	Moderate to High	Fish, wildlife, forest management and research. Grading and soil compaction associated with car parking lots.

While developing the Management Zones for the EDH, the priority was to conserve and protect the ecological and cultural integrity of the site, now and into the future. While the EDH represents a largely intact natural area, these lands have under gone significant land-use changes in the past. Some of the factors that have affected the lands include pioneer related deforestation, wind erosion, subsequent reforestation and in some cases gravel extraction and associated aggregate site restoration. These land uses have left a set of properties that are largely of very high quality, and some that may still need improvement or restoration works to achieve their full ecological potential. A priority in drafting these Management zones was to develop a system that will continue to protect or increase protection for the undisturbed and intact environments on the site while still providing some opportunities for public access via a system of approved trails.

Nature Reserve Category 1 and 2

Efforts were made to identify various ecological criteria that could be used to identify areas sensitive to disturbance. Some of the criteria considered were: the area of interior forest cover; rare or sensitive ecological communities; rare or sensitive flora & fauna; Ontario Species at Risk; federally protected flora & fauna habitat; provincially significant wetlands; amphibian and ground nesting bird habitat; and areas that will minimize

existing disturbance. The locations which contained the highest number or most sensitive occurrences of these species, communities or habitats have been designated as Nature Reserve Category 1.

Recreational uses within Nature Reserve Category 1 are not permitted. Permitted resource uses include natural and cultural heritage research and forest management activities only. Public use is restricted from these zones.

Understanding that some public access may be necessary near or through lands identified as Nature Reserve Category 1, a 20m corridor surrounding some existing trails has been identified as a transition zone to allow for trail work and maintenance to occur. These transition areas have been identified as Nature Reserve Category 2 zones.

Permitted uses within Nature Reserve Category 1 zones will be minimized as best as possible, and if absolutely necessary be kept to a minimum. Permitted resource uses include natural and cultural heritage research, forest management activities and activities associated with normal trail management. Public use is restricted to walking, hiking, cycling, leashed dog walking, horseback riding, cross-country skiing on authorized trails and the use of associated low impact comfort stations only.

Natural Environment Category 1 and 2

In the summer of 2009 a joint team of researchers from TRCA and the University of Toronto looked at trail density and biodiversity at 10 locations throughout the TRCA jurisdiction including sites located within the EDH. Fifty flora species were selected for sampling according to ecological sensitivity/ requirements criteria developed by TRCA. The purpose of the study was to determine the impact of trail density on those species generally and also to determine if species sensitivities and needs could be correlated to that impact in order to provide further management recommendations. Data on the presence and absence of those species was collected within a series of plots, as a way of measuring biodiversity on the site. Trail density was assessed based on existing trail mapping layers, then measured against an index of biodiversity.

The results of the study looked at a number of different aspects of trail density and biodiversity, however it was the finding that biodiversity measures were generally seen to decrease once trail density reached 120m/ha. This figure has been used to guide the determination of the Natural Environment Category 1 and 2 zones.

The study provides a useful approach to determining trail density and its impact on biodiversity. However, two observations must be made, as follows:

- The 120 m/ha threshold is a valuable planning tool but not an absolute number. Management considerations may determine that although this trail density level corresponds to moderate biodiversity levels, it may be desirable to have higher or lower levels of biodiversity in any given area; and,
- The study formed part of a larger, multivariate analysis looking at the many variables that impact trails and biodiversity. Variables such as trail width, user numbers, trail location, etc, that were not studied, would also be considered when determining the impact of and desired trail densities.

Areas which are considered to be ecologically healthy but may require various environmental enhancements or are capable of withstanding passive public use have been designated as Natural Environment Category Areas. These areas are typically more resilient to human activity and can sustain various forms of passive recreation. Natural Environment Category 1 areas have a trail density below 120m/ha.

Areas that have been found to be able to withstand trail densities above 120m/ha have been designated as Natural Environment Category 2. Some lands have pre-existing trail leases that preclude TRCA from decreasing trail densities in those areas; these areas have also been identified as Natural Environment Category 2.

Permitted uses within both Natural Environment Category 1 and 2 zones will be minimized as best as possible, and if absolutely necessary be kept to a minimum. Permitted resource uses include natural and cultural heritage research, forest management works, and activities associated with normal trail management. Public use is restricted to walking, hiking, cycling, leashed dog walking, horseback riding, cross-country skiing on authorized trails and the use of associated low impact comfort stations only.

Cultural Heritage Preserves

Cultural Heritage Preserves have been designated based on a known or high potential for either Aboriginal or early European settlements existing below or above grade. Boundaries of these zones have been determined by either developing a non-descript buffer around a known feature or an area in which there is a high likelihood of additional resources being found.

Permitted uses within Cultural Heritage Preserves will be minimized as best as possible, and if absolutely necessary be kept to a minimum. Permitted resource uses include natural and cultural heritage research and forest management works only. Public use is restricted from these zones.

Restoration

Restoration zones are areas that have been identified in the EDH under either the *Duffins Habitat Implementation Plan (2006) (HIP)*, the *Draft Duffins Creek Watershed Wetland and Riparian Opportunities Plan (2008) (ROP)* or the *TRCA Managed Forest Plan (1998) (MFP)*. These are areas that are either scheduled for regular forestry maintenance or are areas identified as opportunities for habitat improvement.

Unlike the other management zones being employed in the EDH, the Restoration Zones are being designated as an overlay to the other management zones as opposed to discrete areas of the study area. This is being done for two chief reasons. The first being that restoration activities are intended to improve the existing natural environment, and except during the actual implementation of restoration activities, should not influence the permitted uses identified on any individual lands. The second reason is that while priority restoration areas have been identified as an overlay zone, restoration activities may take place on any portion of the property where it is necessary or appropriate to do so.

Lease – Residential and Agricultural

Areas where residential houses or agricultural fields are under lease agreements are zoned as Residential Lease and Agricultural Lease zones respectively. The boundaries of these zones are determined by individual lease agreements.

Permitted uses for Residential Lease areas include low to moderate intensity uses of land associated with normal residential activities. Permitted uses for agricultural lease areas moderate to high intensity uses of land associated with normal agricultural activities.

Public Use

Portions of the EDH that are marked for a high level of public use, such as large access points or parking lots, have been identified as Public Use Zones.

Permitted uses are moderate to high uses of land associated with large access points, trail heads and car parking lots.

Map 3.1 shows the location extent and types of management zones to be employed within the EDH properties.

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Map 3.1: EDH Management Zones

4. Management Recommendations

The management recommendations are intended to guide the actions of TRCA, its partners and stakeholders to ensure the EDH will remain a healthy and vital part of the Duffins watershed. The recommendations have been separated into the following categories: natural heritage protection, restoration, cultural, trails, social, community outreach, and economic.

Each section contains a number of general management recommendations, as well as specific management actions in some cases. The management actions are intended to be more specific and measurable, while the recommendations are broader, strategic statements related to management. The management actions are summarized in Appendix B.

Within the Watershed Plan for Duffins and Carruthers Creek (DCCWP) are management recommendations including those targeting the protection and restoration of terrestrial and aquatic ecosystems, enhancement of natural cover, providing public access to greenspace and nature-based recreation opportunities and the protection of cultural heritage resources. The management recommendations for the EDH aim to support and build on the objectives of the Duffins and Carruthers Creek Watershed Plan.

The management recommendations within this plan are specifically targeted at achieving the Watershed Plan integral management actions to:

- Protect existing meadows, wetlands, and forests identified in the enhanced terrestrial natural heritage system and secure lands to be restored;
- Actively restore areas within the enhanced natural heritage system, which contribute multiple watershed benefits, and allow passive restoration to occur in the remaining areas; and
- Identify and raise awareness of past and present human influences on the watersheds and the strong link between human heritage, watershed recreation and human and environmental health.

4.1. Management Recommendations - Natural Heritage Protection

The study area has a wide range of valuable habitat types including sand barrens, coldwater streams and valley land forests. Ensuring the protection of these habitats and the important role they play in sustaining connectivity to surrounding systems is the focus of the following recommendations.

The EDH will be managed with an environment-first approach, meaning that natural heritage protection will be a key part of all management recommendations. This will influence items such as restoration projects, design and construction of the trail system, and the continued management of the stewardship program. The recommendations included in this section focus on the protection, enhancement and monitoring of the natural heritage resources in the EDH.

Management Recommendations:

- r1. For both aquatic and terrestrial ecosystems monitoring of flora, fauna and overall condition of the ecosystems is recommended, with continuance of monitoring initiatives already in place, and expansion of these efforts where gaps exist
- r2. Limit any land-use changes (e.g. loss of natural cover) that will reduce the matrix influence score.
- r3. Protect and restore groundwater recharge and discharge locations and pathways.
- r4. Consider the effects on drainage, seepage and recharge zones of any management actions (e.g. parking lots).
- r5. Pursue expanding contiguous area of natural heritage protection through acquisition of select private lands.

Management Actions:

- a1. Ensure salt is not used in any TRCA winter management of trails and parking lots.
- a2. Investigate the need for additional groundwater monitoring sites to assess hydrological impacts of pending development on surrounding lands.
- a3. Ensure all management work occurs during appropriate times to minimize impacts on the vegetation, breeding birds, and dispersing or migrating amphibians.
- a4. Replace exotic species with site-appropriate native plants.

4.1.1. Terrestrial Invasive Species

The EDH properties are by and large of very high quality; however one of the greatest threats and obstacles to the continued health of the EDH is the infestation of the properties by invasive species. Between 2006 and 2011 Conservation Lands staff have undertaken some targeted invasive management of vascular invasive plant species, specifically, Dog Strangling Vine (*Cynanchum Rossicum* and *C. Louiseae*), Garlic Mustard (*Alliaria Petiolata*) and Common Buckthorn (*Rhamnus Cathartica*) with some success. However, further study is required to formally establish the extent of invasive infestation on the properties, the priority sites, and the most effective use of the available resources for targeted invasive species management.

Areas where the properties are in a transitioning stage, where higher intensity public uses exist or where soil disruption has occurred, have an increased chance of invasive species infestation. Efforts should be taken to ensure native species have the opportunity to colonize before invasive species spread. This objective can be met with both restoration efforts as well as invasive species control. The species targeted should include: Common Buckthorn (*Rhamnus cathartica*), Garlic Mustard (*Alliaria petiolata*), Dog-strangling Vine (*Cynanchum rossicum*) and Common Reed (*Phragmites australis*).

Management Recommendations:

- r6. Work with the forthcoming TRCA invasive species management strategy to develop a property specific invasive control plan.

- r7. Implement best management practices in the management of invasive species on the site.

Management Actions:

- a5. Conduct an assessment of invasive management works already completed on the EDH properties.
- a6. Map invasive species within the study boundary to determine base line information.
- a7. Establish priority locations for invasive species treatment and or monitoring.
- a8. Monitor for occurrences of giant hogweed (no known occurrences) and other high priority exotic invasive.
- a9. Monitor historic garden sites for the presence and spread of invasive horticultural species and monitor if found.
- a10. Develop an invasive species prevention awareness campaign targeting new residents about the impacts of non-native species and the live releasing of aquatic species into rivers and ponds.

4.1.2. Species of Concern

Many of the recommendations and actions in this chapter will serve to protect species of concern, such as monitoring hydrology, implementing restoration activities, and carefully designing and locating the trail system. The following actions will assist in protecting identified species of concern habitat on the EDH properties.

Management Recommendations:

- r8. Obtain all necessary regulatory permits and approvals required under governing Acts and Regulations prior to commencing any implementation activities, including restoration work and trail plan implementation.
- r9. Tailor ecological restoration plans to target habitat improvements for species of concern.

Management Actions:

- a11. If necessary, conduct targeted search for flora species known only from historical records and believed extirpated from the site.

4.1.3. Hydrology

The hydrological integrity of the EDH is crucial for not only the wetland and forest communities present at the site but also the overall health of the watershed. Many important species found at the site are within aquatic or wetland communities and as such the water features onsite are a considerable point of vulnerability for the properties.

The Glen Major properties in particular are situated on an area of major groundwater importance, including major groundwater recharge and discharge areas. Studies conducted by TRCA indicate that water within local EDH tributaries is of high quality; however some

discrepancy seems to exist between the overall quality of the water in the area and water quality indicators such as Index of Biotic Integrity, Species Richness scores and the on-the-ground assessment of local aquatic habitat. Features such as natural and anthropogenic in-stream barriers have been identified as factors that are impacting aquatic habitat. Further restrictions in flow or alterations in sensitive hydrological areas may pose negative implications to biodiversity both onsite and further downstream.

Management Recommendations:

- r10. Complete inventory of existing wells on the property and properly geo-reference them.
- r11. Investigate chemistry of groundwater discharge to gain better understanding of site conditions.
- r12. Continue aquatic biodiversity monitoring within the east branch of the East Duffins Creek in support of regional monitoring programs.
- r13. Assess impacts to the site due to past and present land uses and develop mitigation plan, if required.
- r14. Investigate opportunities to mitigate the effects of anthropogenic in-stream barriers on TRCA and neighbouring properties.
- r15. Investigate and mitigate potential impacts to local aquifers by previous land uses.

Management Actions:

- a12. Develop a water monitoring plan for the site.
- a13. Consult hydrological recharge models prior to parking lot and trail construction to ensure infiltration and water balance are maintained.

4.2. Restoration

TRCA Habitat Restoration efforts aim to protect and restore ecosystem function and resilience to benefit ecological goods and services. Restoring ecosystem function re-establishes the building blocks of a healthy natural system to facilitate sustainable natural succession. Ecological goods and services are defined as the benefits arising from a functioning healthy ecosystem, which includes improved water quality and quantity, air quality, soil stabilization and balanced hydrologic regimes. Impairment occurs when those processes have been altered. Restoration should be focused on reversing the impairments that are detrimental to the natural function of the system.

Restoration objectives are based on identifying ecological impairments and improving ecosystem function across the following areas:

1. **Hydrology** – restoring natural hydrologic function by reversing, repairing, or mitigating alterations and impairments
2. **Natural Cover** – Restore and increase natural cover on the landscape (wetland, riparian, forest, and meadow)

3. **Landform** – restore natural landform and soil processes to promote self-sustaining and properly functioning communities
4. **Species** – restore critical habitat for target species concurrent with a properly functioning natural system

The EDH properties have a significant amount of natural cover and contain some of our jurisdictions most functional natural systems. However, historical deforestation, agriculture, and aggregate extraction on the EDH properties has led to areas with little to no cover, impaired drainage and wetland cover, habitat connectivity and disturbed soils. Restoration within the EDH properties should focus on improving natural cover and the impacts of past land uses.

Portions of the EDH property have been assessed for restoration opportunities under the *Duffins Creek Watershed Habitat Implementation Plan (2006) (HIP)* and the *Duffins Creek Watershed Wetland and Riparian Opportunities Plan (2008) (ROP)*. These two documents identify and prioritize restoration opportunities within the entire Duffins Creek Watersheds for implementation.

Under the *Habitat Implementation Plan*, West Glen Major priority restoration site was identified, which contains portions of the EDH Brock Tract. Targeted restoration opportunities for the site include reforestation, meadow restoration, wetland restoration and surcharging critical habitat structures where appropriate. Under the *Restoration Opportunities Plan*, approximately 20 opportunities for riparian or wetland restoration have been identified by TRCA in the vicinity of the EDH properties. Additional opportunities exist in local watercourses (e.g. in stream barriers to fish passage).

Management Recommendations:

- r16. Prioritize restoration opportunities to maximize ecological goods and services in a measurable fashion (e.g. area of natural cover, patch size and shape, connectivity, etc.).
- r17. Restoration activities should be site appropriate and aim to restore proper function based on hydrology, natural cover, landform, and species community.
- r18. Prioritize projects that restore natural succession, and improve the quality of headwater drainage features on the properties.
- r19. Ensure restoration efforts maximize benefit for the native species community, including species at risk and their associated habitat requirements
- r20. Continue ecological monitoring of specific restoration projects and the EDH properties as a whole.
- r21. Investigate opportunities to partner with individuals or organizations in the implementation of restoration opportunities in the vicinity of the EDH study area.

Management Actions:

- a14. Implement restoration activities as per the habitat implementation program for the Duffins Watershed, as outlined in the *Duffins Habitat Implementation Plan*

(2006) and the
Draft Duffins Creek Watershed Wetland and Riparian Opportunities Plan (2008).
a15. Implement Forestry activities as per the *TRCA Managed Forest Plan (1998)*

4.3. Management Recommendations - Cultural Heritage

First used by Aboriginal people and later by European settlers who took advantage of the abundance of natural resources, the lands within and around the EDH lands have been inhabited and utilized for thousands of years. Archaeological sites identified within the property and other areas have been noted as having a high potential to encounter additional archaeological sites, both of Euro-Canadian and Aboriginal cultural affiliation.

An objective of the DCCWP is to identify, document and protect sites cultural heritage resources, as well as to increase awareness and appreciation of these significant resources. The following recommendations support these objectives:

Management Recommendations:

- r22. Identify, Protect and conserve all archeological sites within the EDH Lands.
- r23. Pursue opportunities to preserve and interpret heritage sites for public education.
- r24. Engage Aboriginal communities with regards to any significant Aboriginal archaeological findings on site.

Management Actions:

- a16. Develop interpretive resources, including signage along a cultural heritage interpretive trail, for the identified Cultural Heritage features on the property.
- a17. Develop a Request for Proposal with regard to restoring the Walker Sawmill and accessory buildings as an interpretive feature.
- a18. Complete required archaeological assessment prior to any land disturbance.
- a19. Take required actions to address issues that may compromise known cultural heritage sites.

4.4. Trails

A focal point of the management plan update is the establishment of a trail plan that will strive to provide a safe, accessible, enjoyable, trail system that protects the environment as well as the cultural features of the EDH. Nature based recreation includes activities such as; hiking, leashed dog walking, cycling, cross country skiing, snowshoeing and equestrian use. The trail system will be managed to provide a safe and enjoyable recreational experience, while minimizing impacts on the natural heritage system.

The property will have a network of trails onsite connected by the Oak Ridges Trail, Oak Ridges Trail Loops and the Trans Canada Trail. Key linkages with surrounding lands such as the Durham Regional Forest will also be important features of the trail system.

A more detailed trail plan is outlined in Chapter 6 and includes recommendations and actions relating to trail design, location, maintenance, permitted uses, and signage. This section outlines strategic trail recommendations that form the basis of the trail plan.

Management Recommendations

- r25. Allow for low impact trail uses such as hiking, cycling horseback riding, snowshoeing, cross-country skiing, wildlife viewing, and on-leash dog walking within permitted trail corridors only.
- r26. Avoid locating trails within Nature Reserve Category 1 and Cultural Heritage Preserves.
- r27. Investigate options to connect all the EDH properties through a system of trails.
- r28. Continue to allow and improve connections between the EDH and adjacent or near adjacent public lands.
- r29. Support and manage the Oak Ridges Trail and the Trans Canada Trail on EDH properties.
- r30. Create a continuous network of off-road trails through the use of loops and trail connections, allowing trail users to adapt the system to their individual needs.
- r31. Work with local and regional emergency service providers to address any safety concerns and address issues limiting their response time within the trail system.

Management Actions:

- a20. Ensure all trail construction, improvements, naturalization or closures are carried out in accordance with TRCA's *Trail Strategy for Natural Areas* (currently in draft form).
- a21. Obtain all necessary regulatory permits and approvals required prior to commencing any potentially disruptive management or implementation activities, including trail development and parking lot construction.
- a22. Provide interpretive amenities along the trails, such as signage, thereby engaging users about proper trail etiquette and environmental issues.
- a23. Decommission and restore all informal trails that are not slated to become part of the formal trail system.
- a24. Develop a trail guide, trail head signs and way finding system for the EDH.

4.5. Management Recommendations - Social

Within the coming decade the portions of Coppins Corners and the Seaton Lands will see the construction of new homes that will accommodate a considerable number of new residents. These new residents represent both a significant stewardship opportunity as well as a potential concern due to the level of impacts associated with a high volume of usage and development taking place close to greenspace. It is important that TRCA take efforts to both develop a valued trail system, but also to mitigate pressures associated with large developments. The following sections outline a few key initiatives that will aim to both protect the EDH, as well as effectively engage the public in stewardship opportunities.

4.5.1. Site Securement & Protection

The purpose of the Site Securement & Protection Plan (SSPP) is to identify any encroachments, unauthorized built structures, gates, access points, boundary fence conditions and dumping on the EDH that may be of safety concern or provide opportunities for unauthorized uses.

A preliminary SSPP had been developed in 2010, under this plan, many features of concern had been identified and subsequently scheduled for resolution. Since that time a large number of efforts have already been undertaken to either block unauthorized use, mitigate damage to the properties or to ensure public safety. Efforts include the removal of the climbing wall and water slide from the former pleasure valley operation, the posting of property boundary signage, installation of gates and barriers at access points, removal of waste and hazards, assessing buildings for potential public safety concerns, the removal of unsafe built features and decommissioning of informal trails.

An updated version of the Site Securement & Protection Plan for the EDH can be found in Chapter 5 – Site Securement and Protection Plan. This section contains an updated inventory of all known access points, trails, hazards and encroachments within the EDH. The section also outlines a method of prioritizing the resolution of site securement issues on the properties and includes some select priority site securement actions for the properties.

Given the long history of both authorized and unauthorized use within the EDH, continued monitoring will be required to ensure that secured features remain as such, and that both natural and cultural heritage features remain protected onsite.

Management Recommendations

- r32. Ensure continual monitoring and management of unauthorized uses occurring on the property in order to prevent environmental damage, protect public health and safety, and reduce maintenance costs.
- r33. Work with Durham Regional police and municipal by-law staff where necessary to address unauthorized use on the site.

Management Actions:

- a25. Conduct monitoring of all property boundaries, including assessment of fencing, any new unauthorized access points, condition of trailheads, signage, etc...
- a26. Post signage along property boundaries identifying permitted access points and permitted uses.
- a27. Regularly inspect and repair unauthorized access points to ensure barriers or fences are intact.
- a28. Proactively inform new homeowners of permitted uses on TRCA lands, through methods such as homeowner information packages, regular distribution of newsletters, and proper signage.
- a29. Promptly decommission any informal trails, bike stunts or other structures that are identified during property audits or through the Trail Captains Program.

4.5.2. Community Outreach and Engagement

Through the management planning process various partnerships have been developed with local community and user groups. These partnerships have been developed both through the Glen Major Walker Woods Stewardship Committee (GMWWSC), the public information sessions and other events in the EDH area.

The partnerships that were developed with these organizations will be vital in continuing TRCA's work with the local stewardship committee, trail captain program and other public events directed towards protecting the EDH.

An integral part of developing and sustaining a successful stewardship program within the EDH will be the ongoing communication and partnership with the GMWWSC. It is because of TRCA's involvement with the GMWWSC that the Management Plan will be supported and where possible, enacted by the community. TRCA fully intends for GMWWSC to continue to work with TRCA as a commenting, reviewing and volunteer body in the implementation of the recommendations of this plan.

GMWWSC works hard to be a leader in supporting local conservation initiatives. TRCA should continue to foster the existing relationships it has built in the GMWWSC while continuing to seek out new members. A successful stewardship committee should be composed of local area residents, regional visitors, local naturalists, representatives from the various permitted user groups in the area, and representatives from the local municipalities.

Management Recommendations:

- r34. Continue to work with the Glen Major and Walker Woods Stewardship Committee whose main function is to oversee, comment on and assist in the implementation of the management plan recommendations
- r35. Engage local residents and community groups in stewardship programs that will improve the EDH and foster community stewardship.

Management Actions:

- a30. Review and re-establish the terms of reference for the committee that outlines roles and responsibilities.
- a31. Work collaboratively with members of the Stewardship Committee to create annual work plans for the committee based on the management plan.
- a32. Work with Regional and Municipal partners to determine appropriate stewardship events.
- a33. Specifically target local school groups and community groups around which to focus stewardship events and educational programs.
- a34. Organize the volunteers according to interests and skills, while trying to cover off tasks such as communications, boundary and trail monitoring, minor trail maintenance, and project fundraising work.

4.5.3. Trail Captains

One component of the EDH Stewardship program that has proved to be of great help to the TRCA is the Trail Captains program. Under this program, volunteer 'Trail Captains' assist TRCA through regular trail monitoring, light maintenance of the trail system, and most importantly, for reporting larger maintenance projects and issues to TRCA.

Management Actions

- a35. Continue to involve local community members as trail stewards to help care for and maintain the trail system through the Trail Captain program.
- a36. Continue a monitoring schedule of all trails on the EDH lands to be implemented by the trail captain program.

4.5.4. Outreach Materials

Distributing and expanding the message of stewardship and conservation will be the main message when developing education and outreach materials. During the management planning process, information about the properties and the management planning process was distributed regularly to surrounding residents by way of the EDH Newsletter (*The Woods*). The production of this newsletter is a collaborative effort between TRCA departments, as well as project partners, stakeholders and community groups. This same collaborative approach will be implemented to ensure consistent messaging is being distributed.

The newsletter will be produced twice a year and will be distributed online, to local residents, businesses, community centers, town halls and libraries. Along with updates on the implementation of the management plan, content will address event listings and general interest articles. Other TRCA pamphlets, such as trail guides, may also be inserted in the newsletter.

Management Actions:

- a37. Proactively inform new homeowners of permitted uses on TRCA lands, through methods such as homeowner information packages, regular distribution of newsletters, and proper signage.
- a38. Continue to produce *the Woods* in a collaborative fashion and distribute it to local area residents.

4.6. Management Recommendations – Economic

Implementation of the management recommendations, site securement plan and trail plan will require significant financial support. These recommendations will not only benefit the larger objectives of TRCA, but will also assist the Town of Uxbridge, the City of Pickering and Durham Region toward achieving some of their own planning and policy objectives.

Fortunately, many potential municipal and community-based partnership opportunities exist for TRCA. Consultation and support of the management plan update by community organizations and municipal partners has been instrumental in developing the management plan document, and the support of these municipal partners will play an important role in implementing the plan. TRCA will continue to foster existing partnership and seek out new partnerships, funding and grant opportunities to support the implementation of the management plan update in cooperation with all project partners.

Management Recommendations:

- r36. Explore opportunities to partner on project implementation with the Township of Uxbridge, the City of Pickering, the Regional Municipality of Durham, local community groups and other interested stakeholders.

Management Actions:

- a39. Investigate opportunities to obtain funding support from non-traditional sources.

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5. Site Securement and Protection Plan

5.1. Purpose

The purpose of the Site Securement and Protection Plan (SSPP) is to identify encroachments, built structures, gates, access points, boundary fence condition and waste on the EDH properties. At the same time the SSPP identifies other issues of concern or areas where there is a potential for encroachments to develop in the future. Any such features that are identified are evaluated and prioritized for removal or resolution. The SSPP is an important step in the assessment of the condition of a property and in eliminating safety concerns from TRCA land.

5.2. Data Collection Methods

At the core of the SSPP is a system of inventory and audit where by staff use hand global positioning enabled devices to collect data about the property. This Geospatial data was collected using the Trimble GeoXT handheld Global Positioning System (GPS) devices by TRCA Conservation Lands staff in October and November of 2009 and October 2012.

This system allows for:

- Accurate and up-to-date representations of features and trails within the EDH;
- In the field evaluation of property ownership delineation to identify encroachments;
- Spatial representation of encroachment locations and the ability to determine problem areas;
- Precise mapping of linear, point and area data; and
- An Ability to attach in-field descriptors of captured spatial information

When completing field surveys TRCA staff assign a condition to the various features being recorded. Table 5.1 outlines how the conditions of the various features are evaluated.

	Good	Fair	Poor	Needs Repair
Fencing	Upright, Undamaged, Solid Posts	Upright, Some damage, Posts compromised, Sections may lean	Failing/falling down, Badly Damaged, Posts are broken/missing	NA
Structural Encroachment	Appears new, Undamaged	Established, May be damaged	Possibly old, Damaged, Disintegrating	N/A
Gates	Undamaged, Secure	Fairly secure	Damaged, Insecure	Repairs necessary to increase security

The EDH properties were inventoried by completing a boundary survey. Other features may exist on the properties that were not identified during this initial survey. If new features are discovered they will be evaluated under the same process and the necessary actions taken.

Features and issues identified during the survey have been separated into three categories. These categories include: Boundary Inventory Results, Structural Encroachments and Non-Structural Encroachments. Listed below is a summary of the survey findings separated into the categories.

5.3. Boundary Audit and Results

5.3.1. Access and Gates at the Brock Tract

The Brock Tract contains many unauthorized access points through rundown fencing, or where fencing has been purposely removed. All unauthorized access points exist along shared boundaries with neighbouring properties. At the time of the boundary audit, there were two authorized access points along the 6th Concession, where two step-over stiles and an open gate exist.

Six gates exist throughout the property; with conditions ranging from good to fair. Three of these gates appear to be shared with neighbouring properties, but at the time of writing it is unknown whether or not they are actively in use.

The charts below summarize the location, type, status and location of access points and gates along the perimeter of the Brock Tract.

Table 5.2 Brock Tract Access						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Northern Boundary	Small (<1m)	Unauthorized (Hole in Fence)	Private Property	No	N/A	N/A
Mid-Boundary	Small (<1m) X9	Unauthorized (Hole in Fence)	Private Property	No	N/A	N/A
	Medium (1-3m)	Unauthorized	Private Property	Yes	Yes	Fair
	Medium (1-3m)	Unauthorized	Private Property	Single Chain-link	Yes	Poor

Table 5.2 Brock Tract Access						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
6th Concession	Large (>5m)	Authorized	6 th Concession	Yes	No	Fair
	Medium (1-3m) X2	Authorized	6 th Concession	No	N/A	N/A
	Small (<1m) X3	Unauthorized (Hole in Fence)	6 th Concession	No	N/A	N/A
Southern Boundary	Small (>1m) X3	Unauthorized (Hole in Fence)	Private Property	No	N/A	N/A
	Large (>5m) X2	Authorized	Private Property	Yes	Yes	Good
	Large (>5m)	Authorized	Private Property	Yes	No	Good
Western Boundary	Small (<1m) X2	Unauthorized (Hole in Fence)	Private Property	No	N/A	N/A
	Large (>5m) X3	Unknown	Private Property	Yes	Yes	Good

5.3.2. Access and Gates at TRCA Dagmar North

The TRCA Dagmar North property contains only one authorized access point. It is presently accessible through the Dagmar Ski Hill operation and is not available for general public use. There is one gate that exists along Lake Ridge Road which allows TRCA and Dagmar Ski Hill staff access to the trails for maintenance and other activities. Unauthorized access points do exist along the property boundary. These are located near neighboring properties and indicated that some unauthorized activity and access is occurring.

The charts below summarize the type, status and location of access points and gates along the perimeter of the Dagmar.

Table 5.3: Dagmar Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Lake Ridge Road	Large (>5m)	Authorized	Lake Ridge Road	Yes	Yes	Good
Southern Boundary	Small (<1m) X2	Unauthorized (Hole in Fence)	Private Property	No	N/A	N/A
	Large (>5m)	Authorized	Dagmar Ski Hill	No	N/A	N/A
Northern Boundary	Large (>5m)	Unauthorized	Private Property	No	N/A	N/A
	Small (<1m) X4	Unauthorized	Unauthorized	No	N/A	N/A

5.3.3. Access and Gates at TRCA Dagmar South

TRCA Dagmar South contains only two access points. One of the access points is along the shared border of the Dagmar Ski Hill property and the other is gate along the southern boundary. There was no evidence of unauthorized access occurring at either of these sites.

The chart below summarizes the type, status and location of access points along the perimeter of Dagmar South.

Table 5.4: Dagmar South Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Southern Boundary	Large (>5m)	Authorized	Private Driveway	Yes	Open	Needs Repair
Eastern Boundary	Large (>5m)	Unauthorized	Dagmar Ski Hill	No	N/A	N/A

5.3.4. Access and Gates at Glen Major Resource Management Tract

The boundary audit of the Glen Major property assessed the southernmost section of the property that runs along the CN Railway. The majority of this portion of Glen Major contains several unauthorized access points through damaged fencing and /or where fencing has been purposely removed. Many of these access points exist along the boundary shared with neighbouring private properties. The only authorized access points for this section of Glen Major are a private driveway and two gated access points along the western boundary.

The charts below summarize the type, status and location of access points and gates along the perimeter of Glen Major (southern section).

Table 5.5 Access and Gates Glen Major Resource Management Tract						
Location	Type	Status	Access From	Gates	Locked	Status of Gate
7th Concession (Eastern Boundary)	(<1m) X3	Unauthorized	7 th Concession	No	N/A	N/A
	Large (>5m)	Authorized	Private Driveway	No	N/A	N/A
	Large (>5m)	Authorized	7 th Concession	No	N/A	N/A
	Large (>5m) X2	Authorized	Private Residence	Yes	No	Good

Southern Boundary	Small (<1m)	Unauthorized	CN Railway	No	N/A	N/A
	Medium (1-3m)	Authorized	Side Trail	No	N/A	N/A
Western Boundary	Large (>5m) X2	Authorized	CN Railway	Yes	No	Good
	Small (<1m) X5	Unauthorized	Private Property	No	N/A	N/A
	Large (>5m)	Authorized	6 th Concession	No	N/A	N/A
	Large (>5m)	Authorized	6 th Concession	Yes	Yes	Good
Northern Boundary	Small (<1m) X4	Unauthorized	Private Property	No	N/A	N/A
	Medium (1-3m) X5	Unauthorized	Private Property	No	N/A	N/A
	Large (>5m)	Unauthorized	Private Property	No	N/A	N/A

5.3.5. Access and Gates at North Walker Woods

North Walker Woods contains three gates and one authorized step-over stile access point along the 6th Concession. There are four gates located along the southern boundary, which

are shared with neighboring residents. There are unauthorized access points that exist along the southern boundary where fencing has either been purposely removed or no longer exists.

The charts below summarize the type, status and location of access points and gates along the perimeter of North Walker Woods.

Table 5.6 North Walker Woods Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Eastern Boundary	Large (>5m)	Authorized	6 th Concession	Yes	Yes	Good
Southern Boundary	Small (<1m) X2	Unauthorized Hole in Fence	Private Property	No	N/A	N/A
	Large (>5m) X3	Authorized	Private Property	Yes	Yes	Good

5.3.6. Access and Gates at Walker Woods

Walker Woods contain one gate and only two unauthorized access points. Many of the authorized access points exist along the northern boundary where trails from a neighbouring property intersect with the trails at Walker Woods.

The charts below summarize the type, location and status of access points and gates along the perimeter of Walker Woods.

Table 5.7 Walker Woods Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Eastern Boundary	Large (>5m)	Authorized	7 th Concession	No	N/A	N/A
Northern Boundary	Medium	Authorized	Side Trail	No	N/A	N/A

Table 5.7 Walker Woods Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
	(1-3m) X4 Small (1m)	Authorized	Side Trail	No	N/A	N/A
Western Boundary	Small (1m)	Unauthorized	6 th Concession	No	N/A	N/A
	Large (>5m)	Authorized	Private Residence	No	N/A	N/A
Internal	Medium (1-3m) X3	Authorized	Conservation Easements	No	N/A	N/A
Southern Boundary	Large (>5m)	Authorized	Glen Major	Yes	Yes	Good
	Medium (1-3m)	Unauthorized	Glen Major	No	N/A	N/A

5.3.7. Walker Woods Parcel

The Walker Woods Parcel contains only one unauthorized access point, despite a lack of fencing.

The chart below summarizes the location, type and status of access points and gates along the perimeter of the Walker Woods Parcel.

Table 5.8 Walker Woods Parcel Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Northern Boundary	Medium (1-3m)	Unauthorized	Private Residence	No	N/A	N/A

5.3.8. The Wilder Forest and Wildlife Preserve

The Wilder Forest and Wildlife Preserve contains three gates and one access point from a private residence and another from the 6th Concession.

The chart below summarizes the location, type and status of access points and gates along the perimeter of the Wilder Forest and Wildlife Preserve.

Table 5.9 The Wilder Forest and Wildlife Preserve Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Eastern Boundary	Large (>5m)	Authorized	6 th Concession	Yes	Yes	Good
	Large (>5m)	Authorized	6 th Concession	Yes	Yes	Needs Repair
	Small (1m)	Authorized	6 th Concession	No	N/A	N/A
Western Boundary	Large (>5m)	Authorized	Neighbouring property	Yes	Yes	Good
Northern Boundary	Large (>5m)	Authorized	Neighboring property	No	N/A	N/A

5.3.9. North Walker Woods (Uxbridge Lands)

The Uxbridge Lands contain 2 gates and two authorized access points. One authorized access point exists along the shared border with North Walker Woods, while the other exists along Brock Road. One gate is also located along Brock Road, while the other is located along the northern boundary, which is shared with a neighboring property.

The chart below summarizes the location, type and status of access points and gates along the perimeter of the Uxbridge Lands.

Table 5.10 The Uxbridge Lands Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Eastern Boundary	Medium (1-3m)	Authorized	North Walker Woods	No	N/A	N/A
Western Boundary	Small (1m)	Authorized	Oak Ridges Moraine Trail Access	No	N/A	N/A
	Large (>5m)	Authorized		Yes	Yes	Good
Northern Boundary	Large (>5m)	Authorized	Neighbouring Property	Yes	Yes	Good

5.3.10. TRCA Skyloft Property

The Skyloft Property contains very little fencing and as a result there are many access points that exist along the periphery of the property. There is a total of eight access points and five of these are authorized trail linkages from neighbouring properties. The official access point for the Skyloft Property presently exists at the end of Buzek Lane to the north of Chalk Lake Road.

The chart below summarizes the location, type and status of access points and gates along the perimeter of the Skyloft Property.

Table 5.11 The TRCA Skyloft Property Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Eastern Boundary	Medium (1-3m)	Authorized	Neighbouring property	No	N/A	N/A
Western Boundary	Medium (1-3)	Authorized	Neighbouring property	No	N/A	N/A

	Large (>5m)	Unauthorized	Neighbouring Property	No	N/A	N/A
Northern Boundary	Medium (1-3m) X2	Unauthorized	Neighbouring property	No	N/A	N/A
Southern Boundary	Medium (1-3)	Authorized	Buzek Lane	No	N/A	N/A

5.3.11. TRCA Pleasure Valley Access and Gates

The TRCA Pleasure Valley Property contains numerous small access points along all borders. These access points are from neighbouring trails entering the property.

The chart below summarizes the location, type and status of access points and gates along the perimeter of the Pleasure Valley Property.

Table 5.12 TRCA Pleasure Valley Access and Gates						
Location	Type	Status	Access From	Gate	Locked	Status of Gate
Eastern Boundary	Small (1m)	Unauthorized	Neighbouring Property	No	N/A	N/A
Northern Boundary	Small (1m) X3	Unauthorized	Neighbouring Property	No	N/A	N/A
Southern Boundary	Small (1m) X9	Unauthorized	Neighbouring Property	No	N/A	N/A

5.3.12. Unauthorized Access Prioritization

The following actions will be taken to evaluate and resolve the identified unauthorized access points:

1. Post signage at each access point of the EDH properties identifying authorized access points.
2. Repair fencing where unauthorized access is occurring along the EDH property boundaries.
3. Evaluate the access point for possible incorporation into the EDH management and trail plans.

5.3.13. Gate Prioritization

The TRCA core series of locks are to be used in securing all gates within the EDH. It is recommended that the following actions will be taken to properly secure the identified access points at the EDH properties:

1. Removal of previous land owners lock and install TRCA approved locks at all identified gates with the EDH properties.
2. Evaluate the need to keep gates after the completion of the EDH Master Plan and Trail Plan.
3. Gates determined to be unnecessary should be removed and fenced accordingly.

5.4. Fencing at EDH

5.4.1. Fencing at the Brock Tract

The majority of the Brock Tract has existing farm fence around the circumference of the property. The fence ranges from “good” to “needs repair”. Wood and chain link fencing can be found along the western boundary, but these areas are sparse and are in good condition.

The charts below summarize the type, condition and length of each fencing type along the perimeters of the Brock Tract.

Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Good	57	Yes	Repair and install fence where required
	Farm	Fair	680	Yes	
Mid-Boundary	Farm	Good	715	Yes	Repair and install fence where

Table 5.13 Brock Tract Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
		Fair	957	Yes	required
		Needs Repair	189	Yes	
Eastern Boundary	Farm	Good	535	Yes	Repair and install fence where required
		Fair	111	Yes	
		Poor	92	Yes	
Southern Boundary	Farm	Good	1087	Yes	Repair and install fence where required
		Fair	83	Yes	
		Poor	212	Yes	
		Needs Repair	300	Yes	
Western Boundary	Farm	Good	872	Yes	Repair and install fence where required
		Needs Repair	62	Yes	
	Wood	Good	12	Yes	
	Chainlink	Good	85	Yes	
Total Fence= 6,049 meters					

5.4.2. Fencing at TRCA Dagmar North

The majority of TRCA Dagmar North has existing farm fence. The fence ranges from good to needs repair. There is a small section of the northern boundary that contains no fence and there is evidence that unauthorized access is occurring along this section. Similarly, there is a 577 meter section of the western boundary that contains no fencing, although there was no evidence of unauthorized access occurring in this section.

The charts below summarize the type, condition and length of each fencing type along the perimeters of Dagmar.

Table 5.14 TRCA Dagmar North Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Lake Ridge Road (Eastern Boundary)	Farm	Good	1032	No	Continue to monitor
Southern Boundary	Farm	Poor	367	Yes	Install and repair fencing where necessary
		Needs Repair	1093	Yes	
Western Boundary	Farm	Good	278	Yes	Install and repair fencing where necessary
		Needs Repair	877	Yes	
Northern Boundary	Farm	Good	134	Yes	Install and repair fencing where necessary
		Needs Repair	321	Yes	
Total Fence= 4102 meters					

5.4.3. Fencing at TRCA Dagmar South

The TRCA Dagmar South property has farm fencing surrounding the majority of the property boundary. The fence ranges from good to needing repair. There are a few sections that are unfenced, due to either a lack of fencing ever existing or fencing that no longer exists. The potential for unauthorized access exist along all boundaries.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of Dagmar South.

Table 5.15 TRCA Dagmar South Fencing

Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Southern Boundary	Farm	Good	111	Yes	Install and repair fencing where necessary
	Farm	Needs Repair	58	Yes	
	Farm	Fair	37	Yes	
Northern Boundary	Farm	Fair	375	No	Install and repair fencing where necessary
Western Boundary (Concession 7)	Farm	Good	60	No	Install and repair fence where necessary
Total Fence= 641 Meters					

5.4.4. Fencing at Glen Major Resource Management Tract

The initial boundary audit of the Glen Major Resource Management Tract property only assessed the southernmost section of the property (Osler Property) that runs along the CN Railway. The majority of this portion of Glen Major contains farm fencing exclusively and ranges from good to needing repair.

The chart below summarizes the type condition and length of each fencing type along the perimeter of Glen Major (Osler Tract).

Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
7 th Concession (Eastern Boundary)	Farm	Good	186	Yes	Install and repair fencing where necessary
		Fair	654	Yes	
		Poor	102	Yes	
		Needs Repair	363	Yes	
	Wood	Fair	31	No	

Table 5.16 Glen Major Resource Management Tract Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Southern Boundary	Farm	Fair	1463	Yes	Install and repair fencing where necessary
Western Boundary	Farm	Good	2282	Yes	Install and repair fencing where necessary
		Fair	884	Yes	
		Poor	130	Yes	
Northern Boundary	Farm	Good	539	Yes	Install and repair fencing where necessary
		Fair	200	Yes	
		Poor	136	Yes	
		Needs Repair	382	Yes	
Total Fence=7352 meters					

5.4.5. Fencing at North Walker Woods

All of the North Walker Woods Property contains farm fencing that surrounds the entire boundary. The fence ranges from good to needs repair.

The charts below summarize the type, condition and length of each fencing type along the perimeters of North Walker Woods.

Table 5.17 North Walker Woods Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Eastern Boundary	Farm	Good	1,169	No	Continue to Monitor
Southern Boundary	Farm	Good	1096	Yes	Install and repair fencing where required
Western Boundary	Farm	Good	1166	No	Continue to Monitor and repair fencing where necessary
	Farm	Needs Repair	53	No	
Northern Boundary	Farm	Good	1067	No	Continue to monitor
Total Fence= 4551 meters					

5.4.6. Walker Woods

The Walker Woods Property has existing farm fencing that surrounds the entire boundary. The fence ranges from Good to Needs Repair. There are sections that are unfenced, but these areas contain authorized access points.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of Walker Woods.

Table 5.18 Walker Woods Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Fair	2073	No	Continue to monitor
Eastern Boundary	Farm	Good	608	No	Continue to monitor
	Farm	Fair	85	No	
Internal	Farm	Good	681	No	Continue to monitor
		Fair	87	No	
		Poor	41	No	

Table 5.18 Walker Woods Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
		Needs Repair	229	No	
Southern Boundary	Farm	Fair	918	No	Continue to monitor
Eastern Boundary (Concession 6)	Farm	Good	1398	No	Install and repair fencing where necessary
	Farm	Fair	158	Yes	
Total Fence= 6278 Meters					

5.4.7. Walker Woods Parcel

There exists a small land holding on the eastern side of Concession 6 that is part of Walker Woods. This property is bordered on both sides by residential properties and contains no other infrastructure other than fencing.

Table 5.19 North Walker Woods (Parcel)Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Good	82	Yes	Install and repair fencing where required
		Fair	397	Yes	
Southern Boundary	Farm	Fair	357	No	Continue to monitor
Total Fence= 836 Meters					

5.4.8. Wilder Forest and Wildlife Preserve

The Wilder Forest and Wildlife Preserve has farm fence surrounds the entire boundary. The fence ranges from Good to Fair.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of the Wilder Property.

Table 5.20 Wilder Forest and Wildlife Preserve Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Fair	153	No	Continue to monitor
Southern Boundary	Farm	Fair	323	No	Continue to monitor
Western Boundary	Farm	Good	1083	No	Continue to monitor
Eastern Boundary (Concession 6)	Farm	Fair	496	Yes	Install and repair fencing where required
Total Fence= 2053 Meters					

5.4.9. The Purcell Property

The Purcell Property has farm fencing that surrounds the entire boundary. The fence ranges from Good to Fair. Due to the Purcell's Property location near a railway line and bordering farmers fields, unauthorized access is difficult to obtain and existing fencing appears to be relatively new.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of the Purcell Property.

Table 5.21 The Purcell Property Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Good	241	No	Continue to monitor
Southern Boundary	Farm	Good	655	No	Continue to monitor
		Fair	222		
Western Boundary	Farm	Good	84	No	Continue to monitor
Eastern Boundary	Farm	Good	648	No	Continue to monitor
Total Fence= 1850 Meters					

5.4.10. North Walker Woods (Uxbridge Lands)

Being an extension of the North Walker Woods Property, the Uxbridge Lands share a boundary fenceline. The eastern fenceline of the Uxbridge Lands is the Western Boundary of North Walker Woods and contains 711 meters of fencing.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of the Uxbridge Lands.

Table 5.22 The Uxbridge Lands Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Good	1023	No	Continue to monitor
Southern Boundary	Farm	Fair	337	No	Continue to monitor
Western Boundary	Farm	Fair	173	No	Continue to monitor
Eastern Boundary	Farm	Fair	711	No	Continue to monitor
Total Fence= 2244 Meters					

5.4.11. TRCA Skyloft

The Skyloft property contains very little fencing, but where farm fencing exists, it is in fair condition. The Eastern, Western and Southern boundaries are completely unfenced.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of the TRCA Skyloft property.

Table 5.23 TRCA Skyloft Fencing					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Fair	709	Yes	Install and repair fencing where required
Total Fence= 709 Meters					

5.4.12. TRCA Pleasure Valley

The TRCA Pleasure Valley Property has very little fencing and where fencing does exist, it is in good to poor condition.

The chart below summarizes the type, condition and length of each type of fencing along the perimeters of the Pleasure Valley Property.

Table 5.24 Pleasure Valley Fencing and Access					
Location	Type	Condition	Length (meters)	Unauthorized Access	Recommendations
Northern Boundary	Farm	Good	153	Yes	Install and repair fencing where required
	Farm	Poor	341	Yes	
Eastern Boundary	Farm	Fair	391	Yes	Install and repair fencing where required
Total Fence=885 Meters					

5.4.13. Fencing Totals in East Duffins Headwater Properties

The following chart summarizes the total number of meters of fencing and its condition in the East Duffins Headwater Properties.

Table 5.25: Total Fencing in EDH	
Condition	Length (Meters)
Good	14,544 m
Fair	13,402 m
Poor	1,421 m
Needs Repair	3,243 m

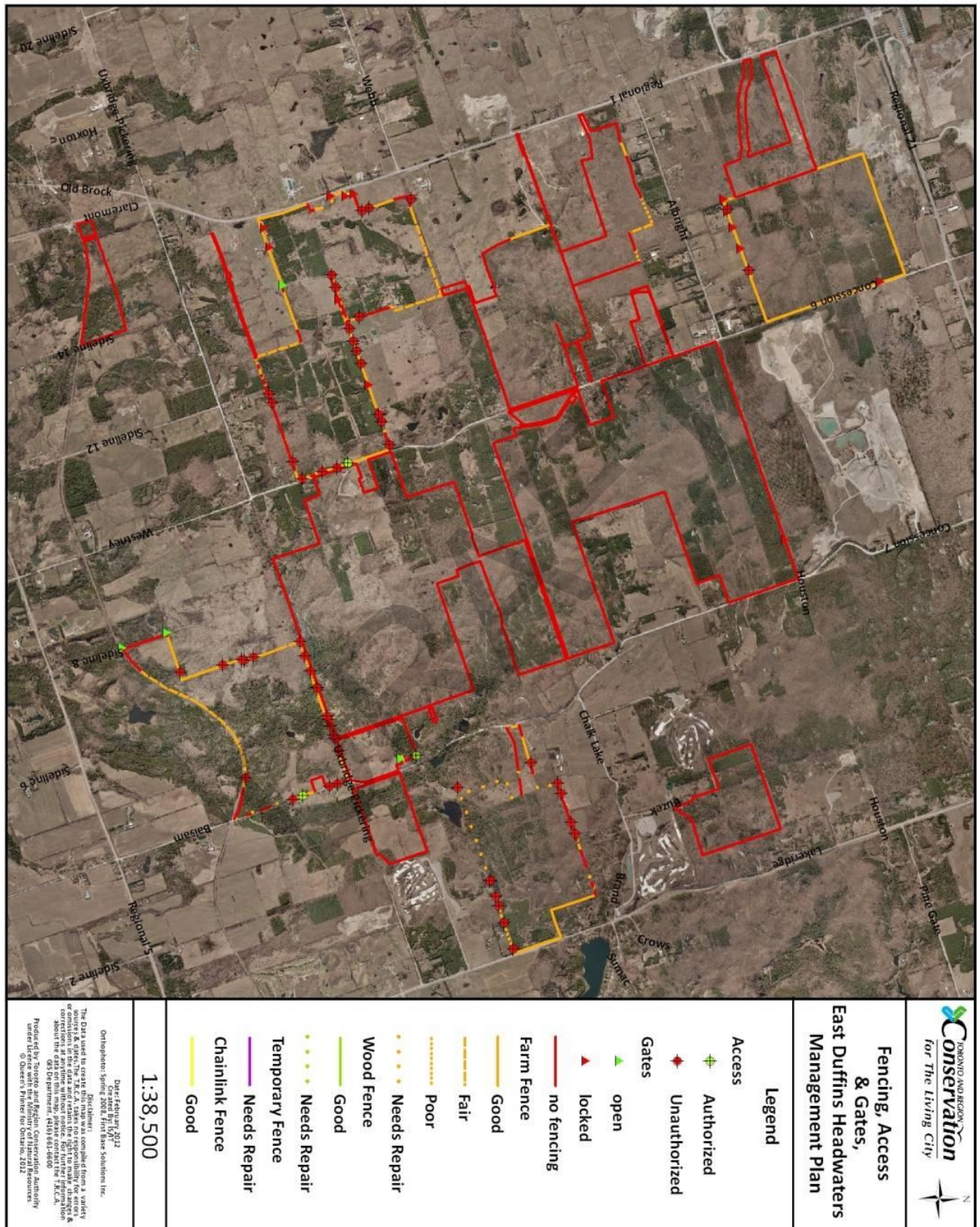
5.4.14. Fencing Priority

To prioritize the installation, upgrade, and removal of fencing, the following criteria will be used:

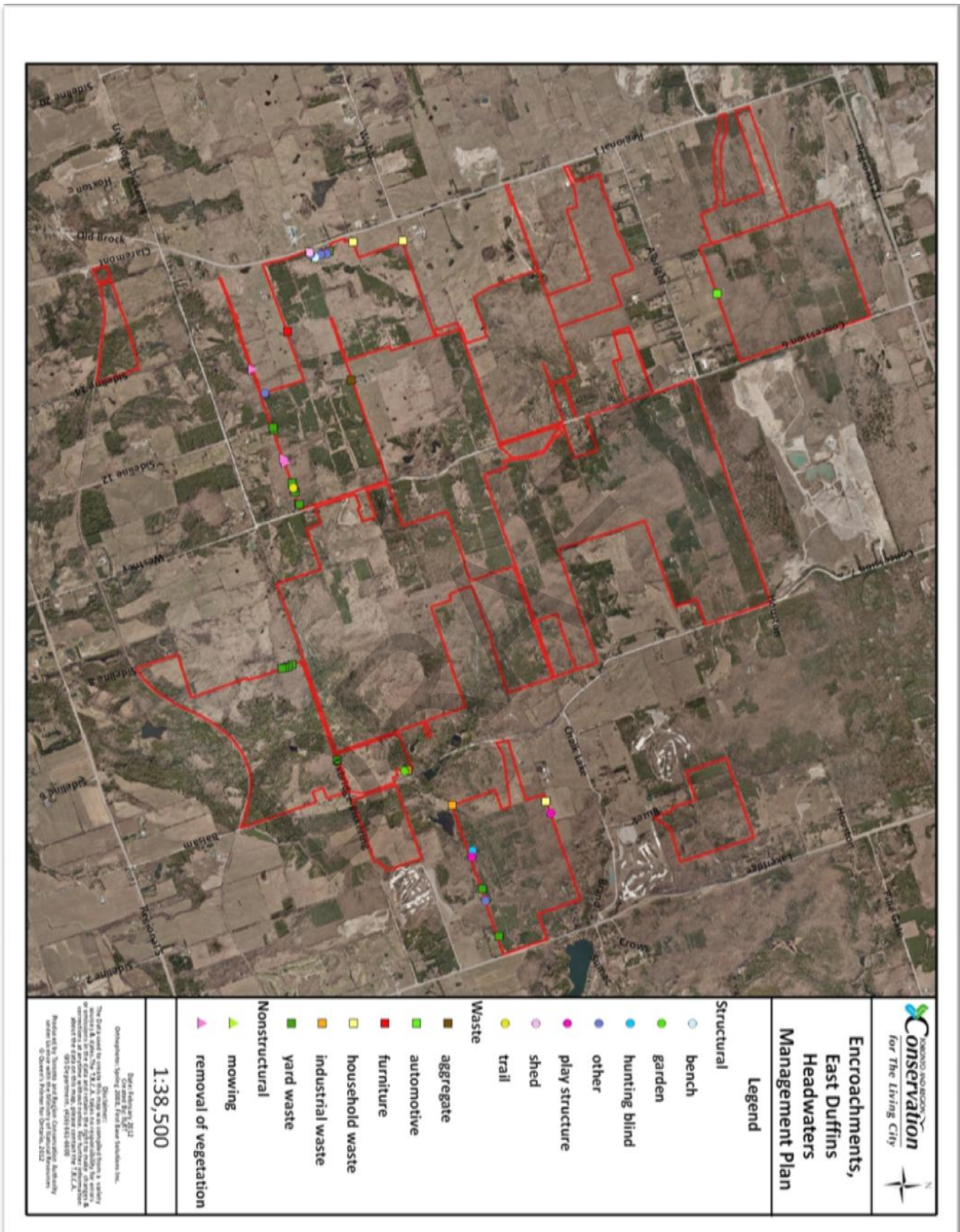
1. Install or repair boundary fencing along property lines where a known or high risk of encroachment exists.
2. Install signage identifying TRCA as the land owner and provide contact information.
3. Install boundary fencing along property edges which abut public roads.
4. Install boundary fencing along property lines which abut private property.

5. Repair and or replace existing fencing which is currently in poor condition.
6. Removal of fencing between two TRCA owned parcels of land.

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Map 5.1 Fencing, access points, and gates within the EDH



Map 5.1 Encroachment location and distribution in the EDH

5.5. Encroachments in the EDH

Encroachments can be classified as an unauthorized use of TRCA property. This can include dumping yard waste (grass clippings, leaves, plant material, compost etc.), dumping household waste (general garbage), dumping aggregate waste (landscaping materials, gravel etc.), creating any type of garden (vegetable, flower etc.) and storing any type of unauthorized materials on TRCA lands (sheds, compost bins, play structures etc.). The following tables showcase the type and number of encroachments at the EDH properties.

5.5.1. Encroachments, Brock Tract

Table 5.26 Waste Encroachments				
Waste Encroachment	Aggregate Waste	Furniture	Household Waste	Yards Waste
Total: 18	2	1	6	9

Table 5.27 Structural Encroachments								
Structural Encroachment	Shed	Bench	Play Structure	Trail	Fire Pit	Trailer	Gazebo	Tree Stand
Total: 11	2	2	2	1	1	1	1	1

Table 5.28 Non-Structural Encroachments		
Non-Structural Encroachment	Removal of Vegetation	Mowing
Total: 8	4	4

5.5.2. Encroachments, TRCA Dagmar

Table 5.29 Waste Encroachments			
Waste Encroachment	Industrial Waste	Household Waste	Yards Waste
Total: 3	1	1	1

Table 5.30 Structural Encroachment		
Structural Encroachment	Hunting Blind	Play Structure
Total: 3	1	2

5.5.3. Encroachments, Walker Woods

Boundary assessments did not reveal any encroachments on the Walker Woods property. However, a large farm waste site has been identified in the heart of the Walker Woods Property. This site will be a high priority site for resolution.

5.5.4. Encroachments, Glen Major resource Management Tract

Table 5.31 Waste Encroachments	
Waste Encroachment	Yard Waste
Total: 5	5

5.5.5. Encroachments, North Walker Woods

Table 5.32 Waste Encroachments	
Waste Encroachment	Automotive Waste
Total: 5	5

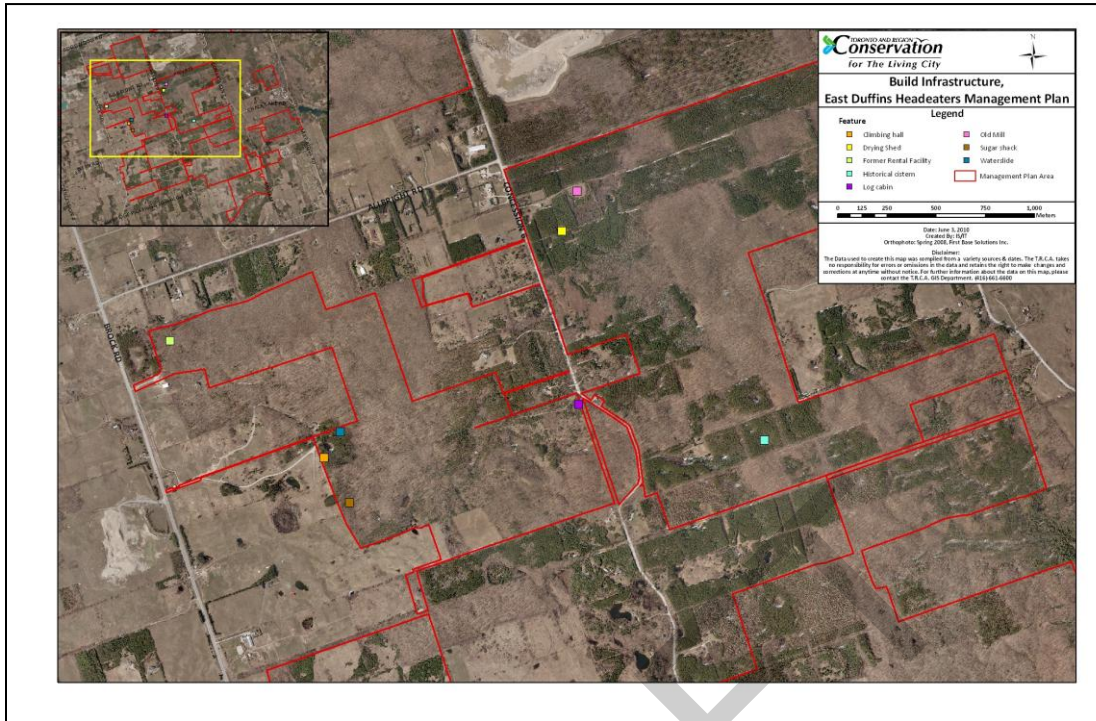
5.5.6. Encroachment Resolution

The following actions will be taken to evaluate and address encroachments at the EDH:

1. All waste encroachments located on TRCA owned lands should be removed. Where required, restoration efforts may be implemented to improve the site.
2. Neighbouring residents should be informed of their infractions and sent the TRCA Natural Neighbours information sheet.
3. Where infractions persist, involve enforcement and/or police to resolve the issue.

5.6. Built Infrastructure

The Section below highlights the built features that were identified within the study area during the property survey. This list does not include TRCA residential leased buildings. Some buildings will be considered for future use while others will be decommissioned.



Feature	Location
Walker Saw Mill	Walker Woods
Walker Drying shed	Walker Woods
TRCA Field Shop	Walker Woods
Historical cistern	Walker Woods
Log cabin	TRCA Wilder Forest and Wildlife Preserve
Sugar shack	TRCA Wilder Forest and Wildlife Preserve
Former Rental Facility	TRCA Pleasure Valley Lands

In the fall of 2010 preliminary inspections of the EDH buildings were conducted by TRCA maintenance staff. The following table summarizes the recommendations and required upgrades necessary to keep the building in a safe operational condition. At a minimum the buildings must be made safe and functional for TRCA staff. If the structures are to be made available to the public, additional upgrades and repairs may be necessary. The actions listed below are primarily directed towards the former, however some actions listed below are directed towards making the structures public features.

Table 5.34 Built Infrastructure in the EDH Study Area	
Feature	Required Actions
Walker Saw Mill (Walker Woods)	<ol style="list-style-type: none"> 1. Conduct Building assessment. 2. Seek out proposals to convert the site into an interpretive feature.
Walker Drying shed (Walker Woods)	<ol style="list-style-type: none"> 1. Secure existing historical machinery. 2. Grade granular surface within shed 3. Possibly install seating to convert the site into a rest area.
TRCA Field Shop, 2899 Concession 6	<ol style="list-style-type: none"> 1. Conduct workplace assessment 2. Upgrade shop securement hardware and ensure all doors have adequate locks to prevent access and ensure that all hardware has appropriate
Historical cistern (Walker Woods)	<ol style="list-style-type: none"> 1. Block Public access and or drain storage area to eliminate standing water concerns 2. Assess for future removal
Log cabin (Wilder Forest and Wildlife Area)	<ol style="list-style-type: none"> 1. Secure site 2. Assess for future removal or relocation
Sugar shack (Wilder Forest and Wildlife Area)	<ol style="list-style-type: none"> 1. Remove Debris and or other dangerous materials from site. Block public access from building until the building can be made safe. 2. Assess for future use as an interpretive feature
Former Rental Facility (TRCA Pleasure Valley)	<ol style="list-style-type: none"> 1. Ensure all doors have adequate locks to prevent access 2. Assess for eventual removal

5.6.1. Public Use Opportunities

Recognizing the high level of public use on the EDH lands and the interaction of trail users with some of these buildings, it may be desirable to use some of the existing built infrastructure where appropriate to increase the user experience of the site. The cultural heritage value offered by many of these building is also a key feature that should be highlighted as an educational opportunity within the EDH. The following table summarizes potential public use opportunities for some of the buildings.

Table 5.35 – Public use opportunities for buildings*	
Feature	Considered Public Use Opportunities
Walker Saw Mill (Walker Woods)	Potential Interpretive opportunity
Walker Drying shed (Walker Woods)	Potential Rest area/Interpretive opportunity
Historical cistern (Walker Woods)	N/A
Log cabin (Wilder Forest and Wildlife Area)	Potential Interpretive opportunity or rental opportunity
Sugar shack (Wilder Forest and Wildlife Area)	Potential Rest area/Interpretive opportunity
Former Rental Facility (TRCA Pleasure Valley)	N/A

* The level of public interaction with built infrastructure offered is dependent on the amount of additional upgrades required.

Existing trail infrastructure was inspected by TRCA to ensure proper maintenance and safety. The immediate resolution of concerns was completed by TRCA staff on an at needs basis since 2008. Trail feature inspection has been a regular component of the ongoing property management of the EDH. The inspection and resolution of maintenance or safety issues will continue to be major part of both the trail and property management within the EDH.

5.7. Site Securement Recommendations

Due to the public use of the EDH properties, site securement and protection should be a high priority moving forward. All boundaries of the EDH properties have been assessed and documented. From the gathered data, it is clear that there is a need for improved fencing and access control.

Recommendations:

- r37. That all built features within the EDH be secured.
- r38. That the Walker Woods farm waste dump be removed and restored accordingly
- r39. That at boundaries where persistent encroachments exist or boundaries where there is high likelihood of encroachments to exist, be secured and monitored and signed accordingly.
- r40. That all encroachments be prioritized and resolved accordingly.
- r41. That TRCA continue property boundary monitoring to ensure that existing encroachments are resolved and new encroachments are identified.

Table 5.36 EDH Site-Securement Summary			
Priority Level	Public Safety	Environmental Health	Site Securement
High (Immediate resolution*)	<ul style="list-style-type: none"> Block Public access to and or drain the historical Walker Cistern. Conduct work place assessment of TRCA Field Shop. 	<ul style="list-style-type: none"> Conduct a risk assessment of the Walker Historical Dump Remove all other high priority Encroachments 	<ul style="list-style-type: none"> Resolve the south west Brock Tract encroachments and fence the northern boundary of the land extension just north of the Uxbridge-Pickering Townline just east of Brock Rd.
Medium (Short term resolution 12 - 18 months*)		<ul style="list-style-type: none"> Restore the Walker Historical Dump Remove all medium priority encroachments 	<ul style="list-style-type: none"> Install and repair fencing where there is a high likelihood of encroachments existing or where presently encroachment exists.
Low (Long term resolution 18-36 months*)		<ul style="list-style-type: none"> Resolve all low-priority encroachments 	<ul style="list-style-type: none"> Install recommended signage along boundary Evaluate and address known access points

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6. Trail Plan

6.1. Introduction

To ensure that the natural and cultural features in the EDH are well protected and even enhanced, a solid understanding of the recreational features that are present on the site and a strategy to manage them is required. This trail plan is intended to fulfill these requirements.

This plan is a critical part of the management for the EDH properties and will seek to outline the trail systems, permitted uses and schedules for ensuring their proper maintenance and development within the EDH.

While the information contained herein is intended to guide the management and development of the trail system, access points, signage and related items within the East Duffins Headwaters, it is important to point out that it is intended to be read as a part of the larger EDH Management Plan, the Watershed Plan and the other guiding documents that act upon the site.

6.2. Trail Plan Vision, Objectives and Management Principles.

This following section outlines the visions, goals objectives and the management principles for the development and upkeep of the EDH trail system. These statements are the result of several visioning exercises with the GMWWSC and its trails subcommittee Tracks.

The trail plan vision is a broad statement of the type of trail system that this plan seeks to provide on the properties. Objectives are more targeted statements of some of the strategies to achieve the trail plan vision. Principles are statements intended to guide trail related decisions. Recommendations are direct comments and action items to be implemented on the trails. It is intended that these statements will shape the trail development and management on the EDH properties. All trail management related decisions should be consistent with the following statements and the entire EDH Management Plan.

6.2.1. Trail Plan Goal

A safe, accessible, enjoyable and educational year-round trail system that promotes and protects the environment as well as the cultural features of the East Duffins Headwaters. A system that will also become an integrated part of the trails located within Uxbridge, the Trails Capital of Canada.

6.2.2. Trail Plan Objectives

- a. Develop and manage the trails with an environment first approach
- b. Implement best practices for the construction and management of the trails
- c. Improve user experience while decreasing user conflict
- d. Develop a balance of trail uses that allow all user groups to enjoy the EDH

6.2.3. Trail Plan Principles

6.2.3.1. Natural & Cultural Heritage Principles

The existing trail plan and future trail development should allow the public to enjoy the features that make the EDH special, but at the same time protect these cultural and natural heritage assets.

To try and meet the vision and objectives of the trail plan, the following Natural Heritage principles should be followed with regard to all trail management related decisions for the property:

- a. Minimize disturbance to areas of high ecological sensitivity, cultural sensitivity or areas with sensitive landforms; and
- b. Allow for the expansion of the natural heritage system.

Recommendations:

- r42. Approve the proposed trail system and any future trail development on Conservation Lands by all necessary TRCA staff;
- r43. Avoid locating trails within Nature Reserve Category 1 and Cultural Heritage Preserves;
- r44. Keep trail densities below the threshold of 120m/ha, whenever possible;
- r45. Exempt an area from the 120m/ha threshold if approved by the TRCA Ecology Division and if there is an associated reduction of the trail influence area; and
- r46. Monitor the natural and cultural heritage impacts of trails and their usage to determine any required appropriate action (i.e. trail closures, re-routing) to protect the environmental integrity of the property and to ensure that the vision, goals and objectives of the trail plan are being met.

6.2.3.2. Trail and Recreation Principles

While the chief purpose of the EDH properties is to preserve the natural and cultural heritage assets on the property, TRCA recognizes the desire, need and benefit of the public entering the property to enjoy these features. However, TRCA also recognizes the fact that public use of the property should be managed in a balanced, safe and sustainable fashion.

To try and meet the vision and objectives of the trail plan, the following trail and recreation principles should be followed with regard to all trail management related decisions for the property:

- a. Encourage users to enjoy the natural and cultural heritage features of the EDH through low impact use of the trails on the property;
- b. Seek inclusiveness in trail management by developing the majority of trails to provide opportunities for beginner to intermediate levels of challenge and classifying them accordingly.
- c. Seek to develop a balance of permitted low intensity uses on the trails.

Recommendations:

- r47. Allow for low impact trail uses such as hiking, cycling, horseback riding, snow shoeing, cross-country skiing, wildlife viewing and on-leash dog walking within permitted trail corridors only;
- r48. Restrict all motor vehicle access from trails, except for maintenance purposes by approved parties.

- r49. Construct all future trails or re-routes to accommodate multi-use trail experiences, unless in areas designated as a 'preferred use area' or 'preferred use trail' (eg Dagmar or an Interpretive Trail);
- r50. Investigate advanced trail options for approved locations and designated trail corridors.
- r51. Investigate and develop the Dagmar North and Dagmar South properties as locations for an advanced trail system.
- r52. Investigate and classify "Ivy Alley", "Snakes no Ladders", "The 3 Switch Backs", "The Pines", "The Lady Di Memorial", "TJ's Way", "To the Drops", and "The Drops", as advanced trails within the core lands.
- r53. Limit public use of the property and trails to daylight hours, except where the necessary TRCA approvals have been granted;
- r54. Limit recreational events to areas of the property deemed appropriate and only once the necessary TRCA approvals have been granted;
- r55. Only when a trail cannot be updated in its current condition due to natural heritage, cultural heritage, management zone restrictions or any other design principles outlined in this document will the installation of a new trail be investigated in an alternate location;
- r56. Designate the completed trail plan and trail length as the new baseline for implementing approximate trail equilibrium.
- r57. Develop all future trails in a manner that is consistent with all trail principles as well as all management zones, management plan objectives and TRCA trail construction guidelines;
- r58. Where it is found that trail relocation is necessary take every best effort to design the replacement trail in a manner that will replicate the closed trail experience; and
- r59. Where it is found that trail relocation is necessary, take best efforts to restore the closed trail sections to as natural a condition as possible;

6.2.3.3. Connectivity Principles

To try and meet the vision and objectives of the trail plan, the following connectivity principles should be followed with regard to all trail management related decisions for the property:

- a. Provide a variety of user experiences by offering loop options and trips of various lengths and difficulties; and
- b. Link destinations such as viewing areas and interpretive sites within the trail system;

Recommendations:

- r60. Continue to allow connections between the EDH with adjacent or near public lands through inter-regional trails such as the Oak Ridges Trail and the Trans Canada Trail; and
- r61. Investigate options for connections between all EDH properties.

6.2.3.4. Trail System and Maintenance Principles

To try and meet the vision and objectives of the trail plan, the following connectivity principles should be followed with regard to all trail management related decisions for the property:

- a. Take every best effort to ensure that trails will provide clear sight lines;
- b. Remove all hazards in the defined trail corridor to the best ability of the TRCA staff and its volunteers;
- c. Provide safe road crossings and entrances/exits to access points and parking lots.

Recommendations:

- r62. Keep all trails on publicly owned lands unless an agreement with the land owner is developed;
- r63. Assign a trail classification based on several trail features, including difficulty, to all trails and sign accordingly;
- r64. Provide easy access to the trail through convenient trailhead parking lots with easy to follow way-finding signs, allowing users to explore the site at their comfort;
- r65. Install signs and/or fencing to alleviate any trespassing or encroachments by trail users onto private lands;
- r66. Install Signs highlighting trail work or re-routes during any trail improvement project;
- r67. Focus upgrades to trails on the removal of safety concerns and environmentally degrading conditions;
- r68. Construct trails with a preference to natural surfaces and materials and only where absolutely necessary and agreed to by TRCA Staff and TRCA's public partners will other infrastructure or materials be installed; and
- r69. Develop formal agreements with the local municipalities for the management of trails within road allowances.

6.2.3.5. Public Engagement

A key component of managing all TRCA conservation lands is engaging the public in the decision making process. Trail planning is no different.

- a. Develop all trail plans in consultation with the surrounding community through the Glen Major and Walker Woods Stewardship Committee.

Recommendations:

- r70. Continue to work with community based partners to ensure the establishment of a trail system that evolves to incorporate new methods of user benefits, design and safety; and
- r71. Strive to reduce user conflicts by partnering with user groups, through trail design and a system of educational signage.

6.3. Existing Trail System

There is a long history of trail use throughout the EDH for maintenance, forestry and recreation purposes. This history has been recognized in the Township of Uxbridge through its proclaimed Trail Capital of Canada Status. Trail audits conducted between 2007 and 2011 have revealed that 108.7 km of authorized and unauthorized trails presently exist in the EDH (See maps 6.1-6.8). For the most part, these trails were developed on a vernacular basis, often following old property boundaries, service roads, natural breaks in the forest. The evidence of this development can be seen in the somewhat regular network pattern seen in parts of Walker Woods.

In some cases these trails were purposefully designed to follow the challenging topography that the Oak Ridges Moraine is known for. This varied approach to trail routing resulted in some trails that are well suited for placement on the property. In some cases however the routing resulted in trails that may not be sustainable, may be dangerous or may even threaten the natural and cultural heritage features of the property.

At this time 26 sections of trail have been identified as areas requiring more detailed study or further trail work. Of these areas, 20 have been identified as problems associated with erosion, 4 have been identified as being located on the fall line of a slope, 1 has been identified as having poor sight lines and 2 have been identified as being located in consistently wet areas. These areas will require detailed site assessment and remediation plans to correct these issues.

6.4. Proposed Trail System

Maps 6.9-6.17 display the location of the existing trails to remain and the approximate location of any additional proposed trails. The plan presently proposes that approximately 14.3km of existing trail is to be closed and restored to a natural state and approximately 4.4km of new trail is proposed to be constructed.

Trail closures were selected based on the location of trails in relation to areas of high ecological sensitivity, high cultural sensitivity, poor location in relation to the existing topography or due to concerns regarding site securement. Proposed trails are intended to help resolve user conflict issues, overuse of individual trails or to provide vital connections between different sections or properties in the EDH.

6.4.1. North Walker Woods

North Walker Woods (NWW) presently has approximately 11km of trail present onsite. The property is home to a major section of the Oak Ridges Trail, and the Al Shaw Oak Ridges Trail Side Loop.

Approximately 1km of trails in NWW are proposed for closure. These sections are largely in the central portion of the property.

Access is provided to the property via 4 authorized access points: 3 via 6th Concession Rd. and 1 via Brock Rd., at present no official parking is provided to the property, however parking access is being investigated for a parking area from Brock Rd. and from 6th Concession Rd.

3 sections of trail have been identified on site as areas requiring further work due to erosion. Further study is required to develop detailed site and implementation plans for these sections.

6.4.2. TRCA Pleasure Valley and Wilder Forest and Wildlife Area

The TRCA Pleasure Valley Property and Wilder Forest and Wildlife Areas are not presently open to public use. The Wilder Forest and Wildlife Area is expected to be opened to the public in the Spring of 2013, whereas the TRCA Pleasure Valley property is not expected to be open for public use until after the summer of 2025.

The TRCA Pleasure Valley and Wilder Forest and Wildlife Areas presently have approximately 12.6 km of trail on site. 5km of existing trail in the Wilder Forest and Wildlife Area are to be closed. The majority of the trails proposed for closure are smaller, less formalized trails that braid through the main trail loop on the property. The trails on the west side of the property that are proposed for closure are proposed as such due to their location near some sensitive water features.

Approximately 2 km of trail in the western most portion of the Wilder Forest and Wildlife Area are to be kept temporarily closed until such a time when direct access to the property can be secured from Brock Rd. A second trail is proposed to connect the Wilder Forest and Wildlife Area with the TRCA Pleasure Valley Property once the TRCA Pleasure Valley Property is opened for public access.

2 access points are proposed for the Wilder Forest and Wildlife area at this time. Both access points are located on west side of the 6th Concession Rd., directly opposite of Walker Woods.

The TRCA Pleasure Valley Property has direct access to Brock Road, and a series of paved trails in very good condition. The area is presently designated as a special study area due to an existing private trail lease set to expire in 2025. When the property becomes open to public access it is intended that some of these trails be assessed and subsequently established as an accessible trail option within the EDH. Further study is also required to establish which trails on the TRCA Pleasure Valley site are most suitable for permanent incorporation into the EDH trail system.

Efforts to secure a parking lot trail head to the Wilder Forest and Wildlife Area were not successful at the time of writing. However TRCA will continue to seek a viable trail access from Brock Rd. to either the Wilder Forest and Wildlife Area or the TRCA Pleasure Valley property. The preferred location for a parking lot would be directly adjacent to the future accessible trails on the TRCA Pleasure Valley Property.

6.4.3. Brock Tract

The Brock Tract has approximately 10.5km of trail on site. No trails on the property are presently proposed for closure. 3 access points presently exist on the property: one via the Brock Tract Parking Lot and Trail head on Brock Rd: one from the Webb Rd. allowance on Brock Rd and one directly opposite the Glen Major Aggregate Pit Parking Lot and Trail Head on the 7th Concession Rd.

The portion of trail that leads to the Wilder Forest and Wildlife Area, has been identified as an area requiring further work due to its position on the fall line of the local property contour. A second area of fall line trail has been identified directly north west of the 6th Concession access. Further study is required to develop a detailed design implementation plan to address these two issues.

6.4.4. Walker Woods

Walker Woods has the largest property specific trail system within the EDH. Approximately 26.5 km of trail presently exist onsite. 2 km of these trails are proposed for closure. The northern most portion of the property makes way for the Oak Ridges Trail, and the West Walker and East Walker Oak Ridges Trail Side Loops. The Trans Canada Trail also enters the property through the East Walker Woods Parking Lot, and makes its way south through the centre of the property to the junction of the Walker Woods and Glen Major Properties.

At this time there are 8 trail access points into the property. Two of these access points are by way of the West Walker Woods Parking Lot on the 6th Concession Rd. south of Albright Rd. and the East Walker Woods Parking Lot, just opposite the intersection of Hewston Rd. and the 7th Concession Road. There are 4 further trail access points on the 6th Concession Rd, and 2 on the 7th Concession.

9 areas have been identified as requiring additional work to resolve erosion and fall line issues. Further study is required to develop a detailed design and implementation plan to address these issues.

Glen Major Resource Management Tract

Glen Major Resource Management Tract, with about 24.6km of trail, has the second largest collection of trails on within the EDH. Approximately 5km of these trails are proposed for closure. The portions of trail slated for closure south of the Chalk Lake Road allowance, will however not be closed until the Dagmar Secondary Trail Plan is implemented. The Trails on the Glen Major Resource Management Tract are also home to the Trans Canada Trail. The trail continues from Walker Woods and moves South East through the property to the Uxbridge-Pickering Townline and eventually further south towards Claremont.

There are 6 access points to the trail system on the property. Two of these access points are Parking Lots/ Trail heads. These are the Glen Major Trail Head and Parking Lot at the intersection of the Uxbridge-Pickering Townline and the 7th Concession Rd. and the Glen Major Aggregate Pit Parking Lot North of the Uxbridge-Pickering Townline on the 6th Concession Rd. The trail only access points come by way of the Chalk Lake Road allowance from the 7th Concession Rd. and the Uxbridge Pickering Townline Road Allowance from the 6th Concession Rd. Approximately 12 areas of erosion, fall lines, or poor sight lines have been identified within Glen Major as areas requiring further study and detailed site plans to resolve.

One new trail is proposed to connect the Glen Major Parking Lot at the 7th Concession with the look-out at what is now Post 25. The purpose of this new trail would be to resolve trail conflict and reduce pressure on both the Uxbridge-Pickering Townline Trail and the current trail system running north from the lot.

The southern portion of Glen Major Resource Management Tract, sometimes referred to as the Osler Tract, presently has no trails. A single trail running south along the western boundary of the property is proposed under the condition that trail access west along the CP Rail Right to make way for the Trans Canada Trail can be secured.

6.4.5. Skyloft-Dagmar Corridor

TRCA is presently in the process of exploring various solutions to secure a trail connection between the Durham Forest Main Tract in the north and the Glen Major Resource Management Tract in the south. The Durham Forest Main Tract and TRCA Skyloft Property directly abut one another. TRCA and Lake Simcoe Region Conservation Authority are in the process of finalizing

an official access point between the two properties. A trail running south from the TRCA Skyloft property parallel to Buzek Lane, to the TRCA Dagmar North property and the TRCA Dagmar South property is still being sought. TRCA is presently trying to develop an agreement to secure a natural surface trail from TRCA Skyloft to Chalk Lake Rd, however if a connection is not possible, trail users will need to use Buzek Ln to move South.

A connection from Chalk Lake Rd has been secured to the northern boundary of the TRCA Dagmar North property, however a connection between the two TRCA Dagmar properties is still being sought. If a connection is made between the two TRCA Dagmar properties, the Glen Major Trail Head at the 7th Concession Rd. will serve as the main trail access to the TRCA Dagmar Properties. If this is not possible, an access trail to the TRCA Dagmar North property will be developed from the 7th Concession Rd. Parking for this access point under such a scenario would still be provided at the Glen Major Parking Lot on the 7th Concession Rd. TRCA will investigate opportunities to find additional parking and trailhead solutions along the TRCA Skyloft-Dagmar Corridor.

There presently exists a private lease agreement for winter use of the trails on the TRCA Dagmar properties. TRCA plans to open the TRCA Dagmar properties to public use during the non lease period. TRCA will undertake a review of the existing lease agreement to ensure that it is compatible with TRCA's long term plans for the property.

As part of TRCA's plans to open the TRCA Dagmar properties to public use, TRCA is presently working with the Durham Mountain Biking Association (DMBA) to develop a Mountain Biking focused secondary trail plan for TRCA Dagmar North and TRCA Dagmar South. This initiative was undertaken to help relieve some of the user conflict issues pointed out in the 2010 EDH trail user survey. It is the intent that by developing a cycling focused secondary trail plan for the TRCA Dagmar properties that the majority of cycling use will be centered in and around the South East of the EDH properties. The first phase of this plan, the concept trail plan for the TRCA Dagmar property, has been completed by DMBA in partnership with TRCA. A copy of the concept plan can be found in Appendix A..

6.4.6. Purcell (Glen Major) Property

No trails presently exist on the Purcell property. However should access be secured for a trail from Glen Major along the CP Rail Right of way, a single trail to take the Trans Canada Trail off of the Uxbridge-Pickering Townline may be contemplated.

6.4.7. Tannenbaum Lands

TRCA is in the process of developing a management agreement with Infrastructure Ontario for the Nesbit Property, a part of the Tannenbaum Lands. This property is directly North of the Lafarge Aggregate Pit, which is north of Walker woods. No trails presently exist on the property, however a single trail running east to west along the southern boundary of the property is proposed.

6.5. Trail Planning

6.5.1. Present Trail Use

Between November of 2008 and December of 2009 TRCA undertook a user survey of the EDH trail system to establish a baseline set of data for trail use within the properties. The user survey took the form of 2 elements: a trail count survey utilizing infra-red trail counting technology and

a user questionnaire. The detailed results from this survey were published in March of 2010 in the *East Duffins Headwaters User Survey (2010)*.

In summary, the results of the trail count survey found that the property sees over 53,000 visitors per year. The highest number of visitors was found in the summer months followed by fall, winter and then spring. The most active surveyed access point on average was found to be the Towers Access point off the 7th Concession in the North East Section of Walker Woods followed by the Three Rocks Access in Glen Major Hamlet and then Albright Rd. Access.

The user questionnaire revealed that the most popular trail use on the EDH properties was Mountain Biking followed by Hiking/Dog Walking and Cross Country Skiing. The typical respondent user profile found that on average 47.3% of individuals visited the EDH once per week; the majority of users visited in the morning; despite the fact that the most common entrance was found to be the Towers Parking lot, users in fact prefer the Three Rocks Trailhead above all others; mountain biking is the most often preferred trail use, followed by hiking; and the majority of respondents (71.5%) support a multi-use trail system.

Comments from the survey highlighted that while the majority of trail users are supportive of multi-use trails, the majority of comments or suggestions were made with regard to user conflicts and calls for methods to mitigate those conflicts.

6.5.2. Future Public Use

Ontario Ministry of Finance projections predict that populations for the City of Toronto, the Region of York and the Region of Durham will grow by 10%, 22% and 20% respectively by the year 2022; and 18%, 47%, and 45% respectively by the year 2032. Assuming that a consistent proportion of the population will continue to visit the EDH and that the regional distribution of visitors to the EDH will continue to be consistent, the properties may see visitor numbers swell by as much as 19% by the year 2022 and 41% by the year 2032. This level of use places further importance on the need to direct trails to appropriate regions on the properties and to limit trail use to appropriate low impact uses. Furthermore continued monitoring of the effects of the trails on the natural heritage features on the properties is warranted and integral to the management of the EDH properties.

6.5.3. Proposed Public Use

Appropriate passive public uses are permitted along trails, including nature appreciation, hiking, trail running, cross country skiing, snowshoeing, mountain biking and horseback riding. While dogs are permitted within the plan boundaries, dog walkers must keep dogs on leash at all times while within the EDH.

All trails on the property are to be mixed use in designation. The reasoning behind the decision to not restrict any particular user group to any area of the EDH was made for two chief reasons. The first was to minimize the disruption to the natural and cultural heritage features on site. By designating the trails on the EDH properties as multi-use, the desired trail uses are consolidated to a smaller number of trails and therefore minimizing the impact to the natural environment. The hope is that by allowing all permitted trail uses onto any trails on the properties the demand for trail braiding and rogue trail building will also be minimized.

The second reason for designating the trails as multi use stems from a desire to not give false expectations about what trail users will or will not experience while on the properties. Instead, by designating all trails as multi-use and signing them as such, users should be prepared to expect any and all other permitted uses on any trail on the property.

Designating all trails as multi use of course gives rise to concerns surrounding user conflict as illustrated through the 2010 user survey. To this effect is the intent that trail use will be controlled through trail design and public communication. It is recommended that TRCA explore formal agreements for the management of various trails with local user groups. By giving user groups a certain level of stewardship over the trails it is the hope that users will self-regulate themselves to ensure that user-conflicts are minimized.

6.5.4. Accessibility Opportunities

Opportunities for the development of a trail loop that meets the requirements of the Accessibility for Ontarians with Disabilities Act (2005) will be investigated. At such a time when a suitable trail is found, it will be incorporated into the trail plan. The paved trails on the TRCA Pleasure Valley Property may serve as such a location.

6.5.5. Trail Linkages

As mentioned in the connectivity principles of this plan, linkages and connectivity are of vital importance to the trail system in the EDH. The network-like orientation of the trail system present on the property allows users to develop personalized trail routes of varying lengths and difficulties and to extend trail routes as they see fit during a particular outing. Where a viewing area or highlighted feature is present, trails are provided to allow visitors to explore and learn about the natural and cultural resources present within the EDH.

In addition to providing opportunities for trail extensions and linkages within the property, it is important to recognize the role that the EDH plays in establishing the Town of Uxbridge as the Trail Capital of Canada. Part of this designation comes by way of the external connections to the site. Presently over 7.9 km of the TransCanada Trail and over 15 km of either the Oak Ridges Trail or Oak Ridges Trail Loops pass through the EDH. Trail connections will also be provided to the Durham Regional forest and connections are being explored with private land owners to ensure a well connected and functioning trail system.

6.5.6. Emergency Management

The EDH has designated primary evacuation routes. These routes represent the trails most suited for off road vehicular access; these routes are not designed for highway vehicles. Furthermore trail conditions on these routes are variable subject to changes in weather and should not be relied upon to support even off road vehicles at all times, nor are these routes designed to support emergency vehicles.

A preliminary Emergency Action Plan has also been developed to correspond with these routes to provide a course of action in the event a trail emergency should arise. Maps of the evacuation routes are included within the Emergency Action Plan for the properties. TRCA is presently working with staff from the Lake Simcoe Region Conservation Authority, the Township of Uxbridge, the Region of Durham and local emergency service providers to finalize the Emergency Action Plan.

Recommendations:

- r72. Circulate copies of the Emergency Management Plan, once completed, to the Local Emergency Services Providers;
- r73. Circulate copies of the Emergency Management Plan, once completed, to local trail user group representatives;

6.5.7. Implementation Priorities

The EDH trail plan is to exist as a living document. Trail implementation is under constant development and revision. Because of constraints, projects are implemented as resources become available. Actions are prioritized through consultation with the Tracks subcommittee of the EDH Stewardship Committee as necessity dictates.

One of the great opportunities in the EDH is the fact that there is a high functioning trail system already on site. As shown in Maps 4.1 to 4.8, there are areas identified where increased connectivity would be required, areas where corrections or work are required to improve the overall sustainability of the trails and some areas where the density of the trail system is too high to ensure a lasting and healthy ecosystem. It is the intention that the principles described within this trail plan inform the decisions made with regard to trail development on site.

Beyond the goals, vision, objectives and guiding principles mentioned earlier in this document, it is important to recognize certain steps required in the development and implementation of the strategy and to outline the priorities for the establishment of a fully functioning trail system on site.

In the development of any new trail systems on site, TRCA ecology staff are to be consulted to ensure that trail densities will not increase to a level that will significantly impact the natural state of the properties. Where soil disruption is to take place in the development of the trail system, TRCA cultural heritage staff is to be consulted to ensure that development will not significantly impact any cultural heritage features on site. In all cases where significant trail development is to take place, consultation with the EDH stewardship committee and local user groups is to take place prior to the implementation of trail work. Section 5.10 describes in detail the approval process required for implementing modifications or closures to the trail system onsite.

Below are listed the priorities for trail implementation on the properties:

- A. Securing safe public access to all authorized trails on the EDH properties
- B. Development of trail connections between the EDH properties, in particular those on the Durham Regional Forest to TRCA Dagmar Corridor.
- C. Trail work to correct degrading trail conditions or to move trails from ecologically or culturally significant area as outlined in maps 6.1 to 6.8
- D. Completion of all proposed trail closures.
- E. Develop an Interpretive trail and interpretive signage markers through the Walker North properties and possibly through other portions of the EDH properties.
- F. Develop the Cycling focused secondary trail plan and connections for the Dagmar tracts in partnership with DMBA.

6.5.8. 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.

Recommendations:

- r74. Monitoring and review of the trail system within the EDH should be conducted on an ongoing basis to assess the success of implementation objectives, trail use and quality;

- r75. Monitoring and review of the trail plan should be conducted at a minimum of every three years, or as deemed necessary by managers, staff, the stewardship committee and partners;

6.5.9. Guidelines for Modification and Closure of Existing Trails

Because the trail system within the EDH is largely established, the majority of the estimated trail work required within the EDH will take the form of maintenance, modifications or closures of existing trails. This section describes the process required wherever any major modification or closure of a trail is to be implemented. Proponents in this section may refer to either the TRCA itself, or members of the public. It is important to recognize that trails within the EDH trail plan may cross private lands or lands under a management agreement. Wherever this is the case the identified landowner should be notified and involved in the trail planning process.

Phase 1: Issue Identification and Preliminary Proposal

At the end of Phase 1, the need for trail realignment is confirmed and a possible solution has been identified.

1. Identify the area or trail being considered and potential concerns. This should be completed by the proponent. A preliminary site visit with the land manager should be arranged at this stage.
2. Develop a written justification and rationale for realignment. This is required to be submitted to the land owner and/or manager. The same should be submitted to the EDHSC via the EDHSC Tracks subcommittee.
3. Develop and evaluate options for addressing the issue of concern. This may include actions such as removal of obstacles such as a fallen tree, installation or correction of a sign, or trail construction.
4. Present written justification and improvement/implementation options to the land manager, TRCA and Tracks.

PHASE 1 PRODUCTS: Issues report and a preliminary trail proposal

SUPPORT BY LAND OWNER OR LAND MANAGER AND TRAIL STEWARDSHIP COMMITTEE REQUIRED TO PROCEED TO PHASE 2.

Phase 2: Detailed Evaluation

At the end of Phase 2, the trail is approved in principle. Detailed designs and construction procedures are developed next.

1. Investigate existing trail uses and conditions and determine influences to trail design.
2. Mark the proposed route for land owner or manager committee review. This can be accomplished with pin flags or flagging tape. Notification of initiation and completion

should be given to the land manager so that the land manager can advise other stakeholders of the activity.

3. Obtain GPS coordinates of the existing trail and the proposed trail realignment. It is preferred that this be completed by the proponent. Proponents are encouraged to contact the land manager in cases where the proponents are not proficient in this area.
4. Create and submit a map or circulate data files of the existing trail and the proposed trail realignment. This information is circulated for review and comment to a land owner or manager review committee that includes representatives from various departments within the organization. Interested TRCA groups may include but are not limited to Terrestrail and Aquatic Ecology, Geoenvironmental, Development, Planning and Regulation, Enforcement, Forest Resource Management, Conservation Parks, Conservation Lands, Property Services, Archaeology Resource Management, and the appropriate Watershed Specialist. The land owner or manager should determine the groups from whom review and approval is required to proceed. It is suggested that the information should be subjected to a cultural heritage and a terrestrail natural heritage review at a minimum. The need for further detailed, on-site surveys should be noted as part of the review process.
5. Circulate a map of proposed realignment and current trail route to other stakeholders for review and comment. These stakeholders may include but are not limited to land owners (where they are not the land manager), trail stewardship committees, neighbours, funding partners, and regulating bodies such as the Ministry of Natural Resources and the Department of Fisheries and Oceans. The need for further detailed, on-site surveys should be noted as part of the review process.
6. Adjust trail as necessary based on recommendations from the land manager's review committee and other stakeholders.
7. Obtain approval of the new route from the land manager, TRCA and Tracks.

PHASE 2 PRODUCT: An approved trail alignment

APPROVAL BY LAND OWNER OR LAND MANAGER AND TRAIL STEWARDSHIP COMMITTEE REQUIRED TO PROCEED TO PHASE 3.

Phase 3: Design and Implementation

At the end of Phase 3, trail designs have been finalized, funding for construction has been acquired and the trail realignment has been completed.

1. Conduct detailed trail alignment surveys. This includes archaeological, terrestrail and aquatic surveys, when required per direction received in Phase 2.
2. Prepare detailed construction drawings and procedures. The work may be completed by volunteers, staff of the land manager, trail stewardship committee members or contractors.

3. Obtain cost and time estimates on required work (if construction required).
4. Obtain budgetary approvals by funding agencies, as necessary.
5. Schedule implementation. This should be done in consultation with other groups active at the site so that conflicts can be minimized, efficiencies realized and reproduction or migration periods avoided.
6. Notify users of upcoming improvements and trail closures. This should be communicated by at least one of the following methods: on-site sign, a post on corresponding websites (such as sites that host the trail guide, park information and trail stewardship committee), and notices in corresponding newsletters.
7. Complete trail improvements.
8. Monitor, as required, in reference to the property's baseline conditions report.

PRODUCTS: A constructed trail and trail monitoring data

6.6. Trail Impacts and Mitigation Techniques

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

6.6.1. Clearing the Trail Route

Clearing the trail refers to the actual creation of trail according to TRCA Trail Planning and Design Guidelines. It may also refer to amendments and repairs to existing trails. Correctly routing the trail and implementing trail construction and clearing will help eliminate potential impacts caused by clearing. Of course, clearing by its very nature will always result in some impact, but the type and extend of impact can be controlled through careful planning, timing, design and implementation.

6.6.2. 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 EDDH are positive.

6.6.3. 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 affect the ecological quality of the surroundings but also negatively affects the user experience.

6.6.4. 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.

Erosion affects functional utility, safety, ecological balance and aesthetics. The effects include loss of topsoil, root exposure, stream sedimentation, contaminations of water supplies, and sliding and slumping. The chance of erosion is increased on erosion susceptible soils (especially when wet), excessive removal of vegetation, excessive compaction of vegetation due to trampling, uncontrolled surface runoff, steep slopes and improper installation of trail structures such as bridges or culverts.

The EDH has a significant number of groundwater discharge areas. These areas tend to remain wet year round, thus making them particularly sensitive to erosion from trails. Trails should be planned and designed accordingly with boardwalks and other construction features offering possible solutions to minimize impacts from trails.

6.6.5. 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...)

6.6.6. 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.

6.7. Trail Construction

In addition to the impact caused by on-going use, the actual trail construction process results in various impacts to the environment. These can include pruning, removal of vegetation or soil compaction caused by construction machinery. Great care must be taken to control impacts both directly and indirectly during the construction process. Work done on existing and new trails should be completed to minimize the disturbance of a site as much as possible.

6.7.1. Timing

Timing of construction should take into consideration the life cycles of the various flora and fauna near the trail location. Wherever possible, trail work should occur during times when the least disruption will take place to the local species and in particular local or regional species of concern.

6.7.2. Clearing

Clearing refers to the removal of all materials that may obstruct movement along the trail, thus creating a potential hazard. This may include the removal of small obstacles or vegetation such as brush, shrubs or in some cases even trees. Prior to clearing any trees onsite, an impact assessment will be completed to describe the trees, numbers, species, conditions and location of their removal. The assessment will ensure an appropriate trail routing with an acceptable environmental impact. Complete flush to grade clearing will generally occur on the tread

surface, while the rest of the right of way (ROW) will only see the removal of trees and large shrubs. Smaller shrubs and groundcover will remain.

6.7.3. 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 trail. In all cases, natural trail surfaces should be used for trail construction wherever possible. However, due to property or land form constraints, this may not be feasible. 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. In many cases non-native trail surface options have been used in the past or may be contemplated for use within the EDH. Some of these may include granular fills, hard trail surfacing materials or poured surfaces such as asphalt or concrete.

A mulch type surface (bark/wood chips) is attractive and in many cases compatible with the natural environment, but does not compact well. Mulch type surfaces can also act as mediums for the transport of potentially harmful diseases or pests to the forest. It is therefore not a preferred material for trail surfaces in the EDH or a suitable material for heavy use foot traffic or multi-use trails.

Granular surfaces commonly consist of gravel, limestone fines or other crushed rocks. Granular surfaces, when compacted are suitable for high use areas and when placed upon a sub grade of larger clear stone are suitable for areas susceptible to erosion or rutting. Granular surfaces have been used in the past within the EDH to help stabilize failing trail surfaces, with some limited success.

Hard trail surfacing materials such as armour stone or flagging stone can be used in areas requiring greater protection from erosion, or in areas that are susceptible to excessive moisture. These materials are initially expensive and labour intensive, but if installed correctly, will require little maintenance in the long term.

Asphalt and other paving solutions such as concrete are potentially suitable for high level use areas or for accessible trails. Some of the properties within the EDH were acquired with existing paved trails and these may be considered for future assessment and designation as accessible trails. Since then, no new trails have been paved within the EDH by TRCA staff nor are they presently being contemplated within the boundaries of the EDH. Because by their very nature, paving surfaces have a long life span and as a result are very difficult to remove or reroute once implemented. Furthermore poured paving solutions have a high impact on slow moving fauna species such as snakes and salamanders that have difficulty evading trail users. As such, the ecological impacts associated with paving sections of trail within conservation lands can be considered as high. All alternative paving/ routing solutions should be explored prior to the use of asphalt, concrete or any other long term hard paving surface.

Just as bringing in wood chips, mulch or other organic materials may transmit pests or diseases into the EDH, any material being brought into conservation areas brings with it some chance of disrupting the local ecosystem. For this reason, all trail re-routing or redesign options, including trail closure, should be considered prior to making the decision to bring in foreign surface materials of any kind into the EDH.

6.7.4. Boardwalks

Boardwalks should only be constructed in extremely wet areas where alternative routing solutions are not available. Typically, boardwalk construction involves fixing untreated rot-resistant timber and planking on rot-resistant timber sills that are made to sit on large concrete pavers levelled with gravel. A variety of configurations are possible depending on site conditions and whether the boardwalk is to be used as a simple walkway or as a key trail feature such as a lookout platform. Boardwalks should be constructed in a robust manner to withstand all weather conditions, high levels of use and potential vandalism. Construction, design and technique for any particular boardwalk application should conform to local building codes.

6.7.5. Barriers

Barriers can be constructed from a variety of materials including rock, timber or steel. “Green” or live barriers may also be suitable in certain situations by using abrasive shrubs or plants to deter entry (ie. Hawthorn, raspberry etc...). Care should be taken to choose an appropriate barrier material and design that is safe, blends well with the natural landscape while still deterring undesired access or encroachment. Where green or live barriers are used, it is important to take environmental balance into consideration and select species that are non-invasive and native to the site.

6.8. 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
- Regulation
- Information/Interpretation

Sign location is critically important. All sign features 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 also caution visitors as to the expected level of challenge, risks, maintenance levels and staff presence on the properties.

The colour and scale must be compatible with the site conditions and the mounting height should be suitable for a variety of user groups.

While a more detailed signage plan will be developed and implemented during the implementation of the trail plan, some cursory assessments have been made regarding the number of additional sign posts required for the property. Presently 62 sign posts exist; approximately 48 additional signs are being proposed under this plan. Locations for the proposed sign posts are found on the proposed trail plan maps (6.9-4.17).

6.8.1. Trail Heads

At present there are 5 primary trailhead locations. These are identified as:

- The Brock Tract Parking Lot and Trail Head on Brock Road.
- The Aggregate Pit restoration site Parking Lot and trail head on Concession 6
- The Glen Major Parking Lot and Trail head north of the Uxbridge-Pickering Townline on Concession 7

- The West Walker Woods Parking Lot and Trail Head South of Allbright Rd on Concession 6
- The East Walker Woods Parking Lot and Trail Head on Concession 7

Presently efforts are underway to designate additional primary access points and trail heads to the Wilder Forest and Wildlife Area, North Walker Woods. TRCA Skyloft and the TRCA Dagmar properties.

Facilities that should be provided at trailheads include:

- Parking
- General signage with identification, direction, regulations, trail information, and potential risks that may be found on trails.
- A fully integrated map depicting all permitted use trails, and locations of markers along each trail for way-finding and emergency use.

Recommendation:

- r76. Update all trailhead signs and maps to reflect the changes in the trail plan for the EDH and install trailhead identification signs and kiosks at all new major trailheads.

6.8.2. Trail Map and Guide

After the completion of the *Duffins Creek Headwaters Management Plan for TRCA Properties (2003)*, the *East Duffins Creek Headwaters Trail Guide and Map (2007)* was developed. Since that time there have been several key changes to the EDH and the trail system on site, most notably the addition of several new properties and several changes to the trail layout on the properties. Upon the finalization and implementation of this trail plan and the East Duffins Headwaters Management Plan Update the differences between the existing trail guide and the trail system that is on the ground will be even further pronounced. To reflect these changes, an updated trail guide and map will be required.

Recommendation:

- r77. Develop an updated trail guide and map for the EDH in coordination with the Glen Major Walker Woods Stewardship Committee;

6.8.3. Interpretive Signs and Trail

Some interpretative signage has been implemented on the EDH properties in the past. Signs highlighting the Restoration project on the former Timber Brothers Aggregate Pit can be found on the trails leading from the Aggregate Pit Trail Head in the Glen Major Resource Management Tract property.

Opportunities for an interpretative trail that highlights both the natural and cultural heritage features onsite will be investigated. One area that has been highlighted for the first natural heritage interpretative trail is North Walker Woods. The most probable location for a cultural heritage interpretive trail would be Walker Woods.

Interpretive signs should be incorporated into the sign program at key locations to highlight the natural and cultural heritage features of the EDH. The purpose of these interpretative signs

would be to increase public awareness of conservation and to increase public appreciation of and respect for natural and cultural heritage resources.

Recommendations:

- r78. Develop a natural heritage interpretative trail within the North Walker Woods trail system;
- r79. Develop a cultural heritage interpretive trail within Walker Woods;

6.8.4. Trail Markers

Presently, numbered trail markers are placed at semi-regular intervals throughout the trail system on the properties. These trail markers take the form of cedar posts with clearly identified numbers and a small map showing the local trail network and other trail markers in the vicinity. Each trail marker is oriented to magnetic north to help trail users orient themselves onsite.

Some of the properties such as the Wilder Forest and Wildlife Area, TRCA Skyloft Property and the TRCA Dagmar Properties have no Trail Markers. The remainder of the properties have some markers but in the case of properties such as North Walker Woods and Walker Woods, the number of markers has been found to be lacking. Trail markers will be installed on all properties included within the EDH and as required on properties with a sparse amount of posts.

Recommendation:

- r80. Install post markers and way finding signs as shown on the proposed conditions maps;
- r81. Aboriginal elements should be incorporated into the signage plan for the EDH;

6.9. Trail Management

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

Trail management will be coordinated with the Tracks sub-committee of the EDH Stewardship Committee.

6.9.1. User Management

Trail operation involves managing the type, volume and season of trail use to achieve the goals and objectives for trail development and management. 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.

Due to the fact that the EDH is an un-serviced area, the majority of user management will be implemented through trail design and signage as opposed to active enforcement or management.

6.9.2. Managing Trail Use

Trails should be actively monitored by TRCA staff, the stewardship committee and trail captains to ensure adequate trail conditions and impacts on the natural and cultural features of the site.

6.10. 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 or contractors with the help of Trail Captains and the stewardship committee to prevent the trails from falling into disrepair.

6.10.1. Surface Treatment

The material on the trail bed can provide the desired tread thereby minimizing the impact of the user on the trail bed 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 others substances depending on the user group and their needs.

A firmer tread and even grades are generally required on trails travelled by those with mobility problems or those trails that are to see a high level of traffic by maintenance vehicles.

6.10.2. Erosion

Erosion affects functional utility, safety, ecological balance and aesthetics. Minimizing and mitigating erosion is important to keeping the trails in the EDH in good working order.

Trails should be regularly monitored for signs of erosion. Areas identified as having a high risk of erosion should be marked as a priority and addressed by following the trail modification process guidelines identified in section 6.10. A wide variety of alternatives should be considered including resurfacing, redesign, rerouting and in some cases trail closure.

6.10.3. Litter Removal

At present trash has not been an issue of high concern in the EDH. However, as more people use the trails in the EDH, there is a greater chance for litter to become a problem along the trails. It is important that levels of litter be monitored on an ongoing basis and where issues of litter are found that they be dealt with as soon as possible. TRCA should work with the stewardship committee, trail captains and staff to ensure that the EDH remains a pristine conservation site.

6.10.4. Invasive Vegetation Control

Non-native invasive species of vegetation are aggressive plants that outcompete with local varieties of plants and can cause these local varieties to fall into decliner. Examples of invasive plants that are spreading through the EDH are dog-strangling vine, garlic mustard and common buckthorn. Monitoring and control of these species is crucial to ensure the continued biodiversity of the EDH.

6.10.5. Pruning and Trimming

All pruning and trimmings 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. Any major limbs or trees that are in poor condition and within falling range of the trail should be trimmed. Branches, limbs and any other debris that fall across the trail or at the trail head should be removed.

6.10.6. 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. Under this policy all lands directly adjacent to trails within the EDH are designated as a "Passive-Use Conservation Area/ Resource Management Tract".

6.10.7. 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 its 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.

All trail structures should be monitored on a regular basis for safety and stability. All broken or rotting or broken sections of lumber should be replaced immediately.

Recommendations:

- r82. Continue to work with the local trail user groups such as the Oak Ridges Trail Association to maintain the EDH trail system.

6.11. Monitoring and Management Systems

6.11.1. 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 EDH Stewardship Committee and the Tracks subcommittee.

A. Establish Maintenance Objectives

These may vary from trail to trail depending on traffic flow or special trail features such as build structures or a particularly ecologically sensitive area. 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.

B. 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 be 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)

C. Develop a Maintenance Program

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

D. Establish a Trail Monitoring Program

Trails must be monitored regularly. To facilitate prompt repairs along a trail system or to determine if a trail needs additional seasonal maintenance. 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.

E. Schedule and Record of 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 of work crews and create time-efficient maintenance schedules.

F. 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, up scaling, downscaling or rerouting.

6.12. Vandalism

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

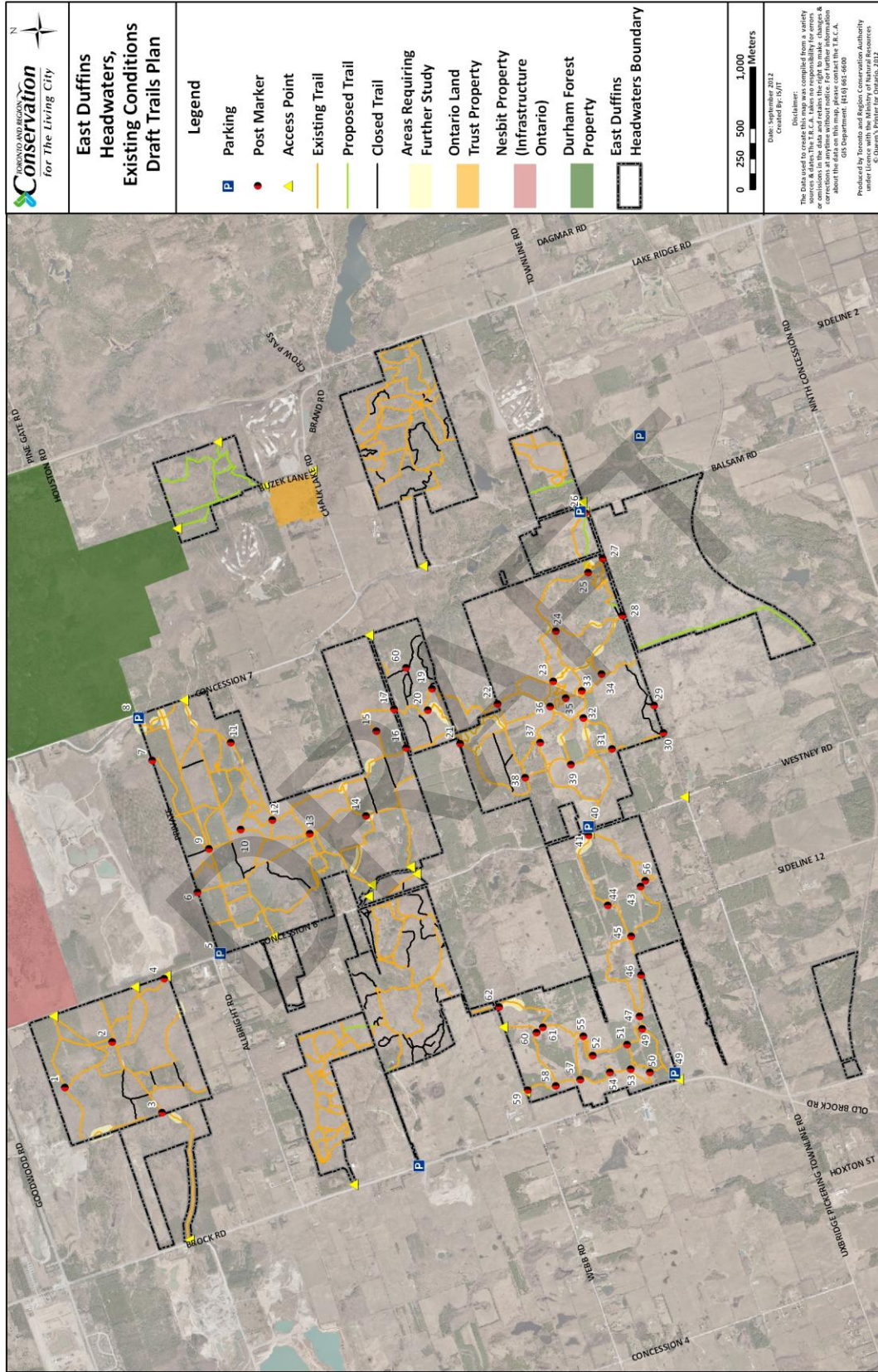
Although very little will stop the determined vandal, many techniques deter casual vandalism or bring the vandal to justice. Bollards, posts or gates should be used to control unwanted vehicular access. Semi-regular police or enforcement patrols can be used to monitor trail sections that are particularly 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 newspapers as well as educational programs in schools, can raise public awareness regarding the issues surrounding vandalism.

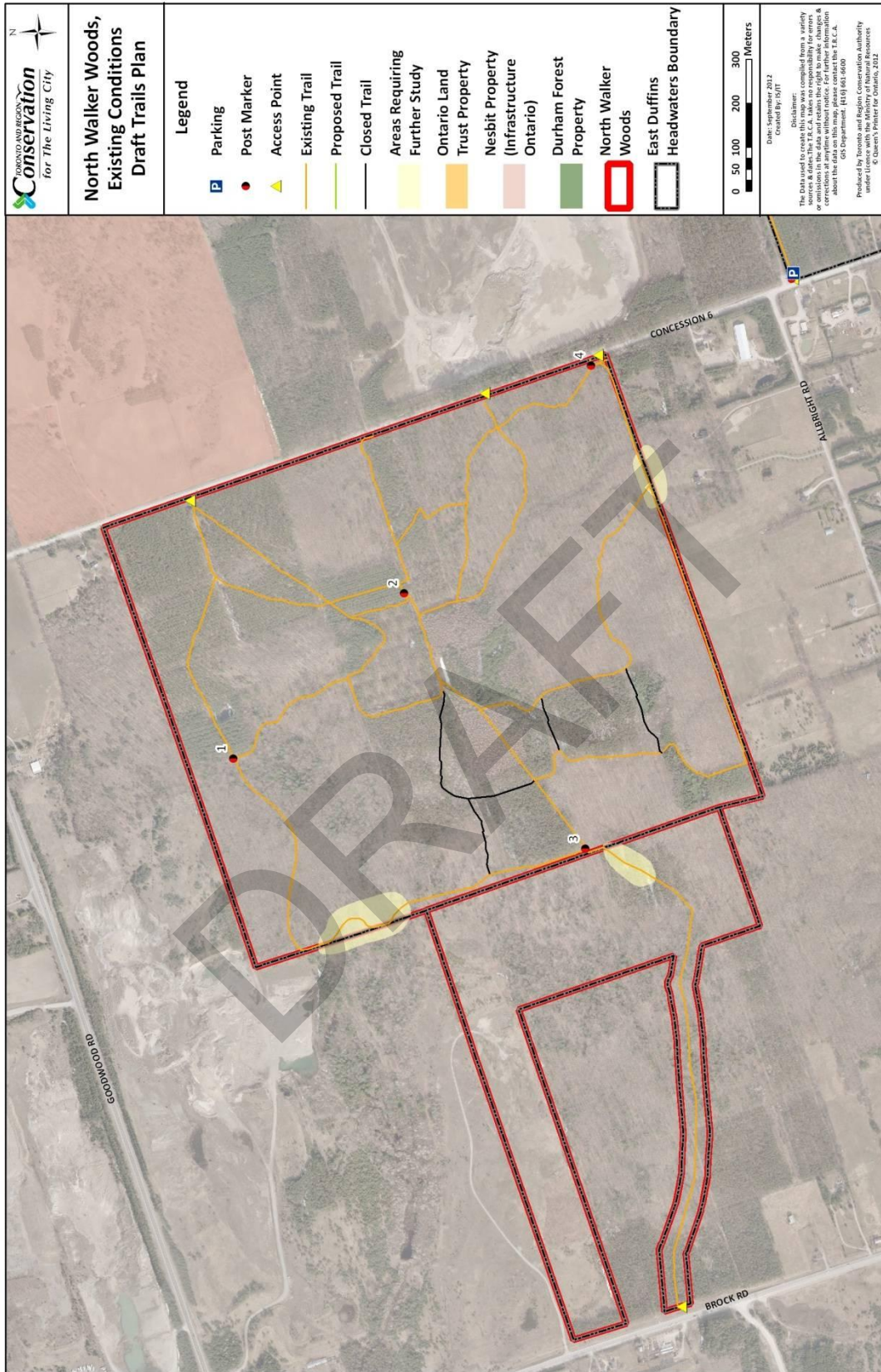
Within parks and along trails, orientation displays can be used to educate trail users about the damages of vandalism. Trail brochures and eye-catching posters can also service similar functions. Outreach programs to children in their classrooms, as well as sponsoring outdoor education programs, allow 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.

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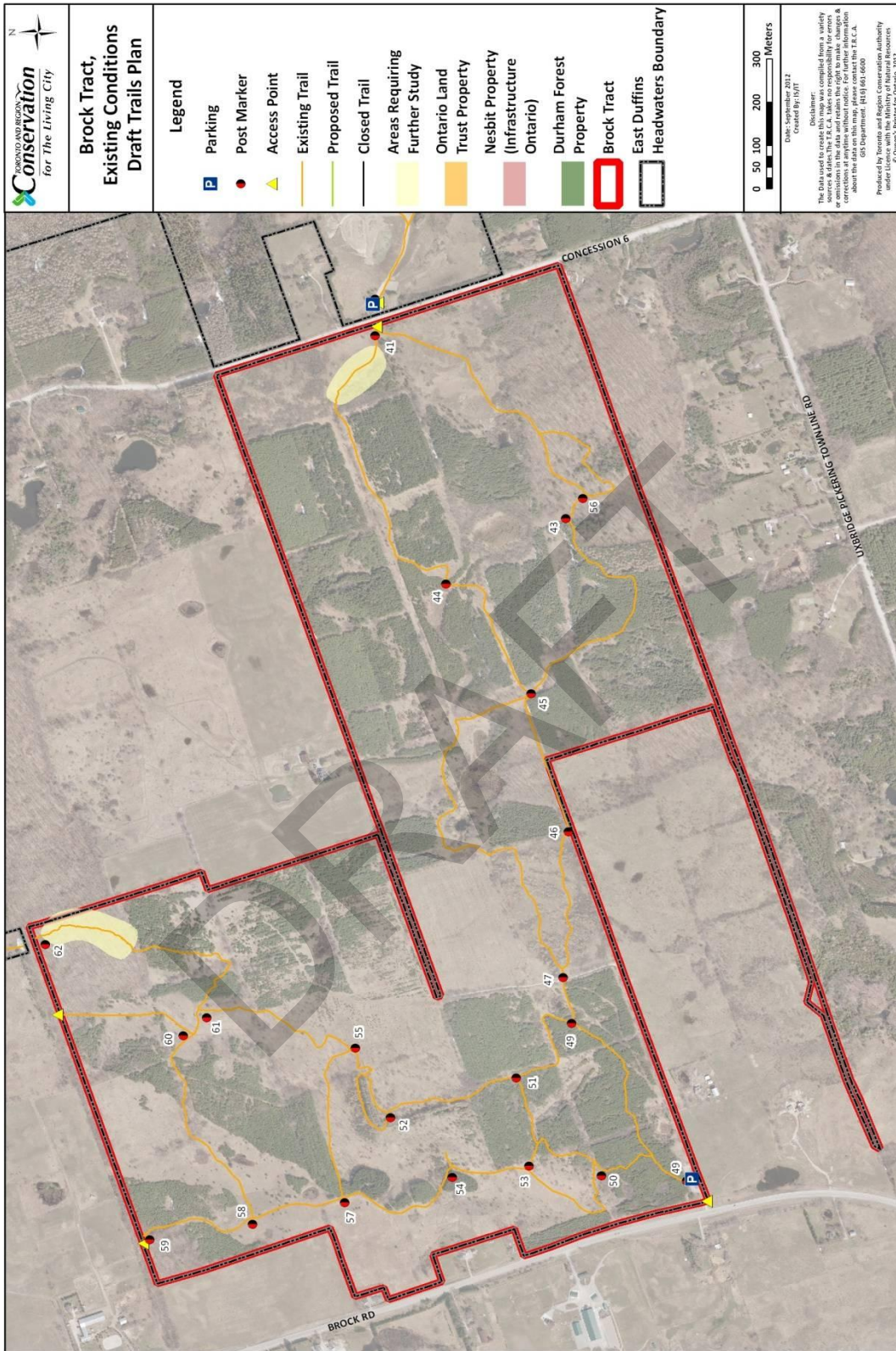
East Duffins Headwaters Management Plan Update



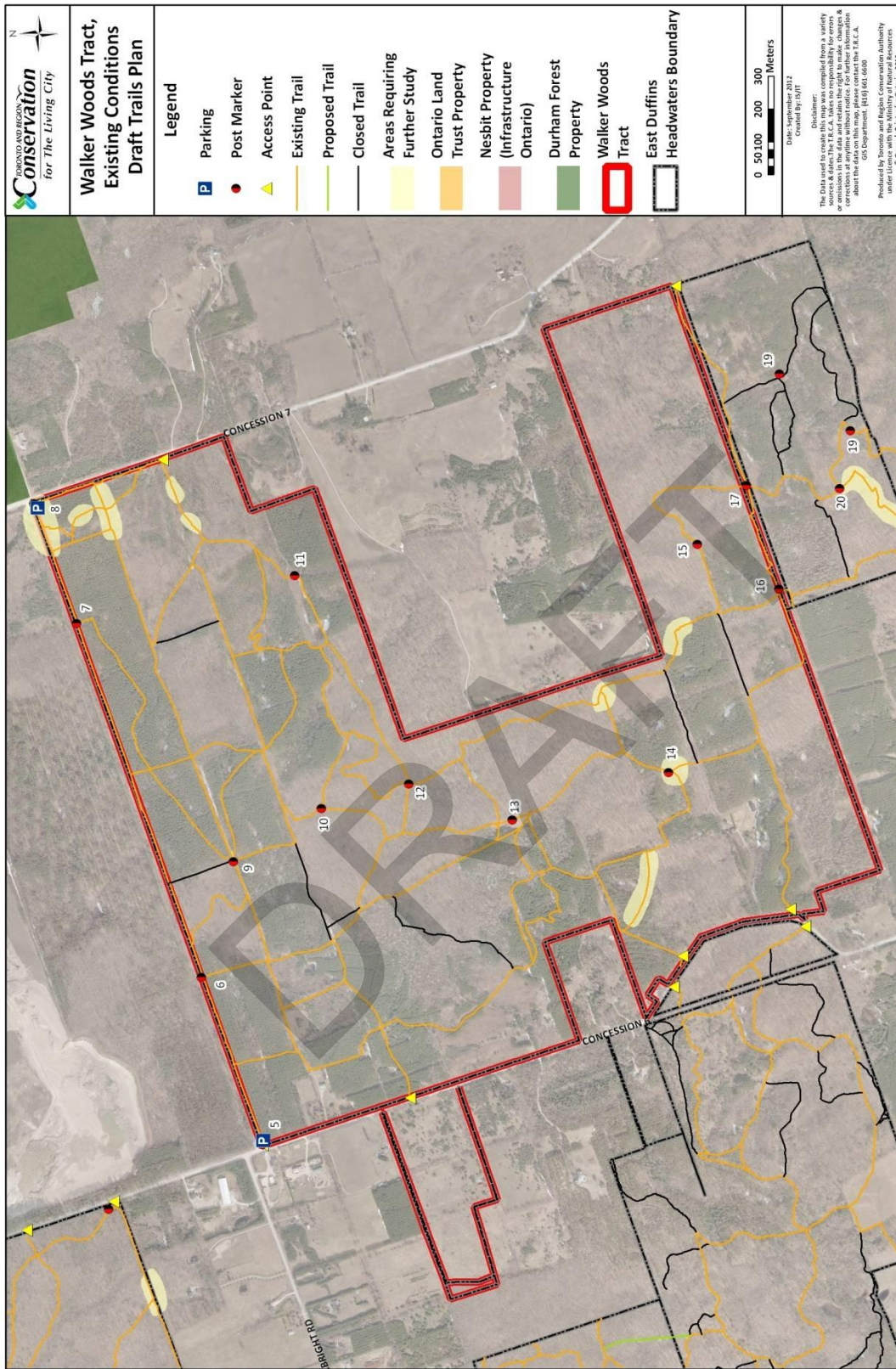
Map 6.1: EDH Trail Plan, Existing Conditions



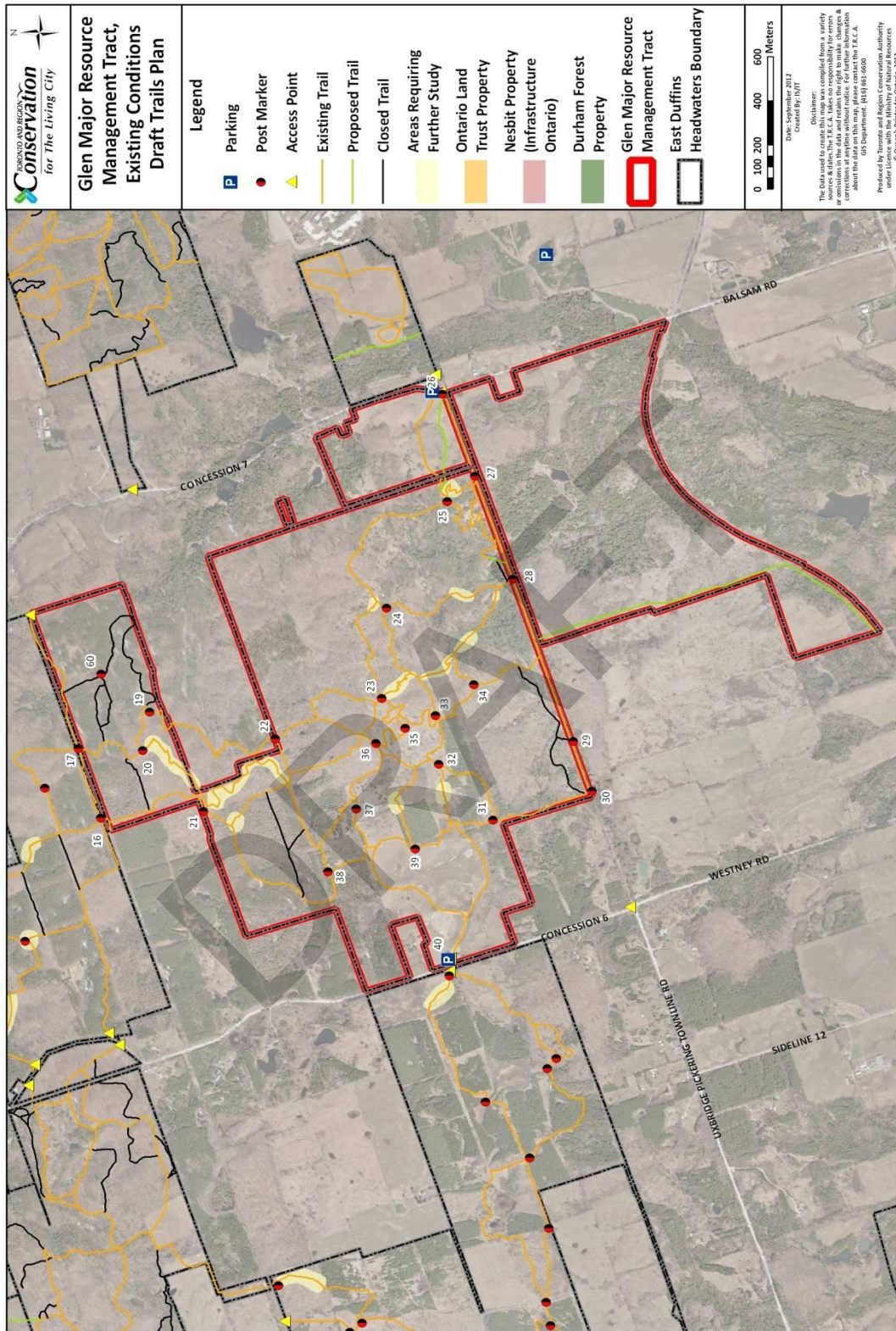
Map 6.2: Trail Plan, North Walker Woods Existing Conditions



Map 6.4: Trail Plan, Brock Tract Existing Conditions



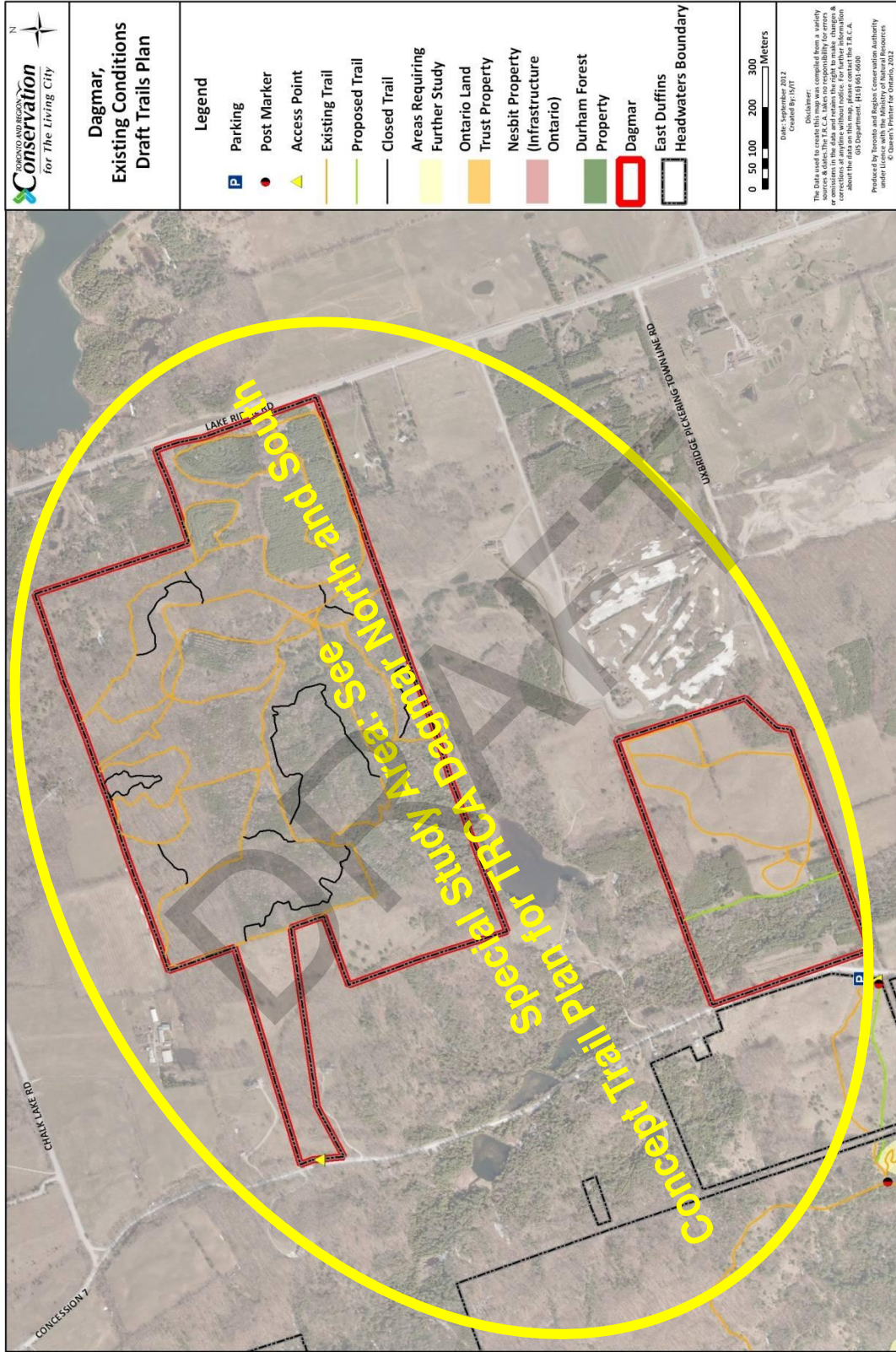
Map 6.5: Trail Plan, Walker Woods Existing Conditions



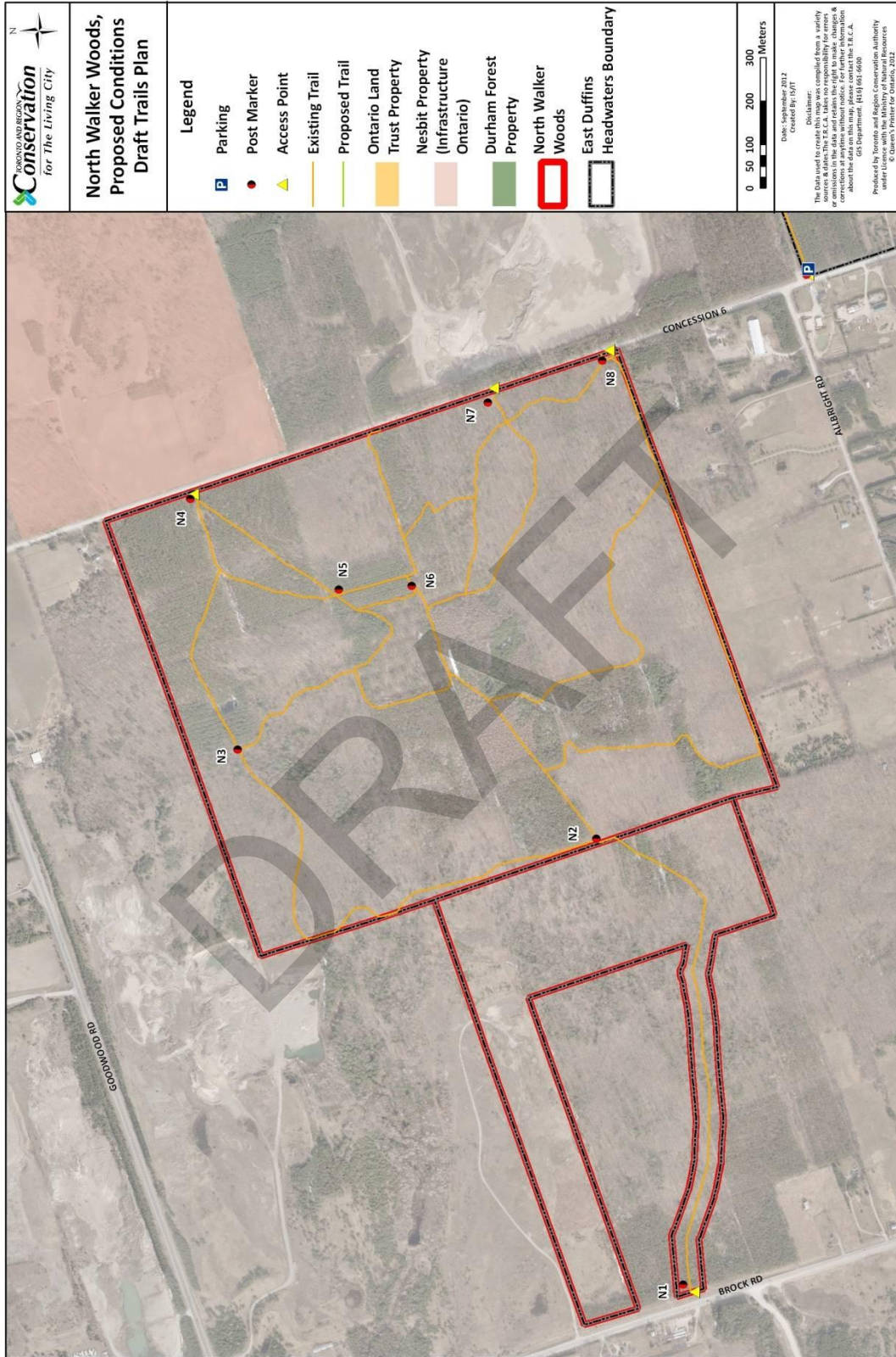
Map 6.6 Trail Plan, Glen Major Existing Conditions



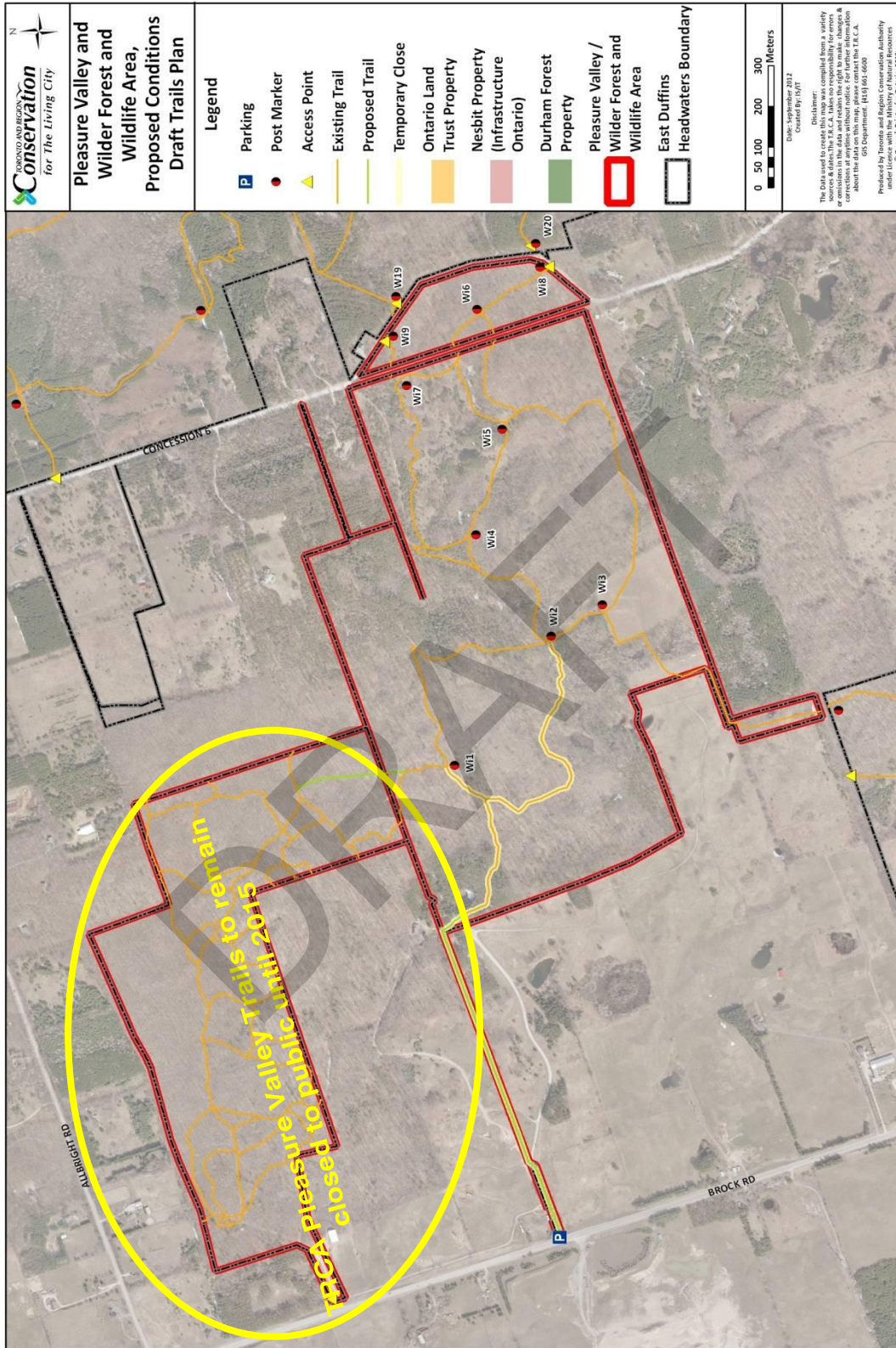
Map 6.7 Trail Plan, TRCA Skyloft Existing Conditions



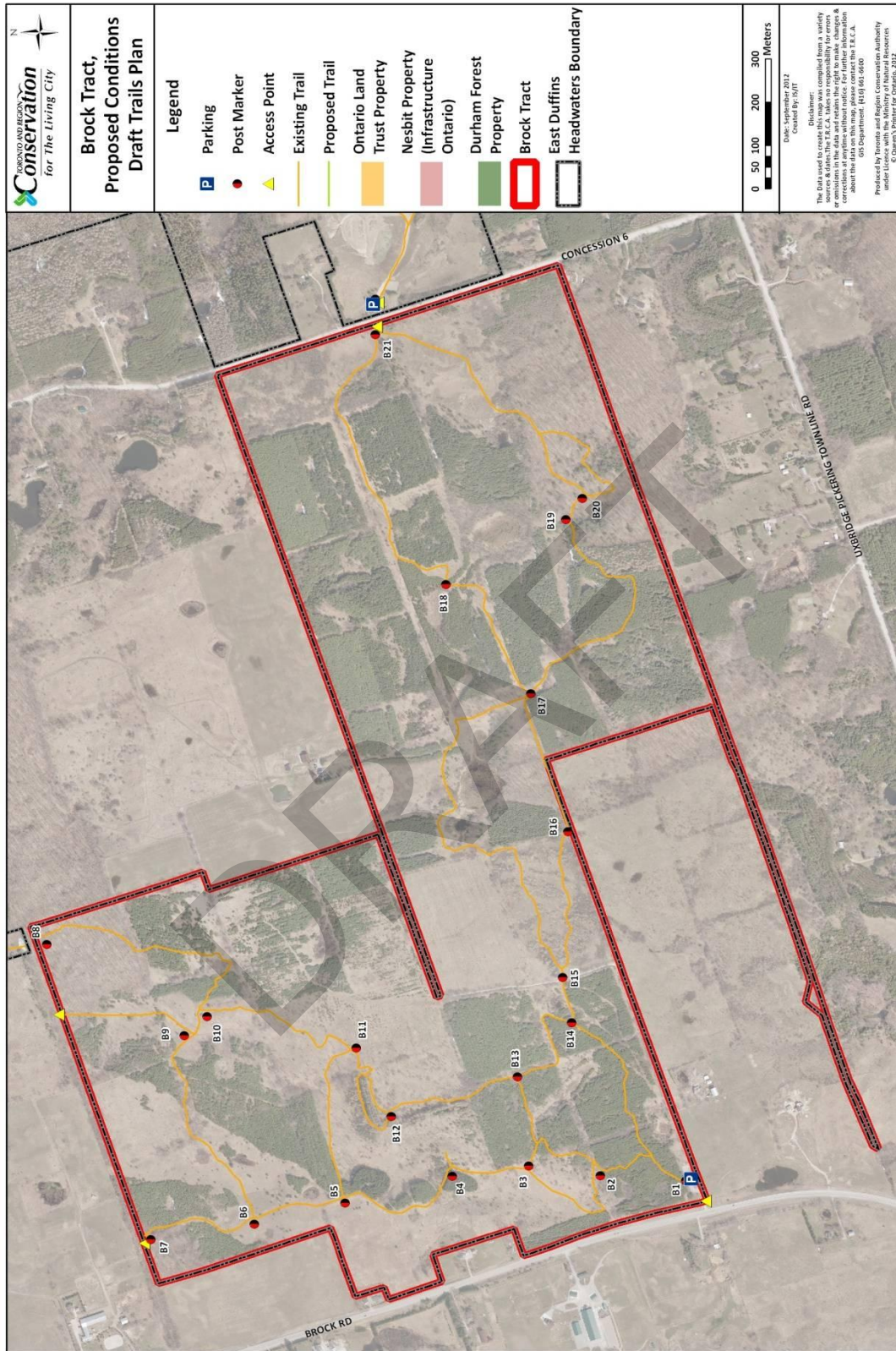
Map 6.8 Trail Plan, TRCA Dagmar Existing Conditions



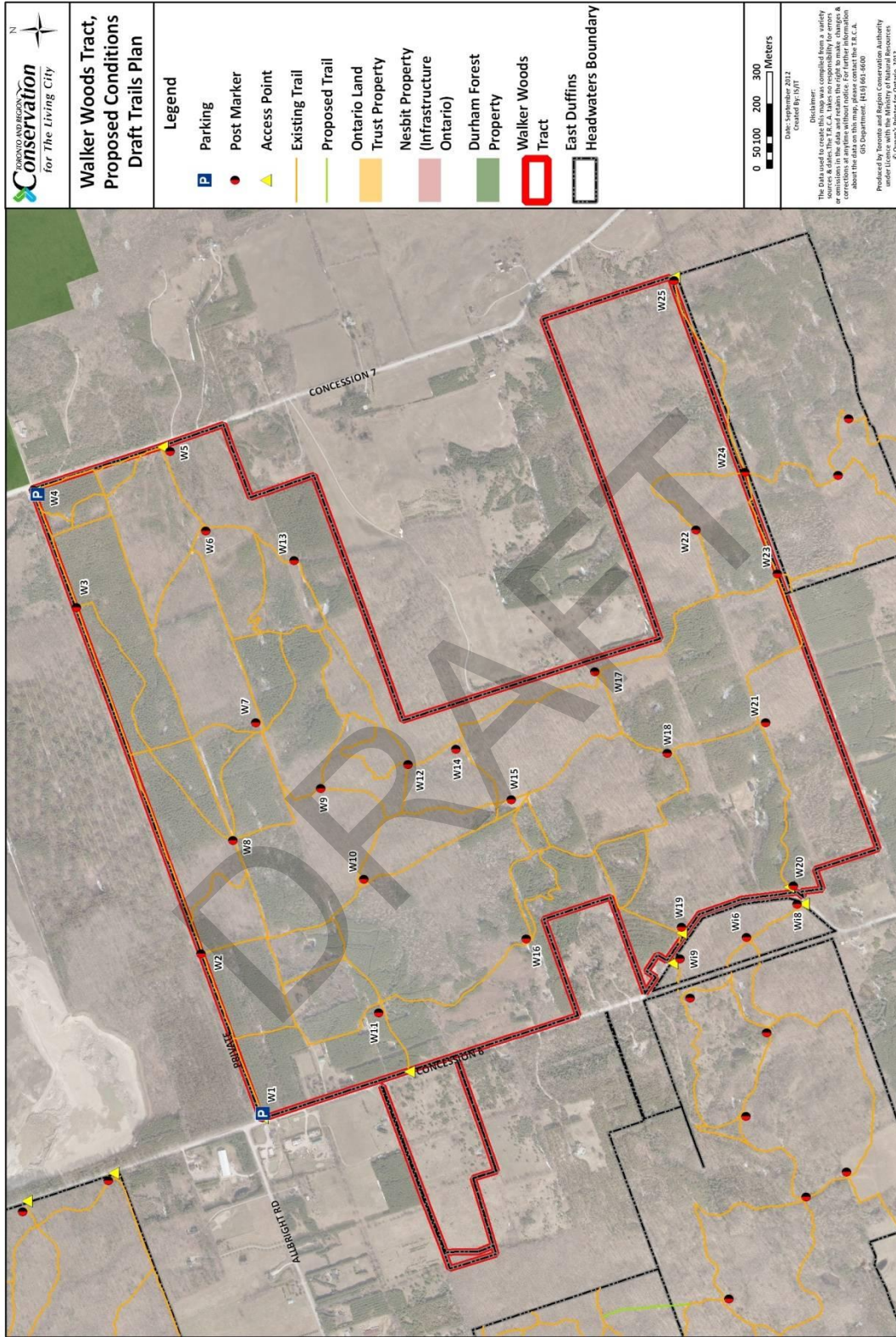
Map 6.10: Trail Plan, North Walker Woods Proposed Conditions



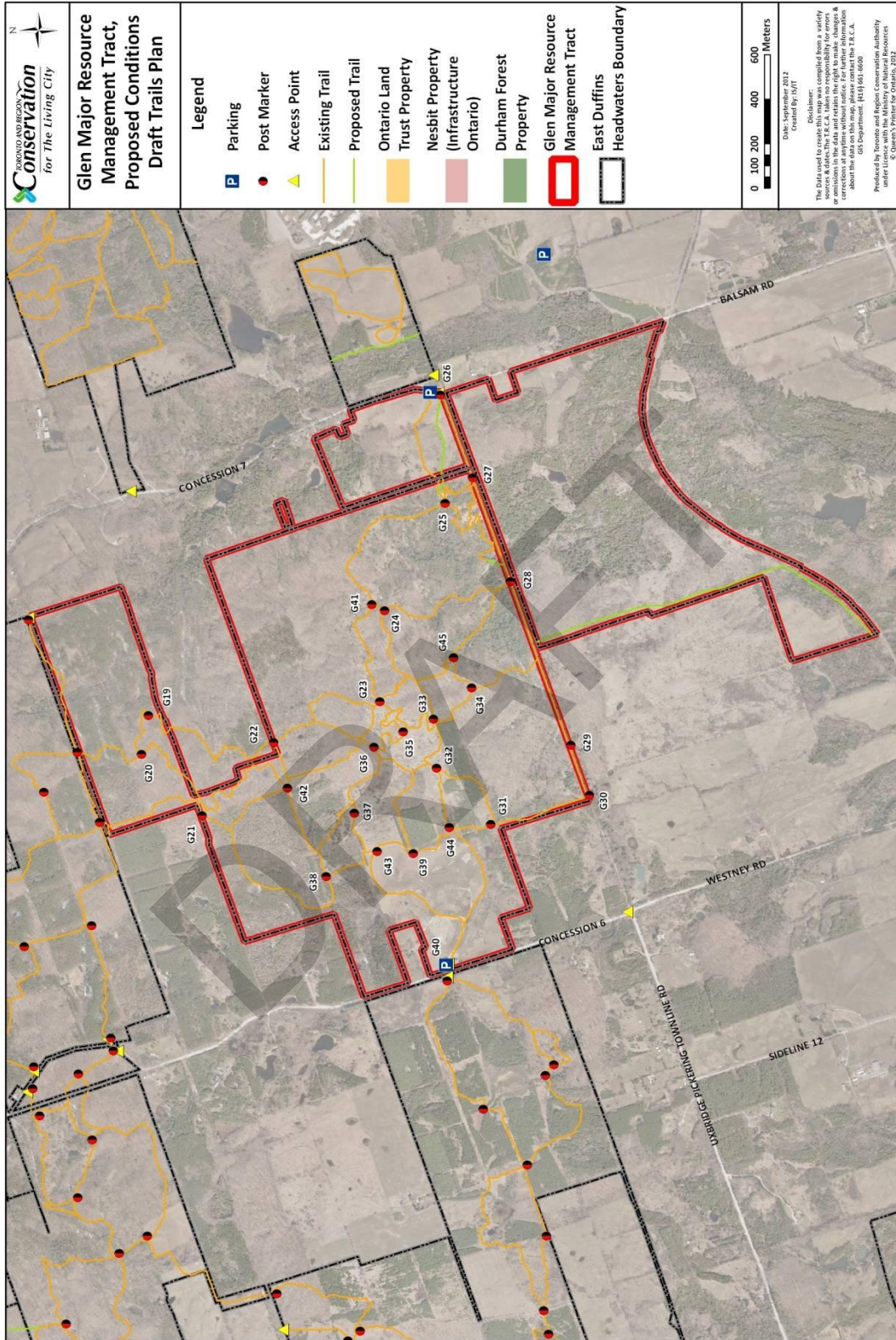
Map 6.11: Trail Plan, TRCA Pleaseure Valley and Wilder FWP Proposed Conditions



Map 6.12: Trail Plan, Brock Tract Proposed Conditions



Map 6.13: Trail Plan, Walker Woods Proposed Conditions



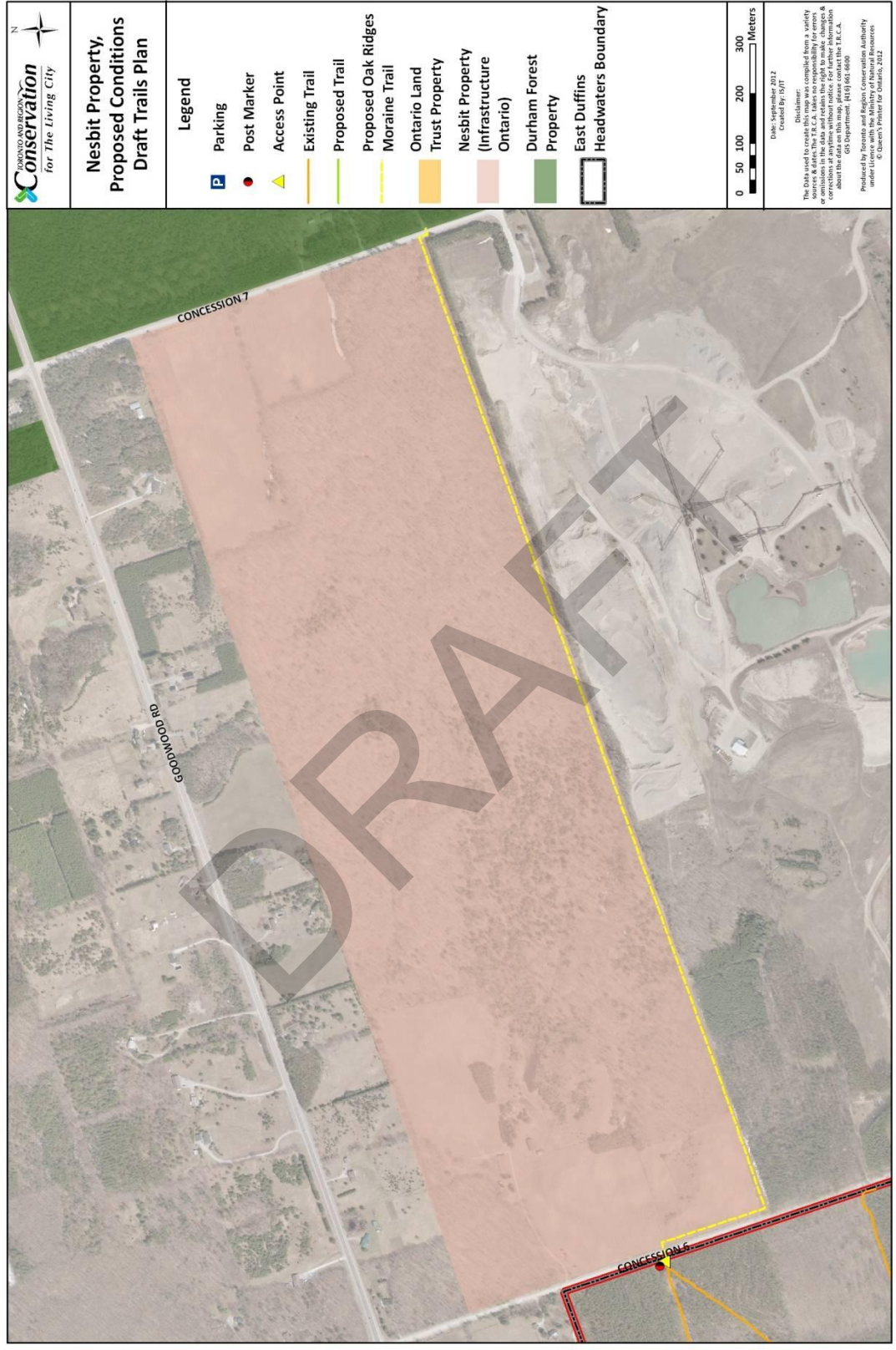
Map 6.14: Trail Plan, Glen Major Proposed Conditions



Map 6.15: Trail Plan, TRCA Skyloft Proposed Conditions



Map 6.16: Trail Plan, TRCA Dagmar Proposed Conditions



Map 6.17: Draft Trail Plan, Infrastructure Ontario Nesbit Property

7. Implementation

The following chapter outlines the implementation strategy for the management plan. The implementation plan has been split into three 5 year phases to help organize the implementation of the various recommendations and deliverables mentioned within the document.

7.1. Plan Implementation Schedule

The implementation of the EDH Management Plan Update will require cohesive management between TRCA, the Township of Uxbridge, the City of Pickering, the EDH Stewardship Committee and new project partners. The plan has been broken into ongoing management actions that are required to keep the properties operational, and capital improvements that should funding be available will help improve the quality and safety of the public experience on site. These capital projects have been further categorized by either their sub-plan or a major management theme. In this case discrete strategies are in place for the Site Securement Plan (Table 7.2), the Trail Plan (Table 7.3) and for the Restoration Opportunities for the property (Table 7.4). Finally table 7.5 summarizes key actions for Natural Heritage, Cultural Heritage and Stewardship.

7.2. Operations Schedule

Table 7.1 summarizes key deliverables for the ongoing operation of the EDH properties. This table represents the bare minimum required to keep the property safe for public access and to ensure that the natural and cultural heritage features on site will be protected.

Hazard tree monitoring is to be completed to the standard set in the *Operations Procedures for Managing Hazard Trees (2006)*. To be compliant with this policy, all trails must be assessed by competent hazard tree assessors at least once every two years. Trail mowing is done at a minimum level to ensure that existing trail corridors within open areas do not overgrow. Trail Maintenance refers to minor trail works such as clearing or repairs on existing trail tread. Community outreach refers to the ongoing facilitation and engagement by TRCA of the EDH Stewardship Committee. Natural Heritage monitoring refers to the ongoing collection of Terrestrial Natural Heritage information to ensure that TRCA's natural heritage databases are up to date and accurate. Invasive management refers to works to control the spread of non-native and invasive vascular plants. In this schedule general property maintenance refers to the ongoing garbage cleanup, parking lot maintenance, responding to neighbor concerns and the resolution of other property issues that might arise in the day to day management of the properties.

The majority of these actions should be funded through existing funding for the properties. In the case of Natural Heritage Monitoring, no funding structure presently exists for a comprehensive data collection strategy beyond regional monitoring programs. Until support for such a program is secured, additional Natural Heritage Reporting will be done on a project specific basis to ensure that implementation projects do as little impact as possible on the natural environment. Likewise, to ensure that resources are most efficiently directed towards the treatment of terrestrial invasive, a key management recommendation of the plan is to

develop a property specific invasive control plan. Invasive management on the properties should be done in accordance with this forthcoming control plan.

Table 7.1 EDH Management Plan Implementation Schedule: Operation						
	Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)	
	Action	Project Lead	Action	Project Lead	Action	Project Lead
Operating	General Property Maintenance	CL	General Property Maintenance	CL	General Property Maintenance	CL
	Trail Hazard Tree Monitoring (50%/Year)	CL	Trail Hazard Tree Monitoring (50%/Year)	CL	Trail Hazard Tree Monitoring (50%/Year)	CL
	Trail Mowing	CL	Trail Mowing	CL	Trail Mowing	CL
	Trail Maintenance	CL	Trail Maintenance	CL	Trail Maintenance	CL
	Community Outreach	CL	Community Outreach	CL	Community Outreach	CL
	Natural Heritage Monitoring*	Ecology	Natural Heritage Monitoring	Ecology	Natural Heritage Monitoring	Ecology
	Invasive Management†	CL	Invasive Management†	CL	Invasive Management†	CL

*Timing is funding dependant †Pending Completion of Invasive Control Plan ‡Pending Management Agreement

7.3. Site Securement Schedule:

A key component of the Site Securement Plan is the Inventory and Audit program. Given that a complete Inventory and Audit has been done of the property boundaries and trails in the development of the management update, the next comprehensive boundary audit is scheduled 5 years from the ratification of the plan, however, if additional funds become available, increased Inventory and Audit presence is desired. Optimally, an annual boundary and trails audit would ensure that site securement and safety issues are being brought to the attention of the TRCA in a timely fashion.

At present some 18,000m of existing boundary fence on the properties is of fair to poor quality. Furthermore there are some additional high priority fencing projects required to ensure the integrity of the properties that will be required in the near future. Given the large cost of fencing, it is not foreseeable that the entirety of the fencing work could be completed within the first 5 years of the project, but rather will need to be implemented as funding is available. The Brock Tract extension is one fencing project of higher importance that should be implemented as soon as funding is available. As fencing is repaired, boundary signage should also be inspected and updated accordingly to mark the property as TRCA land. Encroachments will be resolved based on a prioritization based on their severity and their chance to do harm to either the public or the natural or cultural heritage features on site. A major waste site identified for

resolution is that of the historical Walker farm dump. As a starting place for resolution, an initial risk assessment should be done on the dump site.

From a public safety point of view the highest priority action is to update and adopt the emergency management plan for the EDH properties, and to ensure it is effectively coordinated with emergency response staff, and our neighboring Conservation Authorities. Further public safety actions focus on securing existing buildings or structures on site and to ensure that all the access gates are accessible as best as possible by emergency vehicles.

While not specifically site securement issues, there are a few building improvements that are highly desired by not only TRCA but also the community. Most notably, there is a desire to address and improve the historic Walker Saw Mill and surrounding structures. It is understood that improvements to historic structures can be high resource demanding projects. In recognition of this fact, an RFP should be developed to explore options and budgets for the remediation of the Historic Walker Mill and structures to see what is possible in developing an interpretive opportunity for the public. In addition to the Historic Walker some additional improvements are required for the TRCA Field Shop on site.

	Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)	
	Action	Project Lead	Action	Project Lead	Action	Project Lead
Site Securement and Protection	Boundary Securement					
	Brock Tract Extension Fencing	CL/Enforcement	Boundary Audit	CL	Boundary Audit	CL
	Ongoing Fencing Repair/ Installation	CL	Ongoing Fencing Repair/ Installation	CL	Ongoing Fencing Repair/ Installation	CL
	Update Boundary Signage	CL	Update Boundary Signage	CL	Update Boundary Signage	CL
	Encroachment Resolution	CL/Enforcement	Encroachment Resolution	CL/Enforcement	Encroachment Resolution	CL/Enforcement
	Public Safety					
	Adopt Emergency Management Plan	CL	Secure/ Remove Wilder Cabin*	Eastville	Pleasure Valley Rental Removal	CL/Eastville
	Secure PV Sugar Shack	CL	Pleasure Valley Rental Building Assessment	CL/ Eastville		
	Secure WW Historical Cistern	CL				
	Access Point Gate Improvements	CL				
Remove Purvis Cottage*‡	Eastville					

Table 7.2 EDH Management Plan Implementation Schedule: Site Securement and Protection						
Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)		
Conduct Heritage Assessment of Wilder Cabin	CL/CH					
Conduct Assessment of TRCA Field Shop	CL/Property					
Environmental Health						
Conduct risk assessment of the Walker Historical Dump	CL/RS					
Building Improvements						
Walker Drying Shed Improvements	CL					
Develop Walker Mill RFP	CL					
*Timing is funding dependant †Pending Completion of Invasive Control Plan ‡Pending Management Agreement						

7.4. Trail Plan Schedule

One of the largest components of the management plan update is the updated Trail Plan for the properties. The plan includes almost 40 management recommendations. These recommendations are targeted at ensuring a trail system that provides a safe, accessible, enjoyable and educational year-round trail system that promotes and protects the environment as well as the cultural features of the East Duffins Headwaters. Of key importance is the securement of key trail connections both between the EDH properties and to neighboring lands via the interregional trails on site. Given the large number of changes in the trails since the last trail guide had been developed for the properties, another key priority is to update the mapping, trail guides and signage for the properties. Doing so will improve the way-finding, safety and also increase the public profile of the properties and the TRCA in the area. The plan proposes to do an update to the trail guide in the first five years of implementation, and then every 5 years or as needed.

Key trail improvements surround ensuring public safety and ensuring a continuous trail system between the various TRCA properties included within the plan. Key sites identified are the connections between the Brock Tract and the Wilder Forest and Wildlife Area, the proposed Glen Major Trail head trail, and a trail connection to the TRCA Dagmar property. The trail plan also proposes some additional parking lots to provide safe access to the EDH properties. Two interpretive trails, a natural heritage and cultural heritage, are being proposed within the EDH. While timing for each of the trail improvements is dependent on available funding, it is proposed that the Glen Major Parking Lot expansion take place within the first 5 years of implementation, as the existing lot is regularly at capacity. The Natural Heritage Interpretive trail should be implemented in coordination with the EDH stewardship committee and in any case as soon as funding is available to do so. Timing for the Cultural Heritage Interpretive trail

should be coordinated to coincide with improvements to the Walker Mill and surrounding structures. Partnerships with the neighboring municipalities should be developed to provide support prior to conducting trail improvements on the road allowance trails leading to the EDH.

Working with TRCA the Durham Mountain Biking Association has developed a Mountain Biking focused Secondary Trail Plan for the TRCA Dagmar properties. This secondary plan has its own implementation schedule beginning in the first year of Management Plan Implementation. For details on timing and projected costs of this Secondary Plan please refer to the TRCA Dagmar Secondary Plan in Appendix A.

Table 7.3 EDH Management Plan Implementation Schedule: Trail Plan						
	Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)	
	Action	Project Lead	Action	Project Lead	Action	Project Lead
Trail Plan	Signage and Communication Materials					
	Install Updated Signage	CL	Update and Print Trail Guide	CL/ Marketi ng	Update and Print Trail Guide	CL/ Marketi ng
	Update and Print Trail Guide	CL/ Marketi ng				
	Trail Connections					
	Durham Forest to TRCA Skyloft Connection	CL/ Propert y				
	Tannenbaum Lands Connection	CL/ Propert y				
	TRCA Skyloft to TRCA Dagmar	CL/ Propert y				
	TRCA Dagmar North to South	CL/Prop erty				
	Re-Confirm ORT and TCT Routing	CL/ Propert y				
	Trail Improvements					
	Brock to Wilder Connection	CL	NWW Parking Lot* 6th Concession	CL	Pleasure Valley Parking Lot *	CL
	Road Allowance Maintenance	CL	Tannenbaum Lands Trail‡	CL	Pleasure Valley Accessible Trail*	CL
	Glen Major Proposed Trail	CL	Develop Interpretive Trail (CH)*	CL/CH	Pleasure Valley Trail Closures*	CL
	TRCA Dagmar Secondary Trail Plan	CL	Develop Walker Woods Accessible Trail*	CL	Priority Trail Areas	CL
	Cycling Focused Trails	CL	Priority Trail Areas	CL		
	Develop Interpretive Trail (NH)*	CL/ Ecology				
	Brock Parking Lot (NWW)*	CL				

Table 7.3 EDH Management Plan Implementation Schedule: Trail Plan						
	Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)	
	Glen Major Parking Lot Expansion*	CL				
	Priority Trail Areas	CL				
*Timing is funding dependant †Pending Completion of Invasive Control Plan ‡Pending Management Agreement						

Table 7.4 EDH Management Plan Implementation Schedule: Restoration Opportunities						
	Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)	
	Action	Project Lead	Action	Project Lead	Action	Project Lead
Restoration Opportunities	Develop Restoration Plan for Uxbridge Lands (North Walker Woods) Aggregate Site and begin implementation*	CL/RS	Implement Restoration Plan for Uxbridge Lands (North Walker Woods) Aggregate Site*	CL/RS		
	Remediate failed Uxbridge-Pickering Townline Culverts	RS/CL				
	Investigate and complete implementation of the West Glen Major Project	RS/CL				
*Timing is funding dependant †Pending Completion of Invasive Control Plan ‡Pending Management Agreement						

7.5. Restoration Opportunities

The identified restoration opportunities should be implemented as soon as funding is available. A key priority area within the EDH is the Uxbridge Lands (North Walker Woods) former aggregate site. Remediation of the failed towline culverts should coincide with any trail improvements that are conducted in the area and pending partnership with the local municipalities. The continuance of implementation of the West Glen Major Restoration Project should be completed pending funding and review of works already completed. Forestry work is to be completed as per the direction of the *TRCA Managed Forest Plan (1998)*.

7.6. Natural Heritage, Cultural Heritage and Stewardship

Priorities for implementation within the EDH from a Natural Heritage perspective is to develop a property specific invasive management strategy for the properties, this is a key management action that is needed prior to any broader invasive management projects taking place on the properties.

A key implementation priority for both Natural and Cultural heritage actions is to ensure all necessary Natural and Cultural heritage approvals are attained prior to project implementation in the field. Natural and Cultural Heritage involvement would also be desired during the development of interpretive trails or features on site. This consultative work is ongoing and should be scheduled throughout the property management.

TRCA has been conducting various stewardship initiatives within the EDH, with mixed success. Moving forward stewardship actions will focus on developing school and community group focused events within the EDH area.

	Year 1-5 (2013-2017)		Year 6-10 (2018-2022)		Year 11-15 (2023-2027)	
	Action	Project Lead	Action	Project Lead	Action	Project Lead
Natural Heritage	Develop Property Specific Invasive Species Management Strategy	RS/CL/Ecology	Implement Invasive Species Management Strategy	RS/CL/Ecology	Implement Invasive Species Management Strategy	RS/CL/Ecology
	Necessary Approvals	Ecology	Necessary Approvals	Ecology	Necessary Approvals	Ecology
Cultural Heritage	Necessary Approvals	CH	Necessary Approvals	CH	Necessary Approvals	CH
Stewardship	Develop school and community group focused stewardship events in the EDH area	Stewardship	continue implementation of community group focused stewardship events in the EDH area	Stewardship	continue implementation of community group focused stewardship events in the EDH area	Stewardship

*Timing is funding dependant †Pending Completion of Invasive Control Plan ‡Pending Management Agreement

7.7. Partnership Opportunities

Partnerships have been integral to the development of the EDH Management Plan Update, and numerous committees and organizations have assisted TRCA in this regard. Through the Management Plan Update planning process, TRCA has consulted with partners, including the Town Uxbridge, the City of Pickering, the Region of Durham, the community groups that make up the Glen Major and Walker Woods Stewardship Committee and several Aboriginal groups. TRCA values the progress and accomplishments achieved through the efforts of these parties and looks toward maintaining existing relationships, while establishing new ones, to help achieve the vision for the EDH.

Continued collaboration and cost-sharing among these partners will be important in implementing the recommendations of the Management Plan Update. As noted within the Trail Plan a key partnership that is needed is one with the local municipalities, which will help ensure support for maintaining key infrastructure that exists within road allowance properties. This includes both parking areas and trails.

The unique natural and cultural heritage features of the EDH make the property a destination point and potential tourism draw within Durham Region. The property's location within the region is well suited to serve as both a recreational and natural appreciation needs of current residents, as well as meet the needs of the future communities that are planned in proximity to the property. For this reason, additional partnerships to expand the benefits that the EDH provides should be investigated now and in the future.

7.7.1. Stewardship Committee

This plan contains a variety of detailed management recommendations that were established with the assistance and support of the Glen Major and Walker Woods Stewardship Committee. During this time the Stewardship Committee helped TRCA to oversee and participate in the ongoing management of the existing trails and other issues on the properties. Moving forward TRCA would seek to involve the Stewardship Committee in the ongoing implementation of the various plan recommendations, including those dealing with trails, education and communications. TRCA would also seek assistance in implementing site development, maintenance, environmental protection and restoration activities. Finally, the committee could also assist in the monitoring of environmental and public use indicators and of plan implementation.

The management plan recommendations provide a basic framework from which the Stewardship Committee can continue to operate. While the key recommendations are outlined here, it is anticipated that the committee will undertake a review of the Management Plan Update and its recommendations on a regular and on-going basis. Some responsibilities of the Stewardship Committee may include:

- Review the Management Plan Update and establish priority actions for implementation as necessary.
- Assist in the development and implementation of detailed trail plans and develop a trail guide for users.
- Participate in the 'Trail Captain' stewardship program for the property.
- Assist in developing newsletter(s) and a communications plans to raise awareness and inform surrounding communities about the area.
- Educate private landowners in and around the EDH regarding stewardship practices.
- Develop educational resources and tools for private landowners and visitors.
- Monitor the trails for invasive plant species and noxious weeds and prevent their spread through barriers and other eradication techniques.
- Organize celebration events to increase public awareness.

- Assist TRCA in implementing the Terrestrial Natural Heritage Monitoring Program.
- Assist in securing financial and in-kind resources to undertake the work.
- Communicate the activities of the Stewardship Committee to its respective member organizations.
- Encourage area residents to undertake environmental improvements and restoration projects on their properties to help expand the ecological benefits of the EDH.

7.7.2. Agency and Municipal Stewardship

The natural, cultural and recreational resources that exist in the EDH provide benefits beyond the TRCA property boundaries; these resources extend into, and contribute to, the surrounding local and regional landscape. Therefore, integration with the community was considered throughout the planning process. An effort was made to reflect the recommendations and opportunities identified in municipal and government agency documents so that support for and implementation of the Management Plan Update can be achieved.

There is a great opportunity to connect the recommendations of the EDH Management Plan Update to municipal goals and objectives, and continued communication with the Town of Uxbridge, the City of Pickering and the Region of Durham will be crucial to finding shared opportunities and efficiencies for achieving the recommendations within this Management Plan Update.

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 regional trail network.
- Promote private land stewardship that increases awareness about best management practices and creates opportunities to engage landowners in protecting and enhancing the EDH and its valuable resources.

7.8. Safety and Security

Public safety, as a policy of TRCA, is implemented through various methods and strategies. Within the Management Plan Updating process for the EDH, consultation was initiated with the Durham Regional Police Service (DRPS) through its community relations officer. Given the natural landscape of the property, emergency access for ambulance, fire and police vehicles is limited. As a result, special considerations are required, including:

- Development and adoption of the EDH Emergency Management Plan with involvement from local and neighboring emergency service providers.
- Enhancing the trail locator system, by increasing the number of wayfinding signage along the trails, and clearly communicating this information to the public and appropriate emergency responders.

- Integration of the trail location system into the emergency response system of the fire, police and ambulance departments.
- Install fully integrated maps, depicting all named trails and the location of markers along each trail, at all primary and secondary trailheads.
- Install vehicle restriction devices at all trailheads to prevent any non-permitted motorized access.
- As frequency of use increases around active recreation areas, consider equipping a public first aid station with an AED (automated external defibrillator) device at the main parking lot.

7.9. Endorsement and Maintenance of the Management Plan Update

As a partnership between the Township of Uxbridge, the City of Pickering, the Region of Durham, the Glen Major and Walker Woods Stewardship Committee and the community, this Management Plan Update required endorsement from various groups, including both municipalities and the TRCA Board. The public, local community and EDH users were informed and consulted during the Management Plan Update process through newsletters, questionnaires, open houses and public meetings. Their concerns, comments and suggestions were heard and integrated into the plan where appropriate.

Both the Staff Advisory Committee and the Stewardship Committee brought 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 where appropriate.

TRCA, local municipalities and the forthcoming EDH Stewardship Committee will continue to work together toward implementing, maintaining and adapting the EDH Management Plan Update.

7.10. Plan Review and Amendment

With the support of all the parties engaged in the development of the EDH Management Plan Update, the plan will undergo a review as needed. If major revisions are necessary to reflect changing environmental, social or economic conditions, they will only be made after consultation with the affected groups and individuals. Revisions of the plan will be consistent with the original stated vision, goals and objectives of the EDH, as well as *A Watershed Plan for Duffins Creek and Carruthers Creek*.

The Management Plan Update identifies public use zones and trails, with the appropriate uses outlined in the trail plan. Any additional uses proposed for these zones will be screened and assessed accordingly. 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 to the properties and protect, enhance or restore the natural values of this area.

7.11. Conclusion

Since 2008, TRCA and its project partners have worked hard to develop the EDH Management Plan Update and its recommendations. Through extensive efforts and subsequent consultation, these recommendations will not only provide appropriate protection to the natural and cultural features of the site but will also provide exciting recreational uses for current and future users. Successful implementation of this plan will require effective partnership and cooperation from

all TRCA's partners in the area. The framework set up by this plan will ensure the EDH will continue to be model for successfully balancing conservation values with recreation on TRCA's Conservation Lands.

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Appendix A: Concept Trail Plan for TRCA Dagmar North and South

A.1. Concept Secondary Trail Plan for TRCA Dagmar North and South

This secondary trail plan has been developed in partnership with the Durham Mountain Biking Association (DMBA), a non-profit organization representing the mountain biking community in Durham Region.

A.2. Introduction

A.2.1. TRCA Dagmar Trail History and Use

Dagmar North has a network of about 11 km of double-track trails historically used for logging, hiking, cycling and cross country skiing. This tract is presently being leased to the Dagmar Ski Resort for their cross country ski operations for 6 months during the winter. In the 1990s a supplementary network of about 11 km of single-track trails was created by local mountain bike trail builders in cooperation with Dagmar Resort and the TRCA, for recreational mountain biking and mountain bike events.

The area became attractive to cyclists as it offered a well planned and constructed network of trails offering a range of riding experiences for beginner, intermediate and advanced riders. It was particularly attractive to intermediate and advanced riders as the majority of single track trails were intermediate to advanced trails and presented a uniquely interesting and challenging riding experience for intermediate and advanced cyclists in the EDH and Uxbridge Township. Chico Racing, an Uxbridge based mountain bike event organizer, in cooperation with Dagmar Resort and TRCA, hosted several large cycling events in the 1990s and early 2000s, along with a small weekly series during the summers from 1998 through 2005.

The Dagmar Ski Resort's parking lot has historically served as the primary trail head for TRCA's Dagmar North tract. The cycling events, along with casual hiking and riding access to Dagmar North in spring/summer/fall, were facilitated by Dagmar Resort which allowed parking in their cross country ski lot and access across a strip of their property to the trails on TRCA's land. However, in 1996 the Dagmar Resort came under new management and spring/summer/fall access through the Dagmar Resort parking lot was withdrawn and subsequently casual use by cyclists, hikers, etc. was no longer possible and cycling events were suspended. In the ensuing years the double-track trails have been actively used in the winter for Dagmar's cross country ski operations. However, non-winter use has been minimal in Dagmar North so the single track trails have been more or less reclaimed by nature, due to lack of use and maintenance.

A.2.2. Dagmar South

Dagmar South is a small tract, adjacent to the 3 Rocks Glen Major parking lot, on the east side of Uxbridge 7th Concession extending east to abut the Dagmar Resort property. It currently contains a couple of kilometers of wide cross country skiing trails of and hosts a small number of casual hikers and skiers in a year.

A.2.3. Project Description

This is a secondary trail plan specifically created for the Dagmar Tracts as they are brought back on line for spring, summer and fall use in 2012 after six years of winter-only use. This plan respects, takes guidance from and is an integral part of the overarching EDH Management Plan and the EDH Trail Plan. The EDH Trail Plan's vision, goal, objectives and management principles provide the foundation and framework for this Dagmar Concept Trail Plan, the ensuing Detailed Trail Design/Build Plan, and its subsequent implementation. The EDH Trail Plan Objectives are worth restating here as they provide strategic planning guidance to this secondary plan:

- a. Develop and manage the trails with an environment first approach
- b. Implement best practices for construction and management of trails
- c. Improve user experience while decreasing user conflict
- d. Develop a balance of trail uses that allow all user groups to enjoy EDH

This Dagmar trail plan is designed to accomplish some specific objectives of the EDH Management and Trail Plans:

- create trail connectivity within and among the EDH properties and Uxbridge trails network by adding a north/south route to and through the Dagmar Tracts;
- reduce stress on the Core trail system by shifting some of the human traffic, specifically cyclists, off of those trails;
- reduce user conflict on the trails in EDH by creating a cycling preferred area in the east to draw cyclists away from the more heavily traveled multi-use trails in the Core lands.
- Restore and improve user experience for the largest EDH user group (mountain bike riders) by replacing the historical technical single track trails lost since 2006.

A.2.4. Secondary Trail Plan Goals, Objectives, Strategies & Benefits

Goal:

- Develop Dagmar North as a cycling preferred area in the EDH that is also available to hikers, trail runners and equestrians, with connections to neighboring EDH properties, available for public use in the snow-free seasons.

Objectives:

- Provide trail connections and riding/hiking options between Durham Forest and TRCA's Skyloft property in the north through Dagmar North and South to the Glen

Major Parking Lot and Trailhead (Three Rocks) and Glen Major property to the south west.

- Provide a varied and interesting cycling experience, with a focus on intermediate and advanced trails.
- Attract intermediate and advanced mountain bike traffic away from the Core EDH lands to the Dagmar Tracts.

Strategies:

- Utilize the existing Class 2 and 3 double-track trails as a backbone trail network and add a variety of smaller trails to it.
- Plan, design and build a network of Class 3 and 4 sustainable single-track trails purpose-built for mountain biking.
- Engage the mountain biking community in the design, building and maintenance of the new trails by utilizing the skills, organization and enthusiastic, volunteer labor base of the DMBA.

Benefits:

- Draw a portion of the cycle traffic away from the EDH Core lands
- Reduce user conflict on the Core lands
- Reduce incidental wear on the Core Lands' trails
- Develop a strong, positive partnership with the mountain biking community and gain benefit from the resourcefulness of this large user group.
- Develop a trail network that could support a few revenue generating events

A.2.5. A Partnership Process

The TRCA has partnered with the Durham Mountain Biking Association (DMBA), a 465 member organization representing the local cycling community, to develop and implement the Dagmar Trail Plan.

This allows the TRCA to take advantage of several key DMBA assets, namely::

- A strong understanding of the nature of mountain biking and the cycling community's desires and behaviors;
- An extensive knowledge, and experience in designing and building sustainable trails;
- An ability to tap into the skills, resources and enthusiasm of the community;
- ability to engage and direct a strong, skilled volunteer labor force for the build phases;
- An ongoing support for trail monitoring and maintenance.

The DMBA will lead the Dagmar trail planning and development project, working in close consultation and cooperation with the TRCA. The DMBA will provide the bulk of the human resources and skills to plan, design and build the new trails and to maintain them in the future. Trail Development Responsibilities

Trail Development Responsibilities

The TRCA will provide information & guidance, support the process, support fund raising (eg. grant writing), be available for consultation, and provide expertise and resources as appropriate.

The DMBA team agrees to understand and respect the TRCA's goals and objectives for the EDH, follow the TRCA's Trail Planning Guiding Principles, work within the TRCA's processes, work cooperatively with TRCA staff, and bring DMBA's expertise, resources and volunteers to the table and to the field.

Recommendations:

- a. That DMBA and TRCA develop a memorandum of understanding and maintenance and implementation agreement for the detailed design, implementation and ongoing maintenance of the Dagmar North Trails.

The following represents a preliminary description of the relationship between TRCA and DMBA in the management of the Dagmar North Trails:

That DMBA leads the trail planning and construction phases, including:

- consultation with TRCA regarding trail planning and construction;
- the Development of annual detailed trail plans for proposed trails;
- the marking of preliminary trail corridors and provide TRCA with GPS tracks for these;
- coordination with TRCA of inspections of trail projects;
- the marking of detailed trail lines prior to construction;
- the provision, training and coordination of a volunteer labour force for construction and finishing of hand-built treads to IMBA and TRCA trail standards;
- the provision of necessary trail building hand tools for volunteers;
- the coordination in partnership with TRCA of contracted trail builds;
- the provision of funds required for trail building; and
- the partnership with TRCA to secure grant money for trail projects developed under this plan.

The TRCA will support and supervise the trail planning and construction phases, including:

- the investigation, negotiation and acquisition of adequate access corridors and parking lots to the Dagmar North Lands;
- the coordination in a timely manner of all necessary internal and external approvals with regard to trail projects that are to be developed under this plan;
- the security of all sites with regard to hazards in accordance with the *TRCA Operational Procedures for Managing Hazard Trees*;
- Boundary securement;
- coordinate trail and area signage as required; and
- partner with DMBA to apply for and secure grant money for this project

A.2.6. Project Phasing

There will be several phases to the project. The development of an overall Trail Concept Plan was Phase One resulting in this document in March 2012. The Concept Plan lays out the general objectives, strategies, principles, approaches, timeline and budget for the project overall. Each year in the project (2013 – 2015) a Detailed Design and Implementation Plan will be developed determining exactly where, when and how each trail will be built that year. Once each annual plan is approved, the team will then implement the plan through a series of Trail Building projects or events that year under TRCA supervision.

A.2.7. Project Consultation

A Consultative Process has and will be taken throughout each phase of the project. The project partners (DMBA and TRCA) have and will work together to consult with and engage all necessary TRCA Staff, all recognized stakeholders, including user groups and neighbors via the Glen Major and Walker Woods Stewardship Committee, have been consulted in the past and will be consulted, informed and engaged on an ongoing basis.

A.2.8. Shared Funding

The partnership extends to include funding for planning, design, construction and maintenance of the new trail network. The DMBA has fully funded the first phase, committing the dollars, research and writing resources to create the Concept Plan. Chico Racing, a prominent local trail designer, builder and race promoter has been engaged to consult on this Phase. DMBA will be responsible for the implementation of the detailed design and build phases. TRCA will be responsible for boundary securement and provision of signage for the proposed trail plan. Cost estimates are included later in this Concept Plan for the annual Design and Build Phases.

A.2.9. Time Lines

Phase 1, The Concept Plan is to be complete, reviewed and approved by TRCA Staff during winter 2012/13, reviewed and approved by the EDH Stewards fall 2012 and to be incorporated into the EDH Mgmt Plan fall 2012.

Trail building will take place over three years, 2013 through 2015, with annual Detailed Design and Build Plans to be completed and approved by May 1st each year for implementation that year.

A.3. Special Issues

A.3.1. Access

A unique challenge in implementing a trail plan on the TRCA Dagmar North property is its distinct lack of a convenient or integrated TRCA trailhead and parking area. The property does have a gated access point from Lakeridge Road for maintenance and emergency vehicle access. TRCA is presently exploring the option of using this access point as a public parking area and trail head.

Vehicle access could also be available through Dagmar Resort's parking lot, but only with special permission. The use of this parking lot would be explored for trail events. Connectivity of the area's other trail systems is also important to support Uxbridge's designation as Trail Capital of Canada, To this end, and to provide general access to Dagmar North, three access points/connectors are planned and in work.

1. An access corridor has been secured from the north, which would allow connectivity to the TRCA's recently acquired Skyloft property and thus further north to Durham Forest and the Trans Canada Trail to Uxbridge.
2. An access corridor is being explored to the south which would allow parking at the Three Rocks lot and facilitate connectivity to the TRCA's Glen Major Forest to the west.
3. An access trail is being planned to the west along the strip of TRCA land that connects the Dagmar Property to the 7th Concession.

All access trails will be built as best as possible to Class 2/3 specifications to ensure they welcome all types and levels of users to the property.

Although these access routes do not provide a parking area integrated on the property, which a short day hiker might desire, they do not present an obstacle to the area's targeted users – the cycling community. Once these connecting corridors and trails have been established, the average cyclist could park at Three Rocks, Walker Woods, Durham Forest or the Chalk Lake Spring and easily ride to the Dagmar trails from there.

At present, the existing Glen Major Parking Lot and Trail Head (3 Rocks) on the 7th Concession is the closest TRCA trailhead for this property. Opportunities for future access points and parking areas are presently being investigated.

A.3.2. Dagmar Ski Resort Seasonal Use and Coexistence

Dagmar Ski Resort (DSR) leases Dagmar North for their cross country ski operations for six months from fall to spring each year. TRCA intends to continue this lease to DSR for private, exclusive winter use. The renewed spring/summer/fall public access is not expected to conflict with Dagmar Resort's winter use, but some accommodations and arrangements will have to be made to ensure a respectful and agreeable coexistence.

Signage, gates and communication to the user groups will be used to convey the seasonal segregation of uses. Year round signs placed at all entrances to Dagmar North will prominently note that public access is limited to the snow-free period from April through November only. All public access trails from the north, south and west will have a gate or stile that can be closed and signed during DSR's exclusive use winter season. DMBA will also communicate, educate and remind the cycling community of the limited seasonal access available to TRCA Dagmar North.

A.3.3. Trail Events in Dagmar North

TRCA Dagmar North has a rich history of hosting a range of small and large mountain biking events in the past. When its new network of single-track trails is complete it will again be in a position to support a select number and type of events annually. Although events are generally not permitted on the EDH Core lands, TRCA Dagmar has been identified in the Management Plan as an area that may be deemed appropriate for special events, pending specific TRCA approvals. Holding a small number of revenue generating events in Dagmar each year will allow the partners a stream of revenue to put back into the property to pay for some of the ongoing costs of maintenance and access.

Events potentially appropriate for the new Dagmar trail network in a season could be:

- One Ontario Cup Mountain Bike Race – approximately 600-800 participants
- One 8 Hour Mountain Bike Relay – approximately 300 teams of 1-4 members
- One Trail Running Event – approximately 1,200 participants
- One School Event – either mountain bike or cross country running – approx 500

These are each one-day, day-time, on-trail events which would therefore have limited ecological impact. Trails will be built to sustain this kind of occasional wear. Any trail repairs that might be required as a result of an event would be the responsibility of the event promoter as a condition of their permit. Each of these events could generate approximately \$2,000 in permit fees which could be channeled back into the property to cover ongoing maintenance and access costs.

As Dagmar Ski Resort's parking would be required to support such events, the Resort's cooperation would also have to be obtained by each event promoter to utilize their parking and/or other facilities. Preliminary discussions with Dagmar Ski Resort management have indicated that the resort may be open to the possibility for a small number of well managed and controlled events during their spring/summer/fall off-season.

Recommendations:

- b. Schedule up to 4 Trail Events on the TRCA Dagmar North Trails to develop a funding stream for trail maintenance and access in partnership with DMBA and local trail event organizers.

A.4. Trail System Design

A.4.1. Overview

Presently, 11.1 km of double track exists within the Dagmar Tract. These trails are Class 2 and Class 3 in nature, generally 1-6 metres wide, with gentle curves, no obstacles, gently undulating with some steep sections, primarily maintained for cross country skiing. 10-12 km of sustainable single-track will be constructed to form loops in between the pre-existing backbone of ski trails. This will approximately replace the length of single-track that existed prior to 2006 and restore the overall trail length and density of that time.. While the focus of this trail plan is to provide an intermediate to advanced trail experience, in order to accommodate a wide variety of trail experiences a mix of various trail types are proposed for these new trails.

The proposed mix of trail classes for new trails is as follows*:

- Class 2 - 20% (2km)
- Class 3 - 30% (3km)
- Class 4 - 50% (5km)

The TRCA Dagmar North Property is to be designed with a focus on trails aimed at providing an intermediate to advanced cycling experience. In order to attract cyclists away from the Core lands to reduce traffic, wear and conflict there, the Dagmar trails will need to provide a riding experience unlike those generally found in the Core lands. Certain technical trail features will be necessary,

In order to achieve this goal, technical features included in the Dagmar Tract will provide an area for intermediate cyclists to develop their technical riding skills and will allow advanced cyclists a location to exercise already developed skills. These technical features will be designed in such a way as to promote skill development without being excessive in risk and consequence. Although this area is being designed to specifically attract intermediate to advanced cyclists, ample opportunity will exist to satisfy other users to experience and enjoy the Dagmar lands. More moderate user experience will occur mostly on, but is not limited to, the extensive existing double track network and the additional 3 km of Class 3 single-track planned to be built.

A.4.2. Location of Trails

This Concept Plan does not address the exact location of new trails. This information will be part of and clearly detailed in the Phase 2 - Detailed Design and Implementation

* The proposed trail class distribution is for illustrative purposes and is subject to detailed site/implementation plans.

Plan, to be completed subsequent to approval of this Concept Plan. However, a Map “A” indicates the concept of and potential general locations of new trail loops off of the existing backbone network. These do not indicate specific proposed trail locations but are provided to illustrate the concept of the trail design only.

Generally, all trails will be laid out with an emphasis on an environment first approach. With this in mind, the south west corner of the property will be mostly avoided as it has been deemed to be of a sensitive nature by TRCA Ecology Staff and designated as a Nature Reserve Category 1 in the EDH Management Plan (See Management zone map). A trail presently surrounds the northern boundary of the Nature Reserve Category 1 zone. Efforts are presently underway to utilize this trail to make a connection between the TRCA Dagmar North and South Properties. The final location of this connection will be dependent upon negotiations by the TRCA to obtain the access corridor from the Glen Major parking area on the 7th Concession Rd.

A detailed trail design and approval process will be followed each year prior to actual trail building. Priority trail corridors will be identified for development that year. Approximate trail corridors will be flagged to indicate a +/- 20m zone through which the eventual finished tread will be located. Flagging of corridors will take into account cultural and natural heritage guidance, trail density consideration, topography and IMBA guidelines for sustainable trail design. These flagged corridors will be inspected by the required TRCA departments, including Ecology, Cultural and Natural Heritage. Once corridors are approved by TRCA, the exact tread will be pin flagged and then given a final inspection by the required TRCA departments before construction will begin.

Recommendations:

- c. That DMBA develop a detailed trail design and implementation plan for each implementation project on the TRCA Dagmar North Property in partnership with TRCA.

A.4.3. Trail Building Techniques

All single track trails will be constructed to the International Mountain Biking Association (IMBA) standards and thus adhere to the “essential elements of sustainable trails,” as outlined in *Trail Solutions – IMBA’s Guide to Building Sweet Singletrack* 2004

Recommendations:

- d. That DMBA implement all single track trails to TRCA and International Mountain Biking Association (IMBA) standards.

A.4.4. Technical Trail Features

Technical trail features found on Class 4 trails may include natural and/or enhanced natural features as defined in the Parks Canada Guidelines for mountain biking. These features would include:

- choke points (obstacles placed along the sides of the trail to confine the tread and slow users)
- log-overs/log-piles not exceeding 45cm in height
- log rides not to exceed 45 cm in height (logs with top surface planed off to provide a level riding surface)
- Installed rock gardens and trail armoring
natural and man-made drops not to exceed 45 cm in height (sudden change in elevation)

Recommendations:

- e. That detailed trail design and implementation plans include the use of “enhanced natural features” as defined in the Parks Canada Guidelines for Mountain Biking.
- f. That where “enhanced natural features” are incorporated into the detailed design of a trail on the Dagmar North Lands that an Alternate Line that allows trail users to avoid the feature also be installed.

A.4.5. Risk Management

Mountain bikers enjoy the excitement of perceived speed. However, absolute speed is a risk factor and an important aspect to be addressed, in order to diminish user conflict. Technical trail features and narrower tread widths provide a feeling of speed, while the user is actually traveling slower than they might think. This provides the thrill the cyclist is looking for while reducing the risk to the rider and other trail users.

Recommendations:

- g. That the following protocols be incorporated into the detailed design and implementation plans for each section of trail built on the TRCA Dagmar North Property:
 - i. That appropriate signage be placed at the beginning of each single-track trail showing the trail classification for that section to allow users to make informed decisions about whether to take the trail or not.
 - ii. That Trail features emphasize skill instead of consequence by designing features to have a minimum consequence to trail users in the event of failure
 - iii. That trail speed be managed through trail design.
 - iv. That features be placed on the sides of the trails (logs, rocks, etc.) to prevent trail widening and reduce rider speeds
 - v. That clear site lines be provided near turns or enhanced trail features.

- vi. That optional lines be provided that allow trail users to avoid the most advanced enhanced trail features on the trails
- vii. That enhanced trail features be placed at the beginning of the most advanced trails to act as 'gateway features' that give trail users a representation of the more difficult features that might be encountered further down the trail.
- viii. That absolute speed be controlled through detailed trail and implementation plans that include rock armouring and rock gardens.
- ix. That adequate space be provided between technical trail challenges so that the users have enough recovery room to stabilize themselves between difficult features.
- x. That appropriate fall zones be developed near the most advanced technical trail features to help minimize the risk of failure.

A.4.6. Time Line

This will be a 3 year project, beginning in 2013 and completing in 2015.

In order to attract users to the property quickly it will be essential to have at least one access trail and a few kilometers of single-track trails constructed in the first year. This would entail building at least 5 km of trails in 2013, likely including the access trails.

In subsequent years, 2014 and 2015, DMBA will build 3-4 km of trail per year, mostly by hand. Some hybrid of hand and machine trail construction may be required throughout trail implementation. The exact trail building techniques will be incorporated into the detailed trail design and implementation plans for each trail build in this plan. The following represents a proposed timeline for the implementation of this plan:

2013

- Concept Plan completed and conceptually approved – Winter 2013
- Identify & approve project's approximate trail corridors (10-12km) – April 2013
- Prioritize, flag and approve 2013 build corridors – May 2013
- Pin-flag detailed 2013 trail treads (5 km) – May 2013
- Inspection and approval by TRCA of pin-flagged routes – June 2013
- Build 5km of trails - during the 2013 field season
- Official opening of Dagmar Tract 2013- date dependent upon completion of access trails and new single-track trails slated for construction in 2013

2014

- Develop 2014 Trail Build Plan – Winter
- Prioritize, flag and approve 2014 build corridors – March
- Pin-flag detailed 2014 trail treads (4 km) – April

- Inspection and approval by TRCA of pin-flagged routes – April
- Build 4km of trails during the field work season – May to October

2015

- Develop 2015 Trail Build Plan – Winter
- Prioritize, flag and approve 2015 build corridors – March
- Pin-flag detailed 2015 trail treads (3 km) – April
- Inspection and approval by TRCA of pin-flagged routes – April
- Build 3km of trails during the field work season – May to Oct.

A.4.7. Maintenance

While trails built to sustainable standards, by their very nature, should require only minimal on-going maintenance. Some annual maintenance will be required. TRCA and DMBA will share the ongoing maintenance responsibilities for the Dagmar trail network during the snow-free seasons. Conceptually, the TRCA will maintain the trails, entrances and signs as they do on all EDH properties. TRCA and DMBA may engage in an annual letter of understanding, to maintain the single-track portion of the network, under the TRCA's supervision and to the agreed upon trail standards.

In concert and consistent with the TRCA's maintenance procedures, the DMBA would conduct regularly scheduled routine Trail Maintenance Days. Using specifically trained DMBA member volunteers, the DMBA would conduct necessary routine maintenance, at all times adhering to the agreed upon trail standards, to ensure that trails and features remain in good, safe, usable condition and trails do not meaningfully degrade from erosion or wear and tear.

DMBA Trail Maintenance Days will include clearing trails of small branches, naturally occurring and other man-made litter; and pruning and trimming of vegetation found in trail corridors. This would also typically include the removal of invasive species where said species encroach upon the trail. DMBA Trail Maintenance Days would generally be scheduled twice a year, but would be conducted more often on an as needed basis.

The DMBA has a demonstrated ability in other on-going partnerships, to regularly rally significant numbers of volunteers, knowledgeable in trail building and maintenance, sufficient to proficiently perform this maintenance. DMBA member/trail users are generally educated to identify windfall trees and report same via email to the DMBA trail captains. Building upon that existing DMBA organization, windfall trees would be identified and routinely reported to TRCA staff by designated DMBA trail captain(s) for subsequent TRCA staff attention, where power equipment (chainsaws) might be required.

Recommendations:

- h. That TRCA and DMBA incorporate a maintenance and management schedule into the memorandum of understanding and management

agreement for the ongoing care and stewardship of the TRCA Dagmar North Lands.

- i. That the maintenance schedule developed for the TRCA Dagmar North Lands be consistent with the maintenance schedule and requirements for the EDH properties as a whole.

A.4.8. Signage

A trail signing system for the Dagmar network will be developed which is consistent with the TRCA's EDH trail signage strategy as outlined in the EDH Trail Plan. Additional emphasis in some areas will be required to meet some special Dagmar requirements.

Sharing Dagmar North with the Dagmar Ski Resort will require some special considerations. Year-round signs, gates and communication will be located at all entrances to Dagmar North prominently noting that public access is limited to outside the lease period. Some specific consideration will also be given to Dagmar Resort's unique needs to identify their winter cross country trails and routes. These will be developed in consultation with Dagmar Resort.

All advanced trails will be identified as such to inform the users of their respective challenging nature. Some challenging features on these trails may be signed to inform users and mitigate risk. Where advanced options on intermediate trails and easier options on more advanced trails are offered, these choices may be signed.

The mountain bike community often adopts names for trails that reflect their history, nature or personality and to assist with communication, orientation and navigation among riders. In that vein, names for the new Dagmar trails will likely develop, and they may be incorporated into the trail signage system or small name signs may be added, where appropriate and approved.

Recommendations:

- j. Develop a comprehensive signage plan for the TRCA Dagmar North site and incorporate it into the larger EDH signage plan.
- k. That the signage plan for the TRCA Dagmar North Site clearly state to visitors the risks involved in riding advanced trails and technical trail features.
- l. That the Signage plan be developed as a partnership between DMBA and TRCA.
- m. That the signage plan be consistent with the signage system for the rest of the EDH

A.5. Budget

A.5.1. Estimate Considerations

Based on previous experience in building trails, DMBA estimates that machine-built and contractor-finished tread will cost \$5,000 - \$10,000 per km depending on terrain to be traversed. A hybrid of machine shaping and volunteer hand tool finishing is expected to cost in the order of \$3,000 to \$6,000/km plus the volunteers' efforts.

Hybrid trail construction, using contractor and machine to rough in the trail and volunteers to finish the work, will be employed wherever and whenever possible to keep actual expenses to a minimum.

Volunteer labor from the DMBA membership will be used wherever possible to minimize actual costs. The person-hours and their equivalent dollar value are included below to more completely reflect the scope of the inputs to this project and acknowledge the value of the cycling community's volunteerism to it. *Imagine Canada's Volunteer Value Calculator* and its value of \$15 per hour for General Labor – Grounds Keeper in Ontario were used for these calculations. The Skilled Trades value of \$20 per hour was used for the planning, design and layout volunteer work. The contribution of these volunteer hours and efforts to this project are over and above the DMBA's commitment to share 50% of the actual dollar costs of developing the new trail network.

Some materials such as rocks or turf stone will be required to reinforce drops or switchback turns, augment rock gardens and armour steeper sections of some advanced trails to ensure all these sections remain sustainable. These will be acquired through the TRCA or other cost effective sources. An amount is included in each year's estimate below to acknowledge there will be some material costs. The actual amounts per year will be determined annually and included in the detailed trail design and implementation plans for each year.

A.5.2. Estimated 2013 Budget – 5km

DMBA Trail Plan, design and layout: 100 hours = \$2,000 equivalent - volunteered
Trail contractor fees for 3 km: **\$15,000 - \$30,000**
DMBA Trail Crew to hand-build 2 km: 600 hours = \$9,000 equivalent - volunteered
Rock, turf stone and materials: **\$4,000 - \$8,000**
TRCA Trail heads and trail signs: **\$1,000-1,500**
Estimated total cost: \$20,000 - \$39,500 / Additional volunteer value: \$11,000

A.5.3. Estimated 2014 Budget – 4km

DMBA Trail Plan, design and layout: 100 hours @ \$20 = \$2,000 equivalent - volunteered
Trail contractor hybrid fees for 2km: **\$6,000 - \$12,000**

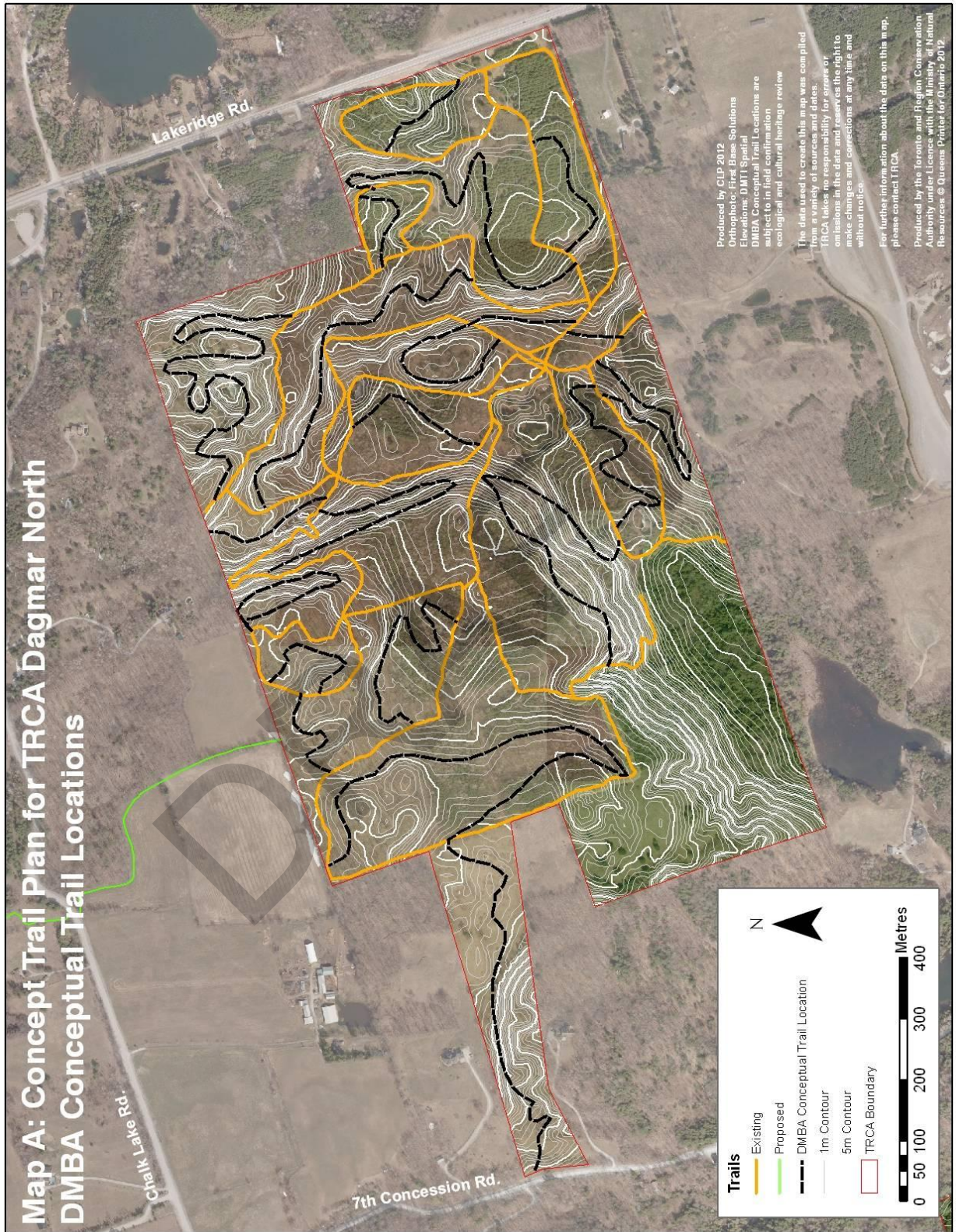
DMBA Trail Crew to finish 2 km: 300 hours = \$4,500 equivalent - volunteered
DMBA Trail Crew to hand-build 2 km: 600 hours = \$9,000 equivalent - volunteered
Rock, turf stone and materials: **\$2,000 - \$4,000**
TRCA trail signs: **\$500-\$750**
Estimated total cost: \$8,500 - \$16,750 / Additional volunteer value: \$15,500

A.5.4. Estimated 2015 Budget – 3km

DMBA Trail Plan, design and layout: 100 hours @ \$20 = \$2,000 equivalent - volunteered
Trail contractor hybrid fees for 1km: **\$3,000 - \$6,000**
DMBA Trail Crew to finish 1 km: 150 hours @ \$15 = \$2,250 equivalent - volunteered
DMBA Trail Crew to hand-build 2 km: 600 hours = \$9,000 equivalent - volunteered
Rock, turf stone and materials: **\$2,000 - \$4,000**
TRCA trail signs: **\$500-750**
Estimated total cost: \$5,500 - \$10,750 / Additional volunteer value: \$13,250

Estimated total project cost: \$34,000 - \$67,000 / Additional volunteer value: \$39,250

The TRCA and DMBA will share these costs on an equal basis and look for opportunities individually and together for grants and to raise funds to accomplish this project.



Map A: Concept Trail Plan for TRCA Dagmar North

Appendix B: Summary of Management Recommendations and Management Actions

Table B1: EDH MPU Summary of Management Recommendations	
General Management Plan Recommendations	
Natural Heritage Protection	
r1.	For both aquatic and terrestrial ecosystems monitoring of flora, fauna and overall condition of the ecosystems is recommended, with continuance of monitoring initiatives already in place, and expansion of these efforts where gaps exist
r2.	Limit any land-use changes (e.g. loss of natural cover) that will reduce the matrix influence score.
r3.	Protect and restore groundwater recharge and discharge locations and pathways.
r4.	Consider the effects on drainage, seepage and recharge zones of any management actions (e.g. parking lots).
r5.	Pursue expanding contiguous area of natural heritage protection through acquisition of select private lands.
Terrestrial Invasive Species	
r6.	Work with the forthcoming TRCA invasive species management strategy to develop a property specific invasive control plan.
r7.	Implement best management practices in the management of invasive species on the site.
Species of Concern	
r8.	Obtain all necessary regulatory permits and approvals required under governing Acts and Regulations prior to commencing any implementation activities, including restoration work and trail plan implementation.
r9.	Tailor ecological restoration plans to target habitat improvements for species of concern.
Hydrology	
r10.	Complete inventory of existing wells on the property and properly geo-reference them.
r11.	Investigate chemistry of groundwater discharge to gain better understanding of site conditions.
r12.	Continue aquatic biodiversity monitoring within the east branch of the East Duffins Creek in support of regional monitoring programs.
r13.	Assess impacts to the site due to past and present land uses and develop mitigation plan, if required.
r14.	Investigate opportunities to mitigate the effects of anthropogenic in-stream barriers on TRCA and neighbouring properties.
r15.	Investigate and mitigate potential impacts to local aquifers by previous land uses.
Restoration	
r16.	Prioritize restoration opportunities to maximize ecological goods and services in a measurable fashion (e.g. area of natural cover, patch size and shape, connectivity, etc.).
r17.	Restoration activities should be site appropriate and aim to restore proper function based on hydrology, natural cover, landform, and species community.
r18.	Prioritize projects that restore natural succession, and improve the quality of headwater drainage features on the properties.
r19.	Ensure restoration efforts maximize benefit for the native species community, including species at risk and their associated habitat requirements

Table B1: EDH MPU Summary of Management Recommendations	
r20.	Continue ecological monitoring of specific restoration projects and the EDH properties as a whole.
r21.	Investigate opportunities to partner with individuals or organizations in the implementation of restoration opportunities in the vicinity of the EDH study area.
Cultural Heritage	
r22.	Identify, Protect and conserve all archeological sites within the EDH Lands.
r23.	Pursue opportunities to preserve and interpret heritage sites for public education.
r24.	Engage Aboriginal communities with regards to any significant Aboriginal archaeological findings on site.
Trails	
r25.	Allow for low impact trail uses such as hiking, cycling horseback riding, snowshoeing, cross-country skiing, wildlife viewing, and on-leash dog walking within permitted trail corridors only.
r26.	Avoid locating trails within Nature Reserve Category 1 and Cultural Heritage Preserves.
r27.	Investigate options to connect all the EDH properties through a system of trails.
r28.	Continue to allow and improve connections between the EDH and adjacent or near adjacent public lands.
r29.	Support and manage the Oak Ridges Trail and the Trans Canada Trail on EDH properties.
r30.	Create a continuous network of off-road trails through the use of loops and trail connections, allowing trail users to adapt the system to their individual needs.
r31.	Work with local and regional emergency service providers to address any safety concerns and address issues limiting their response time within the trail system.
Site Securement and Protection	
r32.	Ensure continual monitoring and management of unauthorized uses occurring on the property in order to prevent environmental damage, protect public health and safety, and reduce maintenance costs.
r33.	Work with Durham Regional police and municipal by-law staff where necessary to address unauthorized use on the site.
Community Outreach and Engagement	
r34.	Continue to work with the Glen Major and Walker Woods Stewardship Committee whose main function is to oversee, comment on and assist in the implementation of the management plan recommendations
r35.	Engage local residents and community groups in stewardship programs that will improve the EDH and foster community stewardship.
Economic	
r36.	Explore opportunities to partner on project implementation with the Township of Uxbridge, the City of Pickering, the Regional Municipality of Durham, local community groups and other interested stakeholders.
Site Securement and Protection Plan Recommendations	
r37.	That all built features within the EDH be secured.
r38.	That the Walker Woods farm waste dump be removed and restored accordingly
r39.	That at boundaries where persistent encroachments exist or boundaries where there is high likelihood of encroachments to exist, be secured and monitored and signed accordingly.
r40.	That all encroachments be prioritized and resolved accordingly.
r41.	That TRCA continue property boundary monitoring to ensure that existing encroachments are resolved and new encroachments are identified.

Appendix B: Summary of Management Recommendations and Management Actions

Table B1: EDH MPU Summary of Management Recommendations	
Trail Plan Recommendations	
Natural and Cultural Heritage	
r42.	Approve the proposed trail system and any future trail development on Conservation Lands by all necessary TRCA staff;
r43.	Avoid locating trails within Nature Reserve Category 1 and Cultural Heritage Preserves;
r44.	Keep trail densities below the threshold of 120m/ha, whenever possible;
r45.	Exempt an area from the 120m/ha threshold if approved by the TRCA Ecology Division and if there is an associated reduction of the trail influence area; and
r46.	Monitor the natural and cultural heritage impacts of trails and their usage to determine any required appropriate action (i.e. trail closures, re-routing) to protect the environmental integrity of the property and to ensure that the vision, goals and objectives of the trail plan are being met.
Trail and Recreation	
r47.	Allow for low impact trail uses such as hiking, cycling, horseback riding, snow shoeing, cross-country skiing, wildlife viewing and on-leash dog walking within permitted trail corridors only;
r48.	Restrict all motor vehicle access from trails, except for maintenance purposes by approved parties.
r49.	Construct all future trails or re-routes to accommodate multi-use trail experiences, unless in areas designated as a 'preferred use area' or 'preferred use trail' (eg Dagmar or an Interpretive Trail);
r50.	Investigate advanced trail options for approved locations and designated trail corridors.
r51.	Investigate and develop the Dagmar North and Dagmar South properties as locations for an advanced trail system.
r52.	Investigate and classify "Ivy Alley", "Snakes no Ladders", "The 3 Switch Backs", "The Pines", "The Lady Di Memorial", "TJ's Way", "To the Drops", and "The Drops", as advanced trails within the core lands.
r53.	Limit public use of the property and trails to daylight hours, except where the necessary TRCA approvals have been granted;
r54.	Limit recreational events to areas of the property deemed appropriate and only once the necessary TRCA approvals have been granted;
r55.	Only when a trail cannot be updated in its current condition due to natural heritage, cultural heritage, management zone restrictions or any other design principles outlined in this document will the installation of a new trail be investigated in an alternate location;
r56.	Designate the completed trail plan and trail length as the new baseline for implementing approximate trail equilibrium.
r57.	Develop all future trails in a manner that is consistent with all trail principles as well as all management zones, management plan objectives and TRCA trail construction guidelines;
r58.	Where it is found that trail relocation is necessary take every best effort to design the replacement trail in a manner that will replicate the closed trail experience; and
r59.	Where it is found that trail relocation is necessary, take best efforts to restore the closed trail sections to as natural a condition as possible;
Connectivity	
r60.	Continue to allow connections between the EDH with adjacent or near public lands through inter-regional trails such as the Oak Ridges Trail and the Trans Canada Trail; and
r61.	Investigate options for connections between all EDH properties.
Trail System and Maintenance	
r62.	Keep all trails on publicly owned lands unless an agreement with the land owner is developed;

Table B1: EDH MPU Summary of Management Recommendations	
r63.	Assign a trail classification based on several trail features, including difficulty, to all trails and sign accordingly;
r64.	Provide easy access to the trail through convenient trailhead parking lots with easy to follow way-finding signs, allowing users to explore the site at their comfort;
r65.	Install signs and/or fencing to alleviate any trespassing or encroachments by trail users onto private lands;
r66.	Install Signs highlighting trail work or re-routes during any trail improvement project;
r67.	Focus upgrades to trails on the removal of safety concerns and environmentally degrading conditions;
r68.	Construct trails with a preference to natural surfaces and materials and only where absolutely necessary and agreed to by TRCA Staff and TRCA's public partners will other infrastructure or materials be installed; and
r69.	Develop formal agreements with the local municipalities for the management of trails within road allowances.
Public Engagement	
r70.	Continue to work with community based partners to ensure the establishment of a trail system that evolves to incorporate new methods of user benefits, design and safety; and
r71.	Strive to reduce user conflicts by partnering with user groups, through trail design and a system of educational signage.
Emergency Management	
r72.	Circulate copies of the Emergency Management Plan, once completed, to the Local Emergency Services Providers;
r73.	Circulate copies of the Emergency Management, once completed, Plan to local trail user group representatives;
Monitoring and Review	
r74.	Monitoring and review of the trail system within the EDH should be conducted on an ongoing basis to assess the success of implementation objectives, trail use and quality;
r75.	Monitoring and review of the trail plan should be conducted at a minimum of every three years, or as deemed necessary by managers, staff, the stewardship committee and partners;
Trail Heads	
r76.	Update all trailhead signs and maps to reflect the changes in the trail plan for the EDH and install trailhead identification signs and kiosks at all new major trailheads.
Trail Map and Guide	
r77.	Develop an updated trail guide and map for the EDH in coordination with the Glen Major Walker Woods Stewardship Committee;
Interpretive Signs and Trail	
r78.	Develop a natural heritage interpretative trail within the North Walker Woods trail system;
r79.	Develop a cultural heritage interpretive trail within Walker Woods;
Trail Markers	
r80.	Install post markers and way finding signs as shown on the proposed conditions maps;
r81.	Aboriginal elements should be incorporated into the signage plan for the EDH;
Structures	
r82.	Continue to work with the local trail user groups such as the Oak Ridges Trail Association to maintain the EDH trail system.

Appendix B: Summary of Management Recommendations and Management Actions

Table B2: EDH MPU Summary of Management Actions	
General Management Plan Recommendations	
Natural Heritage Protection	
a1.	Ensure salt is not used in any TRCA winter management of trails and parking lots.
a2.	Investigate the need for additional groundwater monitoring sites to assess hydrological impacts of pending development on surrounding lands.
a3.	Ensure all management work occurs during appropriate times to minimize impacts on the vegetation, breeding birds, and dispersing or migrating amphibians.
a4.	Replace exotic species with site-appropriate native plants.
Terrestrial Invasive Species	
a5.	Conduct an assessment of invasive management works already completed on the EDH properties.
a6.	Map invasive species within the study boundary to determine base line information.
a7.	Establish priority locations for invasive species treatment and or monitoring.
a8.	Monitor for occurrences of giant hogweed (no known occurrences) and other high priority exotic invasive.
a9.	Monitor historic garden sites for the presence and spread of invasive horticultural species and monitor if found.
a10.	Develop an invasive species prevention awareness campaign targeting new residents about the impacts of non-native species and the live releasing of aquatic species into rivers and ponds.
Species of Concern	
a11.	If necessary, conduct targeted search for flora species known only from historical records and believed extirpated from the site.
Hydrology	
a12.	Develop a water monitoring plan for the site.
a13.	Consult hydrological recharge models prior to parking lot and trail construction to ensure infiltration and water balance are maintained.
Restoration	
a14.	Implement restoration activities as per the habitat implementation program for the Duffins Watershed, as outlined in the Duffins Habitat Implementation Plan
a15.	Implement Forestry activities as per the TRCA Managed Forest Plan (1998)
Cultural Heritage	
a16.	Develop interpretive resources, including signage along a cultural heritage interpretive trail, for the identified Cultural Heritage features on the property.
a17.	Develop a Request for Proposal with regard to restoring the Walker Sawmill and accessory buildings as an interpretive feature.
a18.	Complete required archaeological assessment prior to any land disturbance.

Table B2: EDH MPU Summary of Management Actions	
a19.	Take required actions to address issues that may compromise known cultural heritage sites.
Trails	
a20.	Ensure all trail construction, improvements, naturalization or closures are carried out in accordance with TRCA's Trail Strategy for Natural Areas (currently in draft form).
a21.	Obtain all necessary regulatory permits and approvals required prior to commencing any potentially disruptive management or implementation activities, including trail development and parking lot construction.
a22.	Provide interpretive amenities along the trails, such as signage, thereby engaging users about proper trail etiquette and environmental issues.
a23.	Decommission and restore all informal trails that are not slated to become part of the formal trail system.
a24.	Develop a trail guide, trail head signs and way finding system for the EDH.
Site Securement and Protection	
a25.	Conduct monitoring of all property boundaries, including assessment of fencing, any new unauthorized access points, condition of trailheads, signage, etc...
a26.	Post signage along property boundaries identifying permitted access points and permitted uses.
a27.	Regularly inspect and repair unauthorized access points to ensure barriers or fences are intact.
a28.	Proactively inform new homeowners of permitted uses on TRCA lands, through methods such as homeowner information packages, regular distribution of newsletters, and proper signage.
a29.	Promptly decommission any informal trails, bike stunts or other structures that are identified during property audits or through the Trail Captains Program.
Community Outreach and Engagement	
a30.	Review and re-establish the terms of reference for the committee that outlines roles and responsibilities.
a31.	Work collaboratively with members of the Stewardship Committee to create annual work plans for the committee based on the management plan.
a32.	Work with Regional and Municipal partners to determine appropriate stewardship events.
a33.	Specifically target local school groups and community groups around which to focus stewardship events and educational programs.
a34.	Organize the volunteers according to interests and skills, while trying to cover off tasks such as communications, boundary and trail monitoring, minor trail maintenance, and project fundraising work.
Trail Captains	
a35.	Continue to involve local community members as trail stewards to help care for and maintain the trail system through the Trail Captain program.
a36.	Continue a monitoring schedule of all trails on the EDH lands to be implemented by the trail captain program.

Appendix B: Summary of Management Recommendations and Management Actions

Table B2: EDH MPU Summary of Management Actions	
Outreach Materials	
a37.	Proactively inform new homeowners of permitted uses on TRCA lands, through methods such as homeowner information packages, regular distribution of newsletters, and proper signage.
a38.	Continue to produce the Woods in a collaborative fashion and distribute it to local area residents.
Economic	
a39.	Investigate opportunities to obtain funding support from non-traditional sources.

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Appendix C: Implementation Budget Summary

Management Plan Update Implementation Budget Summary		
Item	Deliverables	Anticipated Cost (\$)
Phase 1, Years 1-5 (2013-2017)		
Operations	Property Maintenance, Hazard Tree Removal and Trail Maintenance, Community Outreach	\$512,000
Site Securement and Protection Plan	Building assessment and securement, boundary fencing, high priority encroachments	\$88,000
Trail Plan	Trail closures , Parking Lot Installation and expansion, Updated Signage and Trail Guide,	\$158,000
Natural and Cultural Heritage	Develop Property Specific Invasive Management Plan and Begin Implementation	\$15,000
Restoration*	North Walker Woods Aggregate Site, Townline Culvert Repair, Forestry	To be determined*
Total Phase 1		\$773,000
Phase 2, Years 6-10 (2018 - 2022)		
Operations	Property Maintenance, Hazard Tree Removal and Trail Maintenance, Community Outreach	\$540,000
Site Securement and Protection Plan	Boundary Audit, Fencing Repairs, Boundary Signage	\$77,000
Trail Plan	North Walker Woods Parking Lot, Anticipated Trail Improvements, Trail Guide Update and Printing, Interpretive Trail	\$200,000
Restoration*	Additional Uxbridge North Lands Implementation (if needed) , Other Restoration Opportunities as they Arise, Forestry	To be determined*
Total Phase 2		\$817,000
Phase 3, Years 11-15 (2023-2027)		
Operations	Property Maintenance, Hazard Tree Removal and Trail Maintenance, Community Outreach	\$593,000
Site Securement and Protection Plan	Boundary Audit, Fencing Repairs, Boundary Signage, Building Removal	\$82,000
Trail Plan	Pleasure Valley Parking Lot, Anticipated Trail Improvements (Pleasure Valley Accessible Trail)	\$110,000
Restoration*	Forestry work and additional restoration opportunities as they are identified or as they arise	To be determined*
Total Phase 3		\$785,000
Total Project Cost (Phases 1-3)		\$2,375,000
*Costs for restoration projects will be estimated upon completion of detailed site restoration plans		

References

- Aggregate Resources Act, RSO 1990, c A.8. Consolidated Statutes of Ontario — Ontario (<http://www.e-laws.gov.on.ca/index.html>). Accessed 2012.
- Askins, Robert .A. 2000. *Restoring North America's Birds: Lessons from Landscape Ecology*. Yale University Press. ISBN: 0-300-07967-2.
- Banks, Peter B. and Bryant, Jessica. V. 2007. *Four-Legged Friend or Foe? Dog Walking Displaces Native Birds from Natural Areas*. *Biology Letters*. (2007) 3. 611-613. Published online.
- Bird and Hale Limited. 1990. *An Environmental Evaluation Glen Major Inn Property Regional Municipality of Durham*. Prepared for Glen Major Inn Inc.
- Burgar, R.W.C. 1990. *An Archaeological Master Plan for the Metropolitan Toronto and Region Conservation Authority*. On file with the Toronto and Region Conservation Authority
- Cadman M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.). 2007. *Atlas of the Breeding Birds of Ontario, 2001 – 2005*. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706pp.
- Central Lake Ontario Conservation Authority (CLOCA). 2011. *Draft Lynde Creek Watershed Plan*. (http://www.cloca.com/resources/Watershed_Man_Plans/DRAFT_LYNDE%20CR_MAN_PLAN/Lynde%20WSP%20V6%20Final%20Draft.pdf) Accessed 2012
- Champion, Isabel Editor. 1989. *Markham 1793-1900 Second Edition Revised*. The Markham District Historical Society, Markham ON.
- City of Pickering. 2010. *Pickering Official Plan Edition 6*. Corporation of the City of Pickering 2001 – 2011: (http://www.cityofpickering.com/standard/planning/official_plan/plan.html) Accessed 2012.
- Conservation Authorities Act, RSO 1990, c C.27 (<http://www.elaws.gov.on.ca/index.html>). Accessed 2012.
- CTC Source Protection Committee. 2006. *Source Water Protection*. (www.ctcswp.ca/Source-Water-Protection.html) Accessed 2011
- Dagmar Resort. 2012. (<http://www.skidagmar.com>) Accessed 2012

DiTommaso, A., and J.E Losey., 2003. *Oviposition Preference and Larval Performance of Monarch Butterflies (Danaus plexippus) on Two Invasive Swallow-Wort Species*. Entomol. Exp. Appl. 1 08: 205–209.

Environment Canada, 2010. *Species at Risk Public Registry*. (<http://www.sararegistry.gc.ca> as of 17th March, 2010).

Gerber, R.E. and K. W.F. Howard. 1997. *Ground-Water Recharge to the Oak Ridges Moraine*. In *Environmental Geology of Urban Areas*. Edited by Nick Eyles, Geological Association of Canada, Geotext 3, 173-192.

Gerber, R.E. 1999. *Hydrogeologic Behaviour of the Northern Till Aquitard near Toronto, Ontario*. Unpublished Ph.D. thesis, University of Toronto, 253p.

Greenbelt Act. 2005. SO 2005, c 1. Consolidated Statutes of Ontario, Ontario

Gutzwiller K.J. and S.H. Anderson, 1999. *Spatial Extent of Human-Intrusion Effects on Subalpine Bird Distributions*. Condor 101:378-389.

Hamel Paul B., Kenneth V. Rosenberg, and David A. Buehler, 2005. *Is Management for Goldenwinged Warblers and Cerulean Warblers Compatible*. USDA Forest Service Gen. Tech. Report PSW – GTR – 191. pp.322-331.

Hemson Consulting Ltd. 2005. *The Growth Outlook for the Greater Golden Horseshoe*

Higgins, WH. 1887. *The Life and Times of Joseph Gould*.

Hinton, M.J. 1996. *Measuring Stream Discharge to Infer the Spatial Distribution of Groundwater Discharge*. In Proceedings of the Watershed Management Symposium, Canada Centre for Inland Waters. Burlington, Ontario, Canada. December 6-8, 1995,27-32.

Hoffman, D.W and N. R. Richards. 1955. *Soil Survey of York County: Report No. 19 of the Ontario Soil Survey*. Guelph, Ontario. Experimental Farms Service, Canada Department of Agriculture and the Ontario Agricultural College

International Mountain Biking Association. 2004. *Trial Solutions – IMBA's Guide to Building Sweet Single Track*. International Mountain Biking Association, Boulder.

Jacques Whitford-Stantec Limited (2009). *Environmental Impact Study TRCA Partial Acquisition Skyloft Property*. Township of Uxbridge, Regional Municipality of Durham, Ontario.

J.H. Beers and Company. 1877. *Illustrated historical atlas of the county of Ontario*. Toronto, ON

Kilgour, B. 2003. *Landscape and Patch Character as a Determinant of Occurrence of Eighty Selected Bird Species in the Toronto Area*. A report prepared for the TRCA. Jacques-Whitford Ltd.,2003

- Ladd, D. and N. Cappuccino. 2005. *A Field Study of Seed Dispersal and Seedling Performance in the Invasive Exotic Vine Vincetoxicum Rossicum*. Can. J. Bot. 83: 1181–1188.
- Lakeridge Resort. 2012. (<http://www.ski-lakeridge.com>) Accessed 2012
- Lake Simcoe Region Conservation Authority (LSRCA). 2012. *Draft Pefferlaw River Subwatershed Plan*.
- Lake Simcoe Region Conservation Authority (LSRCA). 2012. *Durham Regional Forest*. (http://www.lsrca.on.ca/conservation_areas/durham_forest.php) Accessed 2012
- Lake Simcoe Region Conservation Authority (LSRCA). 1997. *Uxbridge Brook Watershed Management Plan*. (www.lsrca.on.ca/pdf/reports/uxbridge_brook_watershed.pdf) Accessed 2012
- Lee H., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray, 1998. *Ecological Land Classification for Southern Ontario: First Approximation and its Application*. Peterborough, Ontario: Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch.
- Lucy Maud Montgomery Society of Ontario. 2012. (<http://lucymaudmontgomery.ca>) Accessed 2012
- Mack M. C and C.M. D'Antonio. 1998. *Impacts of Biological Invasions on Disturbance Regimes*. Trends in Ecology and Evolution 13:195–198
- McGillivray, Allan. 1978. *The Churches of Uxbridge-Scott*. Published by the Author, Mount Albert Printing
- Meekins J. F. and B. C. McCarthy. 1999. *Competitive Ability of Alliaria Petiolata (Garlic Mustard, Brassicaceae), an Invasive Nonindigenous Forest Herb*. International Journal of Plant Science 160:743-752.
- Metropolitan Toronto and Region Conservation Authority (MTRCA). 1982. *Environmentally Significant Areas Study*.
- Metropolitan Toronto and Region Conservation Authority (MTRCA). 1996. *Forest Management: Practices, Performance and Proposed Operations for MTRCA Lands*.
- Metropolitan Toronto and Region Conservation Authority (MTRCA). 1984. *Forest Management Study for Glen Major Complex Properties*.
- Metropolitan Toronto and Region Conservation Authority (MTRCA). 1991. *Forest Management Study for Walker Woods*.

Metropolitan Toronto and Region Conservation Authority (MTRCA). 1992. *Timber Brothers: Environmental Inventory*.

Metropolitan Toronto and Region Conservation Authority (MTRCA). 1989. *The Greenspace Strategy*.

Metropolitan Toronto and Region Conservation Authority (MTRCA). 1995. *The Strategy for the Public Use of Conservation Authority Land*. Downsview, Ontario

Metropolitan Toronto and Region Conservation Authority (MTRCA). 1994. *Valley and Stream Corridor Management Program*.

Oak Ridges Moraine Conservation Act. 2001. SO 2001, c 31
Consolidated Statutes of Ontario — Ontario

Oak Ridges Trail Association. 2009. *The Oak Ridges Trail Strategic Plan, Strategic Directions*.
(<http://www.oakridgestrail.org/Documents/Strategic%20Directions%202009%202014.pdf>) Accessed 2011

Olding A.B. and Wicklund R.E. *Soil Survey of Ontario County*. Report number 23 of the Ontario soil survey, experimental farms service, Canadian Department of Agriculture and the Ontario Agricultural College.
(http://sis.agr.gc.ca/cansis/publications/on/on23/on23_report.pdf as of 09 April 2010).

Ontario GenWeb. 1997-2009. Accessed Ontario County Census Records for 1851, 1861, 1871, 1881, 1891, Accessed by Family Name, accessed September 21, 2009,
<http://ontariocensus.rootsweb.ancestry.com/transcripts/date/record>

Ontario Ministry of Environment (MOE). *Air Quality Ontario*.
(<http://www.airqualityontario.com>) Accessed 2011

Ontario Ministry of Municipal Affairs and Housing (OMAH). 2002. *The Oak Ridges Moraine Conservation Plan*. Queens Printer for Ontario.
www.mah.gov.on.ca/pg1707.aspx

Ontario Ministry of Natural Resources (OMNR). *The Managed Forest Tax Incentive Program (MFTIP)*.
(www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02_166346.html)
Accessed 2011

Ontario Ministry of Natural Resources (OMNR). *The Conservation Lands Tax Incentive Program (CLPTIP)*. (www.mnr.gov.on.ca/en/Business/CLTIP/index.html) Accessed 2011

Ontario Ministry of Natural Resources (OMNR). 2005. *The Greenbelt Plan*.
(<http://www.mah.gov.on.ca/Asset1277.aspx>) Accessed 2011

Ontario Ministry of Natural Resources (OMNR) and Ontario Ministry of Municipal Affairs & Housing (OMAH). 2005. *Protecting the Greenbelt: The Greenbelt Plan*. Peterborough/Toronto, Ontario. (<http://www.mah.gov.on.ca/Page189.aspx>) Accessed 2011.

Ontario Ministry of Public Infrastructure Renewal (OMPIR), 2006. *Places to Grow: Growth Plan for the Greater Golden Horseshoe*. Government of Ontario, Canada (<https://www.placestogrow.ca>) Accessed 2011.

Ontario Natural Heritage Information Centre (NHIC). 2008. Natural Heritage Information website: http://nhic.mnr.gov.on.ca/nhic_.cfm

Parks Canada. 2010. *Visitor Activity Guidelines: Mountain Biking*. (<http://www.pc.gc.ca/progs/np-pn/dav-vag/dav-vag01.aspx>) Accessed 2012

Pickering Museum Village. 2012. (<http://www.cityofpickering.com/museum>) Accessed 2012

Planning Act, RSO 1990, c P.13. (<http://www.e-laws.gov.on.ca/index.html>). Accessed 2011.

Quinn, M. S., & Chernoff, G. W. 2010. *Mountain Biking: A Review of the Ecological Effects: a Literature Review for Parks Canada--National Office (Visitor Experience Branch): Final Report*. Miistakis Institute, Faculty of Environmental Design, University of Calgary.

Region of Durham. 2008. *Region of Durham Official Plan*. (http://www.durham.ca/departments/planning/op_documents/dr_official_plan_2008/2008dropoc.pdf) Accessed 2011.

Rosenburg K.V., R.W. Rohrbaugh Jr., S.E. Barker, R.S. Hames and A.A. Dhondt. 1999. *A land Manager's Guide to Improving Habitat for Scarlet Tanagers and other Forest-Interior Birds*. Ithaca, NY: The Cornell Lab of Ornithology.

Skyloft Ski Resort Inc. 2012. (<http://www.skyloft.com>) Accessed 2012
 Todd, Eleanor. 1980. *Burrs and Blackberries from Goodwood*. Published by Author, Goodwood
 ON

Toronto and Region Conservation Authority (TRCA). 2003. *Archaeological Resource Management Procedures: Guidelines*.

Toronto and Region Conservation Authority (TRCA). *Authority Policy for the Disposal of Land*

Toronto and Region Conservation Authority (TRCA). 2003. *A Watershed Plan for Duffins Creek and Carruthers Creek*. Downsview, Ontario.

Toronto and Region Conservation Authority (TRCA). 2008. *Draft Strategic Management of Terrestrial Invasive Species*.

Toronto and Region Conservation Authority (TRCA). 2003. *Duffins Creek and Carruthers Creek Watershed Management Strategy*. Downsview, Ontario

Toronto and Region Conservation Authority (TRCA). 2002. *Duffins Creek State of the Watershed Report: Greenspace, Trails and Recreation*.
(<http://www.trca.on.ca/dotAsset/37451.pdf>) Accessed 2011

Toronto and Region Conservation Authority (TRCA). 2010. *East Duffins Headwaters User Survey December 2008 - November 2009*. Downsview, Ontario

Toronto and Region Conservation Authority (TRCA). 2010. *East Duffins Headwaters Terrestrial Biological Inventory and Assessment*. Downsview, Ontario

Toronto and Region Conservation Authority (TRCA). 2004. *Fisheries Management Plan for Duffins Creek and Carruthers Creek*.

Toronto and Region Conservation Authority (TRCA). 2008. *Glen Major Study Area 2008 Terrestrial Biological Inventory*.

Toronto and Region Conservation Authority (TRCA) 2005. *Greenlands Acquisition Project for 2006–2010*.

Toronto and Region Conservation Authority (TRCA) 2010. *Greenlands Acquisition Project for 2011-2015*.

Toronto and Region Conservation Authority (TRCA). 2004. *Greenwood Conservation Area Management Plan*.

Toronto and Region Conservation Authority (TRCA) 2006. *Living Classroom Gravel Pit Restoration Program 2006-2009*.

Toronto and Region Conservation Authority (TRCA). 2003. *The Living City*.

Toronto and Region Conservation Authority (TRCA). 2000. *Phase 1 Reference Document In Preparation of a Management Plan for Goodwood, Secord, Clubine, Walker Woods, Glen Major, Timber Brothers, and Claremont*.

Toronto and Region Conservation Authority (TRCA). 2010. *Terrestrial Natural Heritage Program Data Collection Methodology*.

Toronto and Region Conservation Authority (TRCA). 1999. *Timber Brothers Site Rehabilitation Plan*.

- Toronto and Region Conservation Authority (TRCA). 2007. *The Terrestrial Natural Heritage System Strategy*.
- Toronto and Region Conservation Authority (TRCA). 1998. *TRCA Managed Forest Plan for the Managed Forest Tax Incentive Program (January 1 1998-December 31, 2017)*.
- Toronto and Region Conservation Authority (TRCA). 2007. *TRCA Property Vegetation Management Initiative – Glen Major Forest and Walker Woods*.
- Township of Uxbridge. 2007. *Official Plan*.
(www.town.uxbridge.on.ca/development_services) Accessed 2011
- Township of Uxbridge. 2006. *Township of Uxbridge Strategic Master Plan for Parks, Recreation and Culture*. Dma Planning and Management Services, Mississauga.
(http://www.town.uxbridge.on.ca/sites/default/files/rec_master_plan_final_report.pdf) Accessed 2011
- Township of Uxbridge. 2009. *Zoning By-Law 81-19*.
(www.town.uxbridge.on.ca/zoningbylaw_81_19) Accessed 2011
- Township of Uxbridge. 2012. *Trail Maps*. (http://www.town.uxbridge.on.ca/trail_maps) Accessed 2012
- Tremaine, George R. 1877. *Tremaine's Map of the County of York*. George C. Tremaine, Toronto
- Trans Canada Trail. 2012. (<http://tctrail.ca>) Accessed 2011
- Union Publishing Company of Ingersoll. 1887. *The Union Publishing Co's. Of Ingersoll, Farmer's and Business Directory, for the Counties of Grey, Ontario & Simcoe*. Volume 3, Issued Biennially by the Union Publishing Company of Ingersoll. GF Gurnett Chronicle Printing House, Thames St.
- Uxbridge Historical Center. 2012. (<http://www.uxbridgehistoricalcentre.com>) Accessed 2012
- Uxbridge-Scott Museum. 1996. *The Founding of Uxbridge*. Uxbridge On-Line Inc, accessed September 4, 2009, <http://www.uxbridge.com/town/uxhist.html>
- Uxbridge Times Journal. 1914. *Inquest Into Glen Major Death*. Thursday April 2, 1914.
- Uxbridge Times Journal. 1914. *Death Found To Be Accidental*. Thursday April 9, 1914.
- Zoning Area - Regional Municipality of Durham, Part of the City of Pickering, O Reg 154/03

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Brian Millage, Oak Ridges Trail Association
Jason Murray, Durham Mountain Biking Association, Past Member
Mark Stabb, Nature Conservancy of Canada
David Taylor, Green Durham Association, Chair
Pat Thomas, Local Resident
Michael Tucker, Green Durham Association

General Glen Major and Walker Woods Stewardship Committee (Past and Present):

Kevin Alcock, Uxbridge Horseman's Association
Larry Bonehill, Uxbridge Horseman's Association
Peter Burtch, Uxbridge Watershed Advisory Committee
Bob Comfort, Oak Ridge Trail Association
Barb Fletcher, Business Owner, The Meadows Equestrian Centre
Marsha Fortus, Uxbridge Horseman's Association
Eli Garret, Local Resident
Alex Goerigieff, Region of Durham
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Judy Griffiths, Business Owner, Dream Feather Horsemanship Centre
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Lori Riviere, Region of Durham
Sean Ruppel, Business Owner, Chico Racing
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The Project Steering Committee included TRCA staff who provided technical information and advice during the development of the Management Plan Update. This group also provided technical information and advice during the development of the background material for the Management Plan Update. Members of the Committee included:

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Laura DelGuidice, Terrestrial and Aquatic Ecology
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