

Duffins Creek Headwaters Management Plan For TRCA Properties

Prepared by:

The Duffins Creek Headwaters Advisory Committee
and
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June, 2003



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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

The Duffins Creek Headwaters Management Plan for TRCA properties was prepared to protect, conserve and restore significant lands located on the Oak Ridges Moraine and within the Duffins Creek Watershed. The management planning process was comprised of a series of phases, with each phase being tested and refined to form a solid foundation for the next one that followed. The plan includes a description and evaluation of the property based on relevant plans and policies, existing resource inventories and environmental conditions, site limitations and opportunities. The plan also identifies specific management zones for the site, which provides a framework for the types of activities that will be permitted on different parts of the properties. In addition, the plan establishes priorities for future initiatives, including the protection of natural features and habitat regeneration based on an ecosystem approach to management.

The management zones, recommendations and actions were developed through detailed analysis consultation and consensus of the partners, stakeholders and the community. The direction and important actions in the plan will help TRCA and the community achieve the long term sustainability of the Duffins Creek Headwater properties. There is also a detailed concept plan for the Goodwood, Secord and Clubine properties and a trail plan for Walker Woods and Glen Major Forest in the document.

It is important that the plan recommendations be initiated and monitored over the next five years to help achieve the management vision.

TOWARDS A LIVING CITY REGION

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

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

- **Healthy Rivers and Shorelines** - safe, clean, vibrant rivers and shorelines within nine watersheds of the region.
- **Regional Biodiversity and Greenspace** - a rich variety of animals and plants that thrive in a network of greenspace.
- **Sustainable Living through Education** - People engaging in environmentally friendly practices.

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

- Terrestrial Natural Heritage Strategy
- A Management Strategy for the Duffins Creek and Carruthers Creek Watersheds

TRCA's Terrestrial Natural Heritage Approach

The approach that has been utilized for the development of this Management Plan recognizes the implications of rapid urbanization in the Greater Toronto Area. This approach 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.

The 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, species, and forms the basis for developing strategies for protection and restoration. The approach moves beyond the contemporary model of defining natural heritage systems based on a series of cores and corridors. It recognizes that all habitat patches have some value and make a contribution towards ecological health across the landscape. This Approach evaluates a site's contribution at three levels:

- the entire TRCA jurisdiction;
- other defined areas of planning units such as the subwatershed and watershed; and
- the ORM and other municipal areas.

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

- Quantity of Natural Cover
- Distribution
- Matrix Influence
- Patch Size and Shape
- Landscape Connectivity
- Bio-diversity

The terrestrial natural heritage information that was gathered was analyzed and used to determine the appropriate management zones and trail alignments. The scoring and ranking of vegetation communities and fauna species reflects the primary resistance to urbanization and human encroachment. Species are ranked based on local distribution or local (L) ranks. These L ranks are in some ways analogous to the provincial (S) and global (G) ranks that are assigned to vegetation communities, flora and fauna. The TRCA ranks range from L1 to L5. Generally, L1 to L3 species or vegetation communities are of regional conservation concern (i.e., within TRCA jurisdiction) and the locations have been avoided. The complete lists of species and vegetation communities for the TRCA properties included in this management plan can be found in Appendices 2, 3 and 4.

A Watershed Plan for Duffins Creek and Carruthers Creek

The Watershed Plan was integrated into the management plan for TRCA headwater properties to ensure a consistent approach to watershed management.

The Plan was created by two Task Forces who reviewed scientific data and developed strategies to address issues of priority in the watersheds. Members of the Task Forces invited residents and stakeholders to express their concerns, hopes and ideas for the watersheds in a number of public forums. Residents and stakeholders alike came together to craft a vision and a strategy for action. The new watersheds vision focuses on an emerging spirit of cooperation and a willingness to work as partners in the next generation of watershed planning. The watersheds vision is supported by a management philosophy that promotes five key elements:

Net Gain, Environment First, Balance Land Use, Human Health and Safety, and Everyone Counts.

The management strategies promote an "environment first" philosophy where the watersheds are managed as a system and prevention is emphasized over remediation. In recognition of the importance of system-wide thinking, the Plan promotes a sustainable balance of land uses (urban, rural and agricultural) where the principles of Smart Growth are utilized. Linkages between our own human health and the health of our environment are also recognized.

The Strategy has seven objectives that will measure its success of achieving sustainable and healthy watersheds for Duffins Creek and Carruthers Creek, which include:

- Strengthened foundations for protecting and enhancing the natural diversity of Duffins Creek and Carruthers Creek watersheds and have a formal monitoring and reporting system in place to say clearly where we stand;
- Improved water quality conditions in Carruthers Creek and Duffins Creek, improved habitats and the provision of safe drinking water;
- Increased our knowledge of human and natural heritage resources in these watersheds and developed educational and outreach programs that support and apply this new knowledge base in the two watersheds and beyond;
- Increased opportunities for watershed residents and stakeholders to have a greater say in how these places are used and managed;
- Expanded our knowledge and refined our planning and management practices to reflect the importance of sustaining these systems;
- Built on existing and established new watershed partnerships that reflect the importance of the Duffins Creek and Carruthers Creek watersheds not only in the Regional Municipalities of Durham and York, but beyond;
- Encouraged private landowners to manage and exercise good stewardship of their lands to promote watershed sustainability.

Conservation Authorities Moraine Coalition (CAMC)

The CAMC was formed in early 2000 by the nine Conservation Authorities with watersheds on the Oak Ridges Moraine, including from west to east:

- Credit Valley;
- Nottawasaga Valley;
- Toronto & Region;
- Lake Simcoe Region;
- Central Lake Ontario;
- Kawartha;
- Ganaraska Region,
- Otonabee; and
- Lower Trent.

The role of the Coalition was to advocate for ORM protection and its unique features by advancing landform science and understanding. The CAMC also agreed to work towards government, agency and community support for the conservation and protection of moraine form, function and linkages.

Since its inception the Coalition was fully involved in and supportive of the Tri-Region (York, Peel, Durham) policy initiative to protect the ORM. Subsequently, the CAMC was also an active participant in the provincial policy initiative which resulted in the ORM Act and Conservation Plan. Two additional CAMC initiatives include, the technical review of provincial implementation guidelines for the Plan, and developing a CAMC proposal to assist municipalities with Plan implementation.

Other specific CAMC projects have included groundwater and natural heritage studies. The Coalition's hydrogeologist has taken the lead role to coordinate the groundwater management strategy being undertaken on behalf of the Regional Municipalities of York, Peel and Durham. This study will contribute towards providing a regional-scale characterization of the overall groundwater flow system in south-central Ontario and will also set the context for the local scale studies required by the ORM Conservation Plan that could include wellhead protection, watershed studies and water budgets. Many of the CAMC partners have also begun developing natural heritage programs for their watersheds using the ecological land classification (ELC) system and various methods of landscape analysis. The CAMC will be assisting in the co-ordination of these efforts to ensure a consistent approach to natural heritage protection along the entire moraine and to integrate a larger landscape scale vision of the Oak Ridges Moraine with natural heritage lands off the ORM. The TRCA has been conducting work across its regional jurisdiction to ensure that vital connections and linkages from the moraine to the Lake Ontario waterfront are maintained or enhanced.

Provincial Oak Ridges Moraine Conservation Plan (ORMCP)

The ORMCP forms an additional foundation for the Headwaters Management Plan with some of the key objectives and requirements being incorporated. The purpose of the Provincial Oak Ridges Moraine Conservation Plan (ORMCP) is to provide land use and resource management planning direction to ensure the protection of the ecological and hydrological integrity of the Oak Ridges Moraine (ORM). The ORMCP was approved and filed as a Minister's Regulation (O. Reg. 140/02) on April 22, 2002. This followed the assent of the Oak Ridges Moraine Conservation Act in December 2001.

The Vision for the Oak Ridges Moraine

The Ontario government's vision for the Oak Ridges Moraine is that of "a continuous band of green rolling hills that provides form and structure to south-central Ontario, while protecting the ecological and hydrological features and functions that support the health and well-being of the region's residents and ecosystems".

The Oak Ridges Moraine Conservation Act, 2001 established the following objectives for the ORMCP.

- Protecting the ecological and hydrological integrity of the Oak Ridges Moraine Area;
- Ensuring that only land and resource uses that maintain, improve or restore the ecological and hydrological functions of the Oak Ridges Moraine Area are permitted;
- Maintaining, improving or restoring all the elements that contribute to the ecological and hydrological functions of the Oak Ridges Moraine Area, including the quality and quantity of its water and its other resources;
- Ensuring that the Oak Ridges Moraine Area is maintained as a continuous natural landform and environment for the benefit of present and future generations;
- Providing for land and resource uses and development that are compatible with the other objectives of the Plan;
- Providing for continued development within existing urban settlement areas and recognizing existing rural settlements;
- Providing for a continuous recreational trail through the Oak Ridges Moraine Area that is accessible to all including persons with disabilities; and
- Providing for other public recreational access to the Oak Ridges Moraine Area; and
- Any other prescribed objectives.

Land Use Designations

The Plan divided the Moraine into four land use designations: Natural Core Areas (38% of the Moraine), Natural Linkage Areas (24% of the Moraine), Countryside Areas (30% of the Moraine) and Settlement Areas (8% of the Moraine).

Natural Core Areas protect those lands with the greatest concentrations of key natural heritage features which are critical to maintaining the integrity of the Moraine as a whole. Only existing uses and very restricted new resource management, agricultural, low intensity recreational, home businesses, transportation and utility uses are allowed in these areas.

Natural Linkage Areas protect critical natural and open space linkages between the Natural Core Areas and along rivers and streams. The only uses that are allowed are those allowed in Natural Core Areas, plus some aggregate resource operations.

Countryside Areas provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas. Prime agricultural areas as well as natural features are protected. Most of the uses typically allowed in agricultural and other rural areas are allowed here.

Within the Countryside Areas, the Oak Ridges Moraine Land Use Designation Map also identifies and delineates Rural Settlements. These are existing hamlets or similar small, general long established communities, that are identified in official plans.

Policies on creating and developing new lots in Natural Core Areas, Natural Linkage Areas, and Countryside Areas are very restrictive.

Settlement Areas reflect a range of existing communities planned by municipalities to reflect community needs and values. Urban uses and development as set out in municipal official plans are allowed.

TRCA AND CONSERVATION LANDS

The goal of TRCA in managing conservation lands is:

"To ensure the environmental stewardship of Authority lands and to continue to bring into ownership additional conservation and hazard lands essential for achieving a healthy regional environment and sustainable communities" (Business Plan of the TRCA 2002-2006)

Currently, TRCA lands are managed under the following categories:

- Conservation Parks
- Field Centres
- Resource Management Tracts and other TRCA Lands
- Management Agreements
- Special Agreements and Rentals

1.2 LOCATION, SITE DESCRIPTION AND LAND USES

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

A total of seven TRCA properties were included in the Duffins Creek Headwaters Management Plan. The properties and their size are as follows:

- | | |
|--------------------------------------|--------------|
| • Goodwood Resource Management Tract | 110 hectares |
| • Secord Forest and Wildlife Area | 93 hectares |

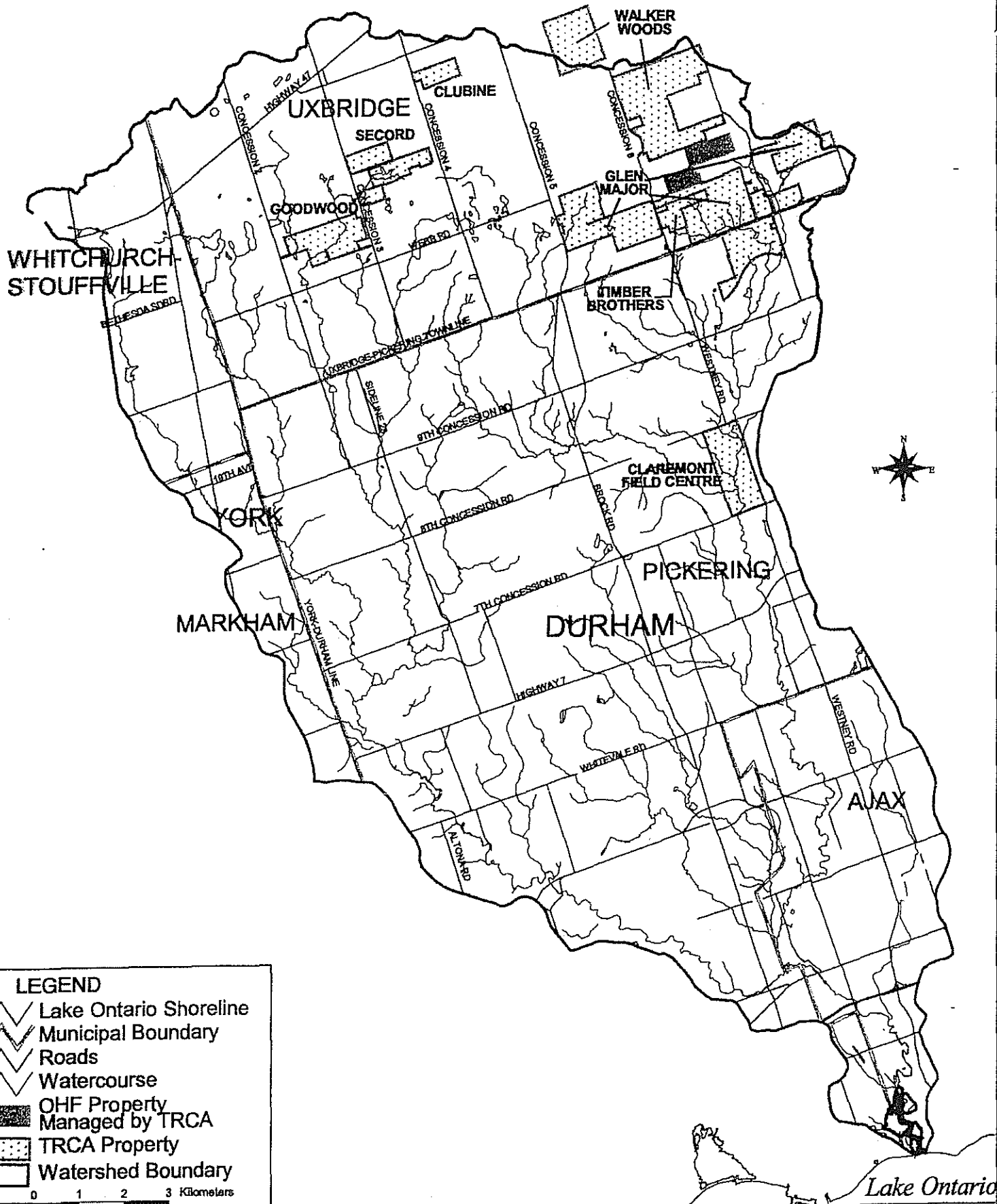
• Clubine Agreement Forest	38 hectares
• Walker Woods Tract	429 hectares
• Glen Major Resource Management Tract	1081 hectares
• Former Timber Brother Gravel Pit	38 hectares
• Claremont Field Centre	161 hectares

These TRCA lands are located in the headwaters of the Duffins Creek watershed, with five of the seven properties being situated completely within the Township of Uxbridge. A small portion at the south end of the Glen Major Resource Management Tract and the entire Claremont Field Centre are located in the City of Pickering (Map 1). In addition, all of the properties are located on the Oak Ridges Moraine, with the exception of the Claremont Field Centre, which is situated two kilometres to the south (Map2). The TRCA owns all of the lands with the exception of 72 hectares in the Glen Major Resource Management Tract, which is owned by the Ontario Heritage Foundation and managed by the TRCA. The entire planning area totals 1950 hectares, which totals seven percent of the entire watershed drainage area.

The Duffins watershed has approximately 37 percent natural cover (forests and wetlands), of which the TRCA headwater properties contribute 22 percent. All of the properties are situated within the southern portion of the Great Lakes - St. Lawrence floristic region, which is composed of mixed coniferous-deciduous forest. In addition, the properties stretch across the Oak Ridges Moraine physiographic region, except the Claremont property which is located on the South Slope physiographic region. Both of these physiographic regions are made up of sand and gravel soils, but the Moraine is characterized by rolling hills, kames and kettles, while the South Slope is a somewhat flatter, till plain. It should also be noted that all of the study lands contain groundwater discharge areas in the form of springs, seeps and marshy areas that support high quality cold water fish habitat.

Furthermore, the planning area is one of the most naturally diverse in the TRCA jurisdiction, supporting over 120 different vegetation communities, 573 vascular plant species, and 107 different fauna species. With respect to conservation status, over 50 vegetation communities, 150 flora species and 51 fauna species are considered to be of concern within the TRCA jurisdiction. The natural and cultural habitats range from mature, organic coniferous swamps, to near-old-growth upland deciduous and mixed forests, conifer plantations, and dry, open, prairie-like communities with complexes of sand barrens. The properties are also significant for their representative contiguous natural cover and extensive interior forest conditions within the TRCA jurisdiction. Finally, the properties also contain several provincially significant wetlands as classified by the OMNR.

Historically, lands within the planning area were used primarily for agriculture, reforestation and some aggregate extraction. Currently, these lands are used for a variety of purposes including conservation, education, recreation, forest management and agriculture.



The TRCA holds rental agreements for four of the eight houses located on the properties, as well as leases for agricultural uses, ski facilities, and filming. In addition, the Authority holds two licenced agreements with the Dagmar Ski Resort and the Durham District School Board.

1.3 STUDY PROCESS

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

The TRCA initiated the preparation of a comprehensive management plan for TRCA properties located in the Duffins Creek headwaters in the fall of 1999. At meeting #9/99 held on September 24, 1999, the TRCA approved the process for preparing a management plan for the seven Duffins Creek headwater properties, Resolution #A246/99:

"THAT staff be directed to proceed with the development of a Glen Major Complex Management Plan;

AND FURTHER THAT staff be directed to establish an Advisory Committee, which would include members of the public, interested community groups, the Township of Uxbridge, Town of Pickering, and Durham Region to assist with the development of the plan and facilitate the opportunity for public input."

The plan was undertaken in five phases with phases one through four focussing on project start-up, background reports, general management zone development and detailed plan and recommendation development. The final phase included plan integration, finalization and approval. Some of the key components of each phase included:

Phase 1

- Study Area Background Report with the following information:
 - a review of existing plans and studies
 - a summary of existing and proposed land use, municipal services, road classifications and property ownership
 - a description of the current public uses and types of recreation activities occurring on the properties and within the surrounding communities
 - a description of the natural and cultural heritage, recreation and education resources
- Advisory Committee Establishment
- Development of Project Terms of Reference

Phase 2

- Development of Plan Vision
- Public Information Sessions to Introduce Project
- Questionnaire development and reports

Phase 3

- Development of General Management Zones
- Forest Management Workshop with Advisory Committee
- Public Meeting to present Study Vision, Goal, Objectives and Management Zones
- Management Zone Refinement

Phase 4

- Management Zone Workshop with Advisory Committee
- Development of Detailed Management Zone Recommendations
- Development of Concept Plans for Goodwood Second and Clubine Properties
- Development of Trail Plan for Walker Woods and Glen Major Forest.
- Public Meeting to present Plans and Recommendations

Phase 5

- Integrate Plan with Duffins Creek Watershed Strategy
- Final Public Meeting to Present Integrated Plan
- Plan Review with Other Government Agencies
- Advisory Committee Endorsement of Plan
- TRCA Approval of Management Plan

1.4 THE ADVISORY COMMITTEE

Representatives from the following agencies and community groups were invited to participate on the Duffins Creek Headwaters Management Plan Advisory Committee:

Municipal Councillors:

- Durham Region, City of Pickering, Township of Uxbridge

:

Community Groups and Associations:

- Federation of Ontario Naturalists
- Hike Ontario
- Oak Ridges Trail Association
- Uxbridge Cycling Association
- International Mountain Biking Association (Ontario Chapter)
- Uxbridge Horse Riders Association
- Green Door Alliance
- Uxbridge Naturally
- Uxbridge Conservation Association
- Durham Conservation Association

- Pickering Rural Association
- Trans Canada Trail Committee

Other Stakeholders:

- Ontario Heritage Foundation
- Walker Property
- Secord Property
- Glen Major Angling Club
- Goodwood Farms
- Dagmar Ski Resort

Provincial Agencies - Staff:

- Ministry of Natural Resources, Aurora District
- Ministry of Citizenship, Culture & Tourism

Municipal Agencies and Other - Staff

- Durham Region Police
- Lake Simcoe Region Conservation Authority
- Central Lake Ontario Conservation Authority

The Advisory Committee assisted TRCA staff to finalize the project Terms of Reference, determine the management zones and management recommendations. The Committee also provided technical input and assisted with the public consultation program regarding the Management Plan.

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

- Provide technical expertise, monitoring information and advice to the TRCA throughout the development of the Management Plan;
- Ensure that appropriate staff and members at their respective municipalities/ agencies/ associations are adequately informed throughout the process;
- Provide comment and input to suggestions brought to the Advisory Committee;
- Assist in the identification of current outstanding issues and make suggestions as to appropriate ways of resolving them;
- Assist the TRCA in presentations and public forums, where appropriate;
- Assist the TRCA with the implementation and maintenance of the management plan.

This study has been the result of over two years work and commitment by this dedicated committee and TRCA staff. The Advisory Committee provided direction for the Management Zones, Concept Plans, Trail Plan and Recommendations contained in this plan. Copies of the minutes for the Advisory Committee meetings have been compiled and can be obtained from TRCA upon request. In addition, the Forest Management Workshop Summary, which was held at the request of the Advisory Committee, can be found in Appendix 5. The workshop was an important component of determining the appropriate TRCA forest management recommendations.

1.5 PUBLIC CONSULTATION

At the outset of the plan it was agreed that implementation, public use and enjoyment of TRCA's Duffins Creek Headwater properties will be important to the community and consequently, they

must have a meaningful way to provide input to the planning process. To facilitate a wide range of opportunities for input, many techniques were used to generate a high level of awareness and public comment.

The public consultation program included:

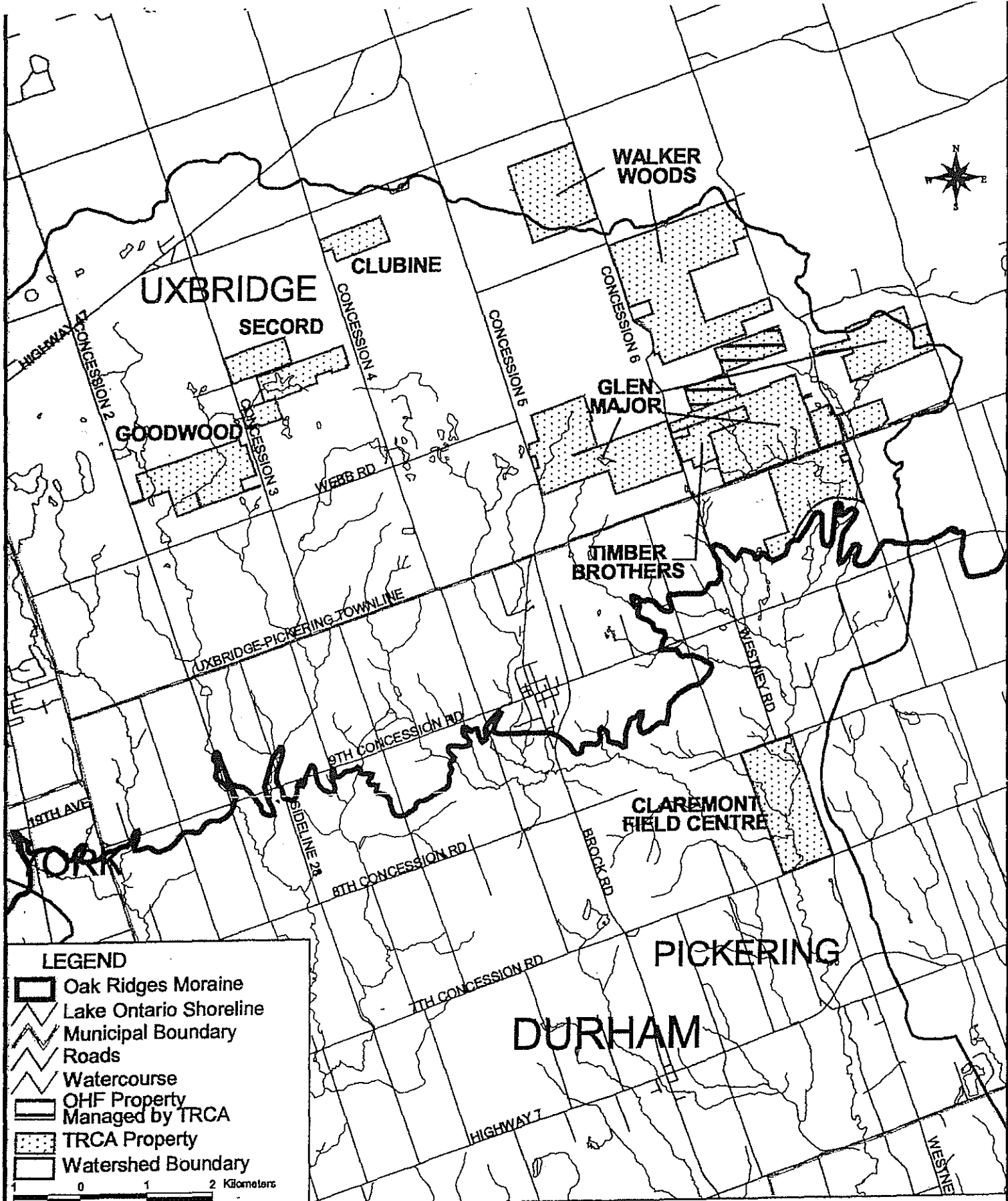
- meetings with interested organizations and groups in the community;
- information sessions, newsletters, questionnaires and mailings to the community to identify a broad range of potential needs and opportunities for the sites;
- public meetings to present the background information, plan vision, proposed management zones, concept plans, trail plan and management recommendations.

In general, the public response to the proposed management plan was very favourable. They found the vision, goal, objectives and management principles of the plan to be completely appropriate. The public preference was to keep as much of the planning area as natural as possible with the majority of response indicating that the lands should be managed with a balanced approach between appropriate public use and environmental protection and restoration. Finally, the public indicated that any alterations to the approved Management Plan must be subject to a public process.

In all there was a total of six different questionnaire distributions, which occurred at public meetings and by Committee member distribution. Some highlights of the results included:

- 145 Questionnaires completed
- 65% indicated Walker Woods and Glen Major Forest as their destination of choice
- 36% choose walking and hiking as their most enjoyable recreational activity, 34% biking, 12% cross-country skiing, 18% other
- Natural Areas and Beautiful Vistas were a priority
- "People visit these properties to get close to nature and improve their well being."
- Trail users were looking for improved access, removal of barriers, a series of lookouts, nature interpretation, a clean and green environment

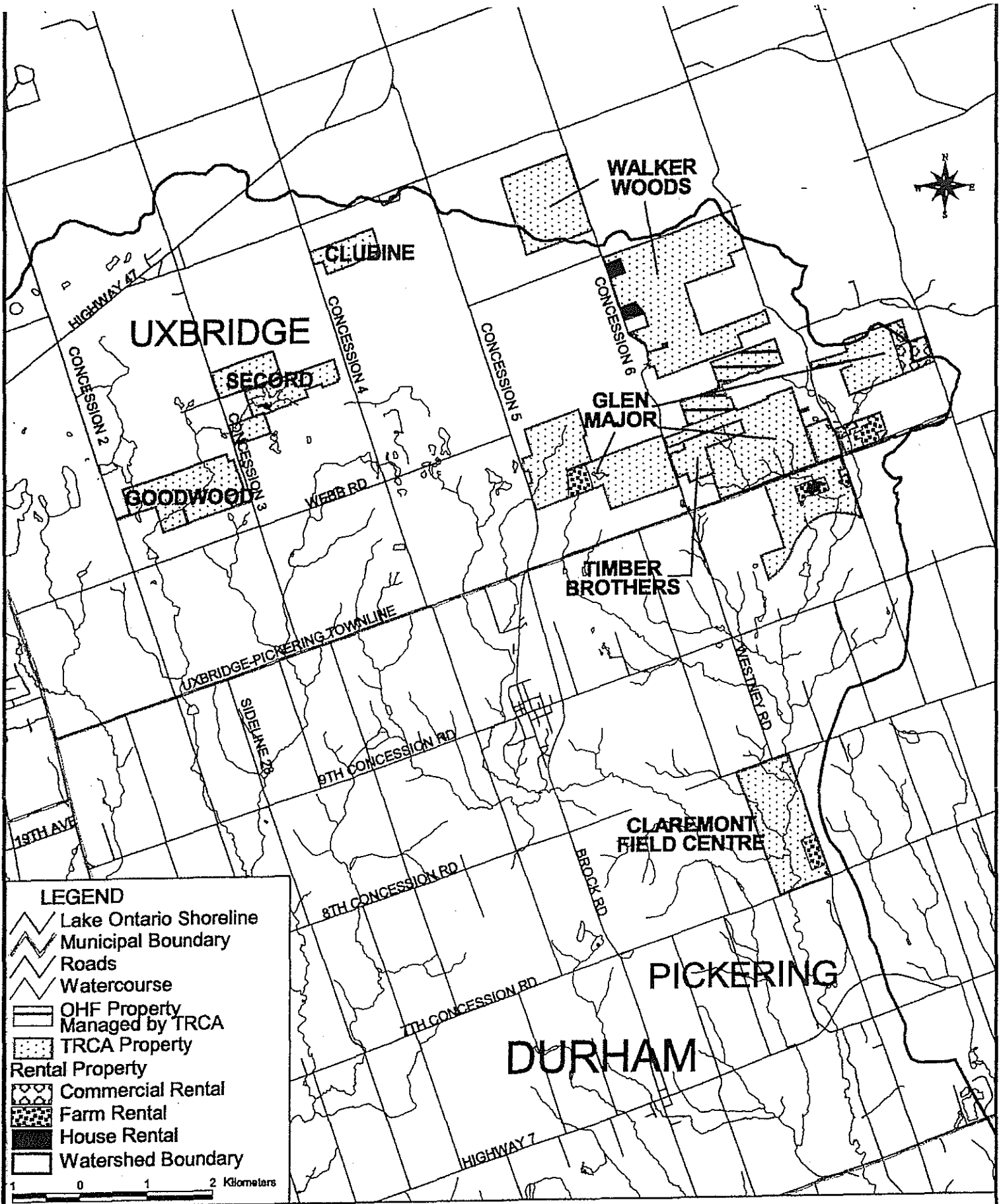
A detailed summary of public questionnaires and comments have been compiled and are part of Appendix A, which is available upon request.



**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 2 - DUFFINS CREEK WATERSHED
Duffins Creek Headwaters Context**

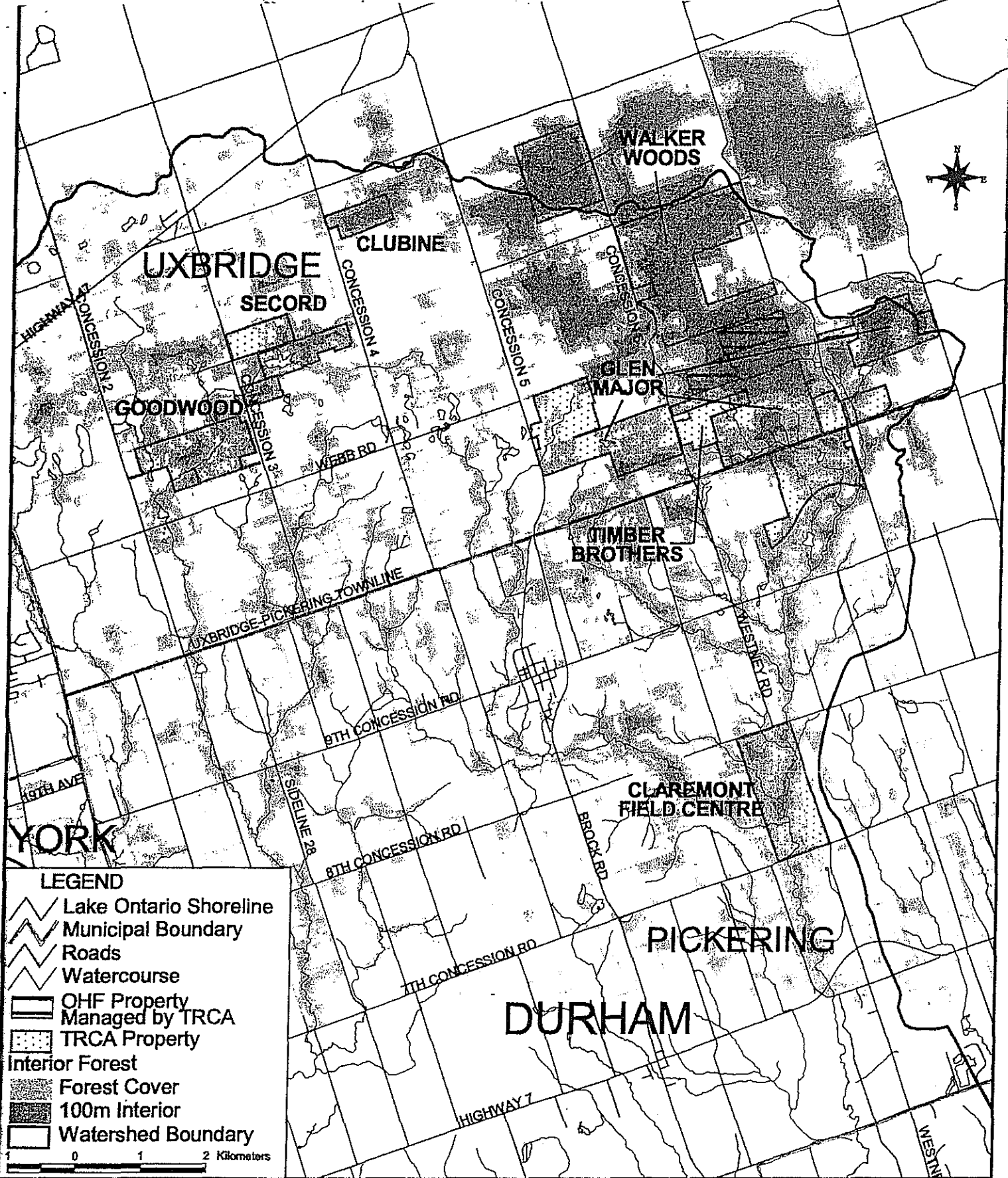




**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 3 - DUFFINS CREEK WATERSHED
Rentals/Leases and Agreements**

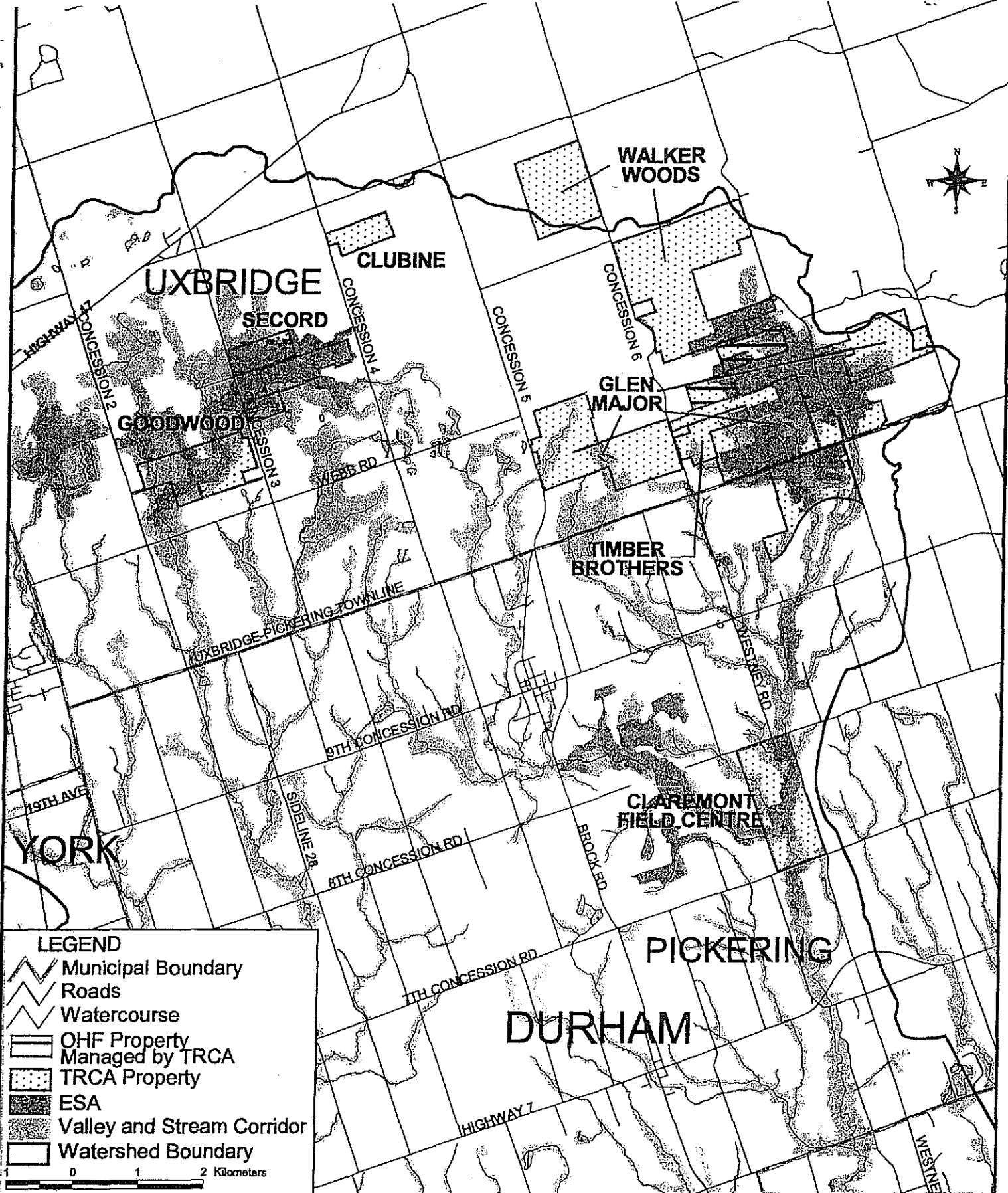




**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 4 - DUFFINS CREEK WATERSHED
Interior Forest**

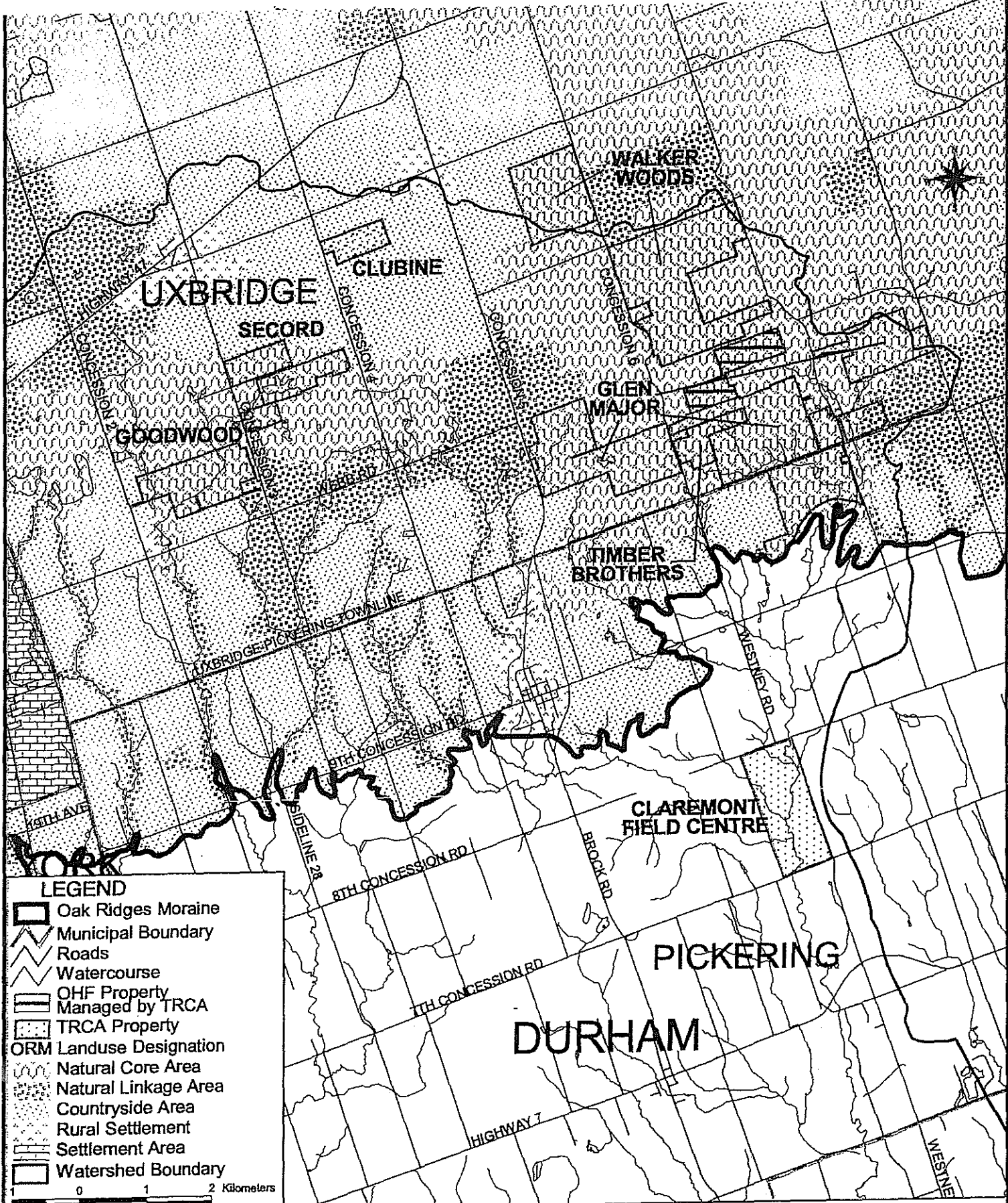




**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 5 - DUFFINS CREEK WATERSHED
Areas of Special Designation for
Protection in the Planning Area**





LEGEND

- Oak Ridges Moraine
- Municipal Boundary
- Roads
- Watercourse
- OHF Property Managed by TRCA
- TRCA Property
- ORM Landuse Designation**
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Settlement Area
- Watershed Boundary

0 1 2 Kilometers

**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 6 - DUFFINS CREEK WATERSHED
ORM Landuse Designations**





CHAPTER TWO

PLAN VISION, GOAL, OBJECTIVES, AND PRINCIPLES

2.1 The Vision:

As part of the larger Duffins Creek Watershed, it is integral that the vision, goal, objectives and principles of this Management Plan adhere to and are integrated with the Vision of the Watershed Plan for Duffins Creek and Carruthers Creek. The Watershed Plan vision reads as follows:

VISION FOR THE DUFFINS CREEK AND CARRUTHERS CREEK WATERSHEDS

The Duffins Creek and Carruthers Creek will be healthy, safe, dynamic and sustainable watersheds that continue to have clean and safe water. These watersheds will have functioning wetlands and be diverse with 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 opportunities for growth and development will recognize the vision and the importance of protecting and enhancing this priceless legacy.

Working within this watershed framework, the vision for the Duffins Creek Headwaters Management Plan reflects the essence of conservation planning values and sets a definite direction for the future management of TRCA headwater properties. The Management Plan Vision was also developed to be consistent with the Oak Ridges Moraine Conservation Plan.

A VISION FOR TRCA PROPERTIES IN THE DUFFINS CREEK HEADWATERS

The Toronto and Region Conservation Authority properties in the Duffins Creek Headwaters, which contain diverse ecosystems, abundant wildlife and spectacular vistas, will become a model for private and public land stewardship. The various TRCA properties will be integrated and expanded through donations, land purchases, conservation easements and planning incentives to protect, conserve and improve ecological integrity. (The properties will be carefully managed and monitored to ensure sustainability and adherence to conservation principles. Appropriate public use and environmental awareness will be promoted and managed with a balanced approach.)

The primary focus of the vision centres on the protection and appreciation of the Duffins Creek headwater ecosystem. The vision is based on the premise that health of the natural system is dependent on the integrity and diversity of their habitats and the connectivity between them. Where appropriate public use and interpretation of natural and cultural heritage features will be provided.

2.2 PLAN GOAL, OBJECTIVES AND MANAGEMENT PRINCIPLES

The Management Plan Vision establishes a framework for a goal and a series of objectives and management principles, that are consistent with the Watershed Plan for Duffins Creek and Carruthers Creek. The Management Plan goal, objectives and principles were also developed to be consistent with and adhere to the Oak Ridges Moraine Conservation Plan.

Goal:

- To protect, conserve and manage the TRCA headwater properties within an ecosystem framework, and in consultation with the community, ensuring watershed health, public enjoyment and environmental sustainability.

Objectives:

- *Natural Heritage* - To protect, restore and regenerate the natural ecosystem by ensuring the health and diversity of native species, habitats, landscapes and ecological processes. Also, maximizing linkages and connectivity of the natural heritage features to one another and to adjacent areas;
- *Cultural Heritage* - To identify, protect and conserve 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, management and appropriate conservation, recreation and other land uses;
- *Management* - To manage the TRCA headwater properties in a manner that will ensure the achievement of all objectives and to implement Management Plan recommendations, while providing for ongoing public involvement in the management process;;
- *Education* - To promote knowledge and understanding of the natural and cultural values of the land and water, their protection and management requirements, as well as their significance, sensitivities and interrelationships;
- *Stewardship* - To promote and facilitate the ongoing public involvement towards a partnership that will foster sustainable living, and will accomplish watershed management objectives, as well as implement Management Plan recommendations;
- *Public Use* - To provide opportunities for appropriate, accessible public uses, which are consistent with all other objectives.

Management Principles

- Protect, conserve and regenerate the ecological integrity of the headwater properties.
- Ensure natural and cultural heritage sustainability utilizing a cost effective approach.

- Promote and monitor the use and enjoyment of the land, ensuring minimal impact to the natural environment by striving for a balance between conservation and appropriate outdoor recreation.
- Develop stakeholder awareness, promote cooperation and form partnerships that will enhance stewardship and provide protection of the lands.
- Foster community involvement and environmental stewardship that utilizes an integrated approach to planning and implementation strategies.
- Recognize, integrate, promote and enhance linkages between the Conservation properties, the Duffins Creek watershed, the Oak Ridges Moraine and other natural and cultural features.
- Develop and implement programs and partnerships that protect and enhance the form, features and functions of the Oak Ridges Moraine (ORM), i.e., groundwater, natural heritage, land securement, headwater protection and policy framework.
- Utilize flexible management approaches and continually evaluate management options to ensure the operations and existing infrastructure are both effective and appropriate.
- Restore and naturalize disturbed areas on TRCA property.
- Utilize best erosion management practices where appropriate.
- Utilize best forest management practices where appropriate.
- Expand public land holdings through acquisition, conservation easements, donations and planning incentives.
- Effectively manage public use safety issues.
- Increase revenues with programs and services where sustainable.



CHAPTER THREE

MANAGEMENT ZONES

The natural and cultural heritage information, which was compiled for the Management Plan Phase 1 Reference Document formed the basis for determining the management zones and their requirements (Figure 1). The seven zones (Nature Reserve, Natural Environment, Primary Restoration, Agricultural Reserve, Public Use Recreation, Public Use Education and Public Use Lease) are distinguished by their different ecological protection, management needs, and acceptable levels of recreational use.

These zones and definitions are based on the Ontario Provincial Parks - Planning and Management Policies. However, the recommended conservation land management zoning categories and policies have been modified to more closely address the requirements of these headwater properties. Given the current pressures of urbanization that are affecting the condition of natural cover throughout the TRCA's jurisdiction, it is paramount to approach the management of any natural area in a way that addresses that particular site in the larger regional context. By implementing the following system of management zones, it is hoped that a consistently effective and cautious method will steer natural habitat in the Toronto region towards a condition that possesses a high degree of resilience.

3.1 MANAGEMENT ZONE DEFINITIONS

The seven management zones for the TRCA properties in the Duffins Creek Headwaters are defined as follows:

Nature Reserve:	Existing natural cover supporting Species of Concern or Vegetation Communities of Concern, and interior habitat portions which are part of the TRCA targeted natural system.
Natural Environment:	Existing and targeted natural cover within the targeted natural system which does not currently meet the criteria of the Nature Reserve Zone.
Primary Restoration:	Lands designated for active restoration to achieve the full potential of the TRCA targeted natural system. Primary restoration will also occur within a forest plantation area that has been classified as a Nature Reserve, with such areas identified as P.R. in Nature Reserve on the Management Zone Maps.
Agricultural Reserve:	Areas which have existing or potential for agricultural uses, including crops or nursery operations.
Public Use Recreation:	Areas with existing or potential recreational and educational uses, facilities, or services.
Public Use Education:	Areas with existing lease agreements or appropriate infrastructure
Public Use Lease:	Areas with existing lease agreements that should be renewed or areas where potential for lease opportunities exist.

3.2 DETERMINING THE MANAGEMENT ZONES

The TRCA properties presented an excellent opportunity to determine the management zones based on TRCA's Natural Heritage Strategy as discussed in Chapter 1. In order to apply the appropriate management zone to a particular area, TRCA staff reviewed, inventoried, analyzed and ranked the features and functions for all the properties on a GIS system. The information was presented to the Advisory Committee, who endorsed the process and Management Zone designations. This same information was also presented to the public on a number of occasions, as outlined in Chapter 1, with general acceptance.

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

- interior habitat;
- vegetation communities;
- species of concern;
- Environmentally Significant Areas (ESA);
- Areas of Natural and Scientific Interest (ANSI);
- classified wetlands;
- existing public use areas;
- lease areas; and
- existing infrastructure.

The Restoration Zones were established through an analysis at the landscape level using potential restoration areas to determine possible additions to the size and shape of interior habitat. In addition, any area or infrastructure that was determined to be discontinued or in close proximity to the existing interior habitat, was considered a candidate for potential restoration. In addition, all of the plantations were classified as Primary Restoration including the ones in the Nature Reserve (i.e., P.R. in Nature Reserve).

The results of this analysis were used to determine the Management Zones as shown on Maps 7a, 7b and 7c, with the boundaries being approximate only. The Management Zones relate to features such as the edges of woodlots, fields, hedgerows, buildings, roads and utilities.

3.3 PERMITTED RESOURCE USES IN MANAGEMENT ZONES

Each management zone has an acceptable level of outdoor recreation, education, and other resource uses. Specific permitted intensity of uses are detailed in Figure 1. The list provides examples of the types of uses permitted and is not an all inclusive list. There will be no public motorized vehicles allowed in any zone, or on TRCA land where there is no designated vehicular access, road or parking area. Any proposal for a particular resource use on TRCA land must be in keeping with the provisions outlined in the TRCA's *Valley and Stream Corridor Management Program* and the *Strategy for Public Use of Conservation Authority Lands*. Any proposal for a particular resource use on Ontario Heritage Foundation land would require their approval.

Figure 1: Permitted Resource Uses

<i>Management Zone</i>	<i>Permitted Intensity of Uses</i>	<i>Resource Uses</i>
Nature Reserve	None to Low Intensity.	Fish, wildlife and forest management, local and inter-regional trails, nature viewing/interpretation, leashed dog walking, research, education and photography. Where possible, limit the extent of intrusion into this zone and if intrusion can not be avoided, minimize the impact to interior habitat.
Natural Environment This zone includes areas that have the potential of ecological succession and restoration.	Low Intensity.	Fish, wildlife and forest management, local and inter-regional trails including walking, hiking, cycling, leashed dog walking, horseback riding cross-country skiing, authorized public access points and associated low impact comfort stations.
Primary Restoration This Zone will be allowed to evolve into Nature Reserve or Natural Environment.	None to Low Intensity.	Fish, wildlife and forest management, local and inter-regional trails, nature viewing/interpretation, research, education, photography, and cross-country skiing, cycling, horseback riding, leashed dog walking.
Agricultural Reserve	Low to Moderate Intensity.	Fish, wildlife and forest management, crops, horticultural nursery operations, and associated buildings.
Public Use Recreation	Low, Moderate and High Intensity.	Fish, wildlife and forest management, local and inter-regional trails, nature viewing/interpretation, research, cycling, photography, and cross-country skiing, Nature or Stewardship Centre, fishing opportunities, picnic area, group camping facilities, nature retreat.
Public Use Education	Low, Moderate and High Intensity.	Fish, wildlife and forest management, Outdoor Education Centre, local trails, nature viewing/interpretation, research, cross-country skiing and photography.
Public Use Lease	Low, Moderate and High Intensity.	To be considered a private area subject to specific lease agreements. TRCA will monitor area and conduct appropriate resource management activities, such as fish, wildlife and forest management activities.

CHAPTER FOUR

GENERAL MANAGEMENT RECOMMENDATIONS

The health of the natural system in any region ultimately depends on the total quantity of land that has natural cover. Stresses on our natural heritage result from the reduction of natural cover, which has occurred because of the ever increasing urbanization in the region. As natural cover is lost the ability of the land to support bio-diversity diminishes, and the quality of life for the human population deteriorates.

The headwater properties provide some of the highest functioning ecological units within the TRCA jurisdiction. The forested land of Walker Woods and Glen Major hold the largest nodes of forest interior habitat in the TRCA jurisdiction. The forest size and shape attributes provide interior habitat conditions that exceed 100 metres in many areas, and in some cases in excess of 800 metres from the edge.

The General Management Recommendations are intended to guide the actions of TRCA, its partners and the Duffins Creek headwater stakeholders to ensure that the properties will remain a healthy and vital part of the Duffins Creek Watershed. The recommendations have been separated into Natural Heritage; Human Heritage; Public Use (Outdoor Recreation and Education) and Surrounding Land Use. They are consistent with the provisions outlined in the Authority's *Valley and Stream Corridor Management Program*, the *Strategy for Public Use of Conservation Authority Lands*, as well as the watershed management objectives outlined in *A Watershed Plan for Duffins Creek and Carruthers Creek*.

4.1 NATURAL HERITAGE MANAGEMENT

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

Valley and Stream Corridors

- Manage the valley and stream corridor areas according to the criteria set forth in the Authority's *Valley and Stream Corridor Management Program (1994)*.
- Ecological linkages associated with the valley corridors should be protected and restored.

Aquatic Ecosystem and Habitats

General

- The aquatic system will be managed to achieve a fully functioning clean and healthy creek system, It will also be managed in accordance with the Duffins Creek Fish Management Plan.
- Protect groundwater recharge and discharge areas.
- Septic systems in and adjacent to the properties will be monitored by TRCA staff in cooperation with the local health unit and the Ministry of the Environment.
- Surface and groundwater impacts due to agricultural activities will be monitored.
- Recreational activities that degrade water quality and aquatic habitat will be prohibited.

- Protect, enhance, or restore watercourses, aquatic habitat, riparian zones, and wetlands as determined through inventory and monitoring.
- Use native species in all restoration activities.

Wetlands

- Inventory the presence of wetlands and identify species present.
- Prohibit activities that will reduce the size or function of the wetland areas. Where inventory and monitoring indicate, undertake specific enhancement or restoration activities.
- Use only native species for restoration activities.
- Protect, establish, or otherwise manage vegetation to facilitate all the life stages of fish, other aquatic organisms and wildlife populations.
- Invasive exotic plant species will be managed according to TRCA policies.

Fish

- Protect and maintain fish habitat.
- Protect fish populations and other desired aquatic organisms through proper timing of management activities.
- Encourage conservation practices such as catch and release and the use of single barbless hooks.
- Anglers should reduce their catch and possession limits for trout.
- Mitigate in-stream barriers to provide passage for fish.
- Monitor aquatic habitat species regularly as part of TRCA's Regional Watershed Monitoring Program.
- No baitfish harvest is allowed on the properties.

Terrestrial Habitats

Terrestrial habitats includes vegetation communities, as well as the wildlife which inhabit these areas. The objective of vegetation management is to ensure the on-going health of native plant communities, and where necessary restore the vegetation to as close to a natural system as possible.

Vegetation (Flora)

- Priority will be given to ensuring that the vegetation communities are protected and restored where required.
- Emphasis will be placed on encouraging the vegetation of the area to evolve naturally over time through succession.
- Vegetation will be protected from further degradation resulting from the negative impacts of human activities.
- Only native species, suited to the local site conditions and complementary to the existing vegetation cover, will be considered for restoration activity.
- Absent native species, which are locally indigenous may be reintroduced.
- Invasive exotic plant species will be managed according to TRCA policies.
- Insects and diseases that attack the vegetation should be considered a natural process, and will not be controlled, except in the instance where they threaten the integrity of the

vegetation community. Where control of infestations is required, it will be directed narrowly to the specific problem. Biological, rather than chemical control should be used wherever feasible. A bacterial spray program may be considered to control Gypsy Moth in climax forest communities, but only where vegetation is threatened over the long term.

Forest Management

A healthy forest is one that is sound and vigorous. Healthy forests exhibit greater species and structural diversity, making them more resilient to the impacts of disease, invasive species and other catastrophic events (ie. Fire and wind damage).

- Protect, restore and enhance the forests within an ecosystem context, and promote forest sustainability in perpetuity.
- All forests will be managed as per an approved TRCA Forest Management Plan.
- Extend and manage the forest cover to improve water conservation; control erosion and sedimentation; provide aquatic and terrestrial habitat; and to provide opportunities for safe education and recreation.
- Maintain the natural diversity of flora and fauna in the forest and restore biodiversity within the natural range of variation that is characteristic of the region.
- Protect representative, unique, and fragile vegetative communities.
- Ensure that operational practices are based on sound forestry principles and current best management practices and that management activities are integrated and compatible with other Authority programs and policies and supportive of other public agency resource management objectives (ie. OMNR, MOE).
- Conduct all activities with respect for the forest environment and maintain and protect the composition, structure and function of the forest ecosystem.
- Manage forests to establish and maintain a healthy and diverse forest cover while striving for a sustainable balance between program costs and program revenues.
- Evaluate management potential of forest compartments considering all objectives and the compartment features before considering the level of active management.
- Manage for a variety of habitat types.
- Schedule operations considering seasonal impact on the site.
- Schedule operations to consider impacts on wildlife.
- Monitor forest compartments for signs of disease, an insect outbreak and to assess condition and vigour.
- Assess, improve and establish roads and stream crossings when and where required.
- Plan operations and design roads such that there is minimal damage to the remaining trees, regeneration, stream crossings and erosion prone areas.
- Use of the appropriate management practices for the forest type and site conditions.
- Plan to manage for biodiversity and to promote the retention of old growth compartment features.
- Manage for a mixture of tree species and age-classes within woodlots where appropriate.
- Implement the conversion of plantations to mixed species woodlots.
- Implement improvement and sanitation cuts to promote forest health and vigour.
- Monitor and inventory forest compartments after management operations.

- Establish reforestation to increase forested area to aid in water retention.
- Establish riparian plantings to establish vegetated stream buffers.
- Identify areas of natural succession.
- Retain a diversity of tree species and age-classes to promote a variety of wildlife habitats.
- Reforest large blocks of land to create more interior forest habitat.
- Reforest to create linkages between woodlots.
- Monitor forest compartments for signs of wildlife.
- Plan forest operations to avoid sensitive seasons for wildlife use.
- Construct brush piles in conjunction with forest management operations.
- Retain mast producing trees and shrubs and potential den trees.
- Retain and manage for old growth features.
- Allow for downed, woody material and debris to accumulate on the forest floor.
- Use management techniques to create and maintain habitat.
- Retain natural open space.

Recommended Silvicultural Systems

Utilize the all-aged selection system whereby individual trees or small groups of trees may be removed. The selection system encourages improved stand vigour and regeneration through the gradual opening of the canopy while maintaining the integrity of the stand. Tree selection is based on improving stand vigour, age-class distribution and species diversity. This system can be used to recreate the effects of natural disturbances in a controlled manner, thereby enhancing biodiversity within the forest landscape through maintaining a mixed representation of early, mid and late successional stages.

Plantation management is primarily directed toward stand conversion - the process of changing the composition of the cover from a coniferous monoculture to a mixed deciduous-coniferous stand. In managing plantations, the TRCA will employ selection row thinning or patch cutting. Both thinning techniques will decrease the overall stand density, provide space for other species in which to establish, and stimulate the residual stand to grow more vigorously. Thinning assists to prevent stagnation of the forest cover, improve snow pack capture and provide increased opportunities for biodiversity.

Wildlife (Fauna)

- Management activities of terrestrial animal life to ensure the healthful perpetuation and diversity of native species will be permitted.
- The healthy perpetuation and diversity of native species will be encouraged.
- Wildlife populations will be protected from human disturbance through controlled and restricted public access, proper timing of management activities, and buffering between land uses.
- Dogs must be kept on leashes.
- Habitat will be protected, maintained, and enhanced to provide shelter, travel corridors, and foraging areas for wildlife.
- Non-native animal species will not be deliberately introduced.

- Lighting that interferes with wildlife behaviour will not be permitted.
- Rare Species or Species of Concern will be monitored. Specific protection or recovery programs to ensure their continued presence may be undertaken as necessary.
- Public hunting and trapping will not be permitted.

4.2 HUMAN HERITAGE MANAGEMENT

The Oak Ridges Moraine environment has provided a variety of resources necessary for human settlement during the past 11,000 years. An ample water supply in the form of ponds and stream corridors of the Duffins Creek watershed attracted abundant flora and fauna. In turn, these attracted early nomadic Aboriginal groups as well as later year-round agricultural villages. Within the past two centuries, European settlers were drawn to the lands for agricultural purposes, and to the extensive forests for lumber resources.

Archaeological Resource Management

- All archaeological sites (known and unknown) on the TRCA properties are important cultural resources which must be preserved, either by avoidance or through excavation subject to Authority procedure when land use modification may occur.
- All land use modifications on TRCA properties must be preceded by an archaeological investigation and assessment with notification to appropriate agencies. The assessment will be conducted by TRCA staff.

Historic Resource Management

Historic resources (heritage structures built by Euro-Canadians) will be managed subject to the following recommendations:

- Heritage sites will be recognized as important cultural resources.
- Heritage sites and their relationship with the environment will be identified and documented.
- Heritage sites will be protected and conserved.
- Efforts to raise awareness of the value that heritage sites contribute to recreational and environmental resources will be undertaken.
- Wherever possible, when the Primary Restoration Zone includes historic resources, heritage themes will be included in the restoration plan.

4.3 PUBLIC USE (Outdoor Recreation and Education)

Recreation and educational facilities will be managed or developed according to the following recommendations:

- All public use development or proposed material used must to the maximum extent possible, reflect the ecological function of the specific area.
- Public use proposals will be reviewed in accordance with the municipal Official Plans and Bylaws.
- Planning for any future public use will involve public consultation and environmental evaluation through the screening process outlined in the Authority's *Strategy for Public Use of Conservation Authority Lands (1995)*.
- Wherever possible, native vegetation will be planted as a buffer between the public use and natural areas.

- Protection, restoration, and enhancement of natural resources will be a part of all public use plans.
- Public uses will focus on outdoor education and recreation.
- Public use proposals must address risks to flooding and erosion, as outlined in the Authority's *Valley and Stream Corridor Management Program* (1994).
- Public use proposals will include stormwater management, erosion and sediment controls, and fencing in their designs.
- The lot grading and drainage patterns will be maintained to protect flora and fauna.
- Setbacks shall be established from natural area zones to prevent public uses from conflicting with the flora and fauna, wherever necessary.
- Public use proposals will consider the sensitivity of the natural areas prior to providing access to such areas.
- The planning and development of a trail system will be subject to the recommendations set forth in the Authority's *Trail Planning Guidelines* (1992) and the policies of the *Valley and Stream Corridor Management Program* (1994).
- Maximize public use and recreation opportunities by enhancing linkages to the ORM Trail, Trans Canada Trail and other public trail systems when the opportunity exists.
- Lighting that interferes with wildlife behavior must not be permitted.
- Dogs must be kept on leash.
- No public hunting or trapping is permitted on the TRCA properties.
- In the short term, existing infrastructure will be managed by the TRCA, subject to available funding. Where lands are leased, approved public uses, upgrades or replacement of the infrastructure will be the responsibility of the proponent/tenant unless other agreed upon terms and conditions are established with TRCA.
- Proposals for the public use zone should include new technologies relating to construction, grounds maintenance and water conservation, where possible to maintain the ecological integrity of the properties and demonstrate sustainable practices.

4.4 SURROUNDING LAND USE

The previous management recommendations provide a framework for achieving environmental sustainability on the TRCA properties. In order to support a fully functioning regional natural heritage system it is important to look at issues and opportunities provided by the surrounding areas on a subwatershed and larger watershed level. The surrounding land uses of the Duffins Creek headwater properties have an influence on the ecological function of the natural heritage system and must be incorporated into the broader regional vision. The Advisory Committee realized this vision early on in the management planning process, and a group of dedicated members took the leadership to establish conservation easements on private land adjacent to the study area. This work has also manifested this following key recommendation of the plan.

The successful implementation of initiatives aimed at achieving the Management Plan objectives will be directly determined by the ability to implement an effective, extensive, long-term stewardship program. The Duffins Headwaters Stewardship Program is aimed at involving private landowners, including owners of residential, agricultural and commercial properties in the protection and enhancement of the ecosystem of the TRCA lands.

The configuration and extent of the Duffins Creek Headwater Stewardship Area will be determined by the degree of landowner participation in the Stewardship Program. Consequently, the Stewardship Program Area is flexible, expanding to include all lands on which stewardship initiatives are being undertaken.

Stewardship Program

The Stewardship Program was conceived in order to achieve the following five key objectives:

- To encourage public awareness of, and participation in, the establishment and stewardship of Duffins Creek Headwaters;
- To facilitate the preservation of existing natural and cultural resources and the restoration of degraded areas on private lands;
- To encourage a sense of individual and community ownership and consequently, an interest in the health and sustainability of the Duffins Creek ecosystem;
- To facilitate the creation of a connected, continuous, natural and cultural heritage system, encompassing both public and private lands in the short term, which will lay the foundation for the long-term realization of a completely protected Duffins Creek natural corridor, extending from the Oak Ridges Moraine to the Lake Ontario Waterfront; and
- Where development has already occurred and the limits of the valley corridor are finite, the Stewardship Program can encourage the appropriate management of adjacent lands to mitigate the impacts of erosion, runoff and pollution while increasing the extent of canopy cover and the diversity of vegetation communities.

The successful implementation of the Stewardship Program is critical to the initial and long-term success of the Duffins Creek Headwaters Management Plan.

To achieve this goal, the Stewardship Program must be a coordinated effort, which encompasses the municipalities of Uxbridge, Pickering, Ajax, and the Regional Municipality of Durham, and must involve various landowner and public interest groups from across the watershed. At the final Duffins Creek Headwaters Advisory Committee meeting in June of 2003, the Committee recommended that the Stewardship Committee be separated into two groups. One group would be responsible for the East Duffins Creek Headwaters and the second would be responsible for the West Duffins Creek Headwaters.

Fundamental Elements of the Stewardship Program

- The current Management Plan Advisory Committee must have the opportunity to actively participate in the Stewardship Program.
- The Program must recognize the existing efforts and contributions of landowners that have, outside of any formal stewardship initiative, contributed to the health of the Duffins Creek watershed.
- The Program must be founded on a recognition of, and a respect for, the rights and privacy of landowners.
- The Stewardship Program must be a single, coordinated effort emphasizing clear communication.

- The TRCA will be responsible for implementing the Stewardship Program with representatives of various landowner groups, public interest groups, the agricultural community, private residential landowners, and former Advisory Committee members. In addition, these representatives should be encouraged to communicate with landowners with similar interests, issues and concerns.
- The Program should employ various types of incentives to encourage participation and recognize landowner contributions.
- The Program should provide an opportunity for landowners to discover and share information about stewardship and restoration initiatives, as well as affording landowners the opportunity to learn about specific techniques and visit project sites.
- The Program should build on the efforts of, and the information available from, existing landowner groups and restoration programs, including the York Region Federation of Agriculture's Conservation Program.
- The Program must be a separate initiative from any program aimed at encouraging public access to privately owned lands.
- The nomenclature associated with the Stewardship Program must be carefully considered to discourage the perception that lands involved in the Stewardship Program are all considered public lands.
- That two Stewardship Committees be established, one for the West Duffins Creek Headwaters and one for the East Duffins Creek Headwaters, to assist TRCA with the detailed planning, management and implementation of the Duffins Creek Headwaters Management Plan for TRCA properties.

Some of the Advisory Committee members have recognized the importance of Conservation Easements and have worked to secure additional lands adjacent to the TRCA properties. This work has been significant and will ensure an improved natural heritage system for the Duffins Creek Watershed. Please refer to Map 8 to identify the context and extent of the Conservation Easements. It is critical for TRCA to continue supporting the conservation easement initiative to further develop the program and provide landowners with assistance.

Public education and clear communication with landowners, combined with a program of incentives to encourage participation, are essential for the successful implementation of the Stewardship Program. Incentives can range from recognition to cash compensation, with the level of incentive determined by the contribution and commitment of the landowner. A discussion of the range of potential incentives is provided below.

- **Recognition and Honorariums**

Within this type of program, landowners, community groups or corporations participating in the Stewardship Program would be recognized for their contributions. All properties within the Stewardship Area would be identified with signage. Recognition could be provided in the form of certificates or awards, an honour roll or a ceremony. In addition, since recognition programs are more effective at a community scale, a signage structure could be erected. Installation of signage, on which the names of the participants and a description of the nature of their participation in the Stewardship

Program are inscribed, would also help to strengthen the concept. This level of incentive is most appropriate for small-scale stewardship initiatives.

- **In-Kind Compensation**

Within this incentive program, restoration or erosion protection works would be undertaken on private lands, to the benefit of both the landowner, in return for long-term environmental enhancement. Examples include the erection of fencing to prohibit livestock access to the river, tree planting or bank stabilization. This incentive program would require landowners to enter into a legal agreement with the TRCA. Agreements would have to be drafted on a case-by-case basis for each potential site and the extent of stewardship requirements would be determined by the cost of the restoration works.

- **Cash Incentives**

Under this type of program, cash incentives would be offered in compensation for easements, stewardship leases or management agreements. The criteria for determining participation in a cash incentive program, as well as the logistics of financing such a program, are the key issues to be addressed in the program development. A cash incentive program would require the landowner to enter into a legal agreement with the TRCA.

- **Tax Rebates**

A tax rebate program would be aimed at achieving long-term agreements with private landowners, with an emphasis on attaining easements over natural lands to allow for ecological protection and restoration initiatives. This type of program would be concentrated primarily on larger tracts of land in private ownership, and would involve the execution of a legal agreement with predetermined conditions. The logistics of implementation would include the negotiation of the limits of the Stewardship Program Area, an assessment of the value of the property, the re-designation of the land use and the definition of the conditions of easement or future use.

The logistical, administrative and legislative requirements for implementing each of the above options will require exploration once the basic approach to each program has been endorsed.

Stewardship Program Coordinator

The role of the Stewardship Program Coordinator will be critical towards the achievement of the Management Plan vision, goal and objectives. The program should commence immediately upon TRCA and Partner endorsement of the Management Plan. The responsibilities of this individual will include overseeing all aspects of the Program, including funding, promotion, management of the Stewardship Committee, assistance with the administration of agreements with landowners, maintenance of a database of participants and monitoring the success of the program. The program coordinator should also be the project manager for the implementation of the Duffins Creek Headwaters Management Plan. This position would be classified as full time.

4.5 MANAGEMENT ZONE RECOMMENDATIONS

Within the seven management zones, specific resource management activities are permitted.

4.5.1 Nature Reserve Zone

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

- The Nature Reserve Zone will support none to low intensity recreation and education uses.
- Recommended access points and permitted uses can be referenced in the plan.
- The Oak Ridges and Trans Canada trail will be permitted within this zone subject to detailed trail routing studies being undertaken and field checked to identify the most appropriate route with the least impact. Also, the same level of trail investigation work will be required to locate any proposed local trails within this zone.
- Protect all the primary natural areas and manage them for the continuation of natural processes.
- Protect and manage existing cultural heritage features and sites in association with the protection of natural areas;
- Cross-country skiing trails will be permitted within this zone on the approved and open trail system.
- Limited interpretive facilities, and scenic or wildlife viewing locations may be provided in selected locations.
- When feasible close out the designated leased lands from Nature Reserve lands.

4.5.2 Natural Environment Zone

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

- The Natural Environment Zone will support low intensity public uses including nature education.
- Existing uses such as agricultural fields and properly sited local trails, may remain in the Zone during the transition period with the ultimate goal of land restoration and required trail relocation being achieved.
- Regional trails will be permitted within this zone subject to detailed trail routing studies being undertaken and field checked to identify the most appropriate route with the least impact. Also, the same level of trail investigation work will be required to locate any proposed local trails within this zone.

4.5.3 Primary Restoration Zone

Resource management activities that are encouraged in the Primary Restoration Zone include environmental management projects that are designed to protect, enhance, or restore natural

features, landforms, species or habitats. Through successful restoration activities, over time these areas are expected to evolve to a Natural Environment or Nature Reserve Zone.

- Implement a vegetation management strategy primarily based upon natural regeneration of native species to create the necessary forest linkages and buffer lands over the long term;
- Use managed succession sparingly to establish forest cover to create critical linkages and buffers in the short term; also, use managed succession where degraded lands inhibit naturalization; - consider methods of minimizing possible incompatibilities between residents and nearby naturalization initiatives;
- Maintain cultural landscape heritage values within a functioning forest ecosystem (i.e. retention of rural hedgerows, farmstead plantings);
- In consultation with the tenants, modify leases to encourage environmentally positive changes.
- Allow selective public use following environmental impact analysis;
- Monitor for the presence of noxious weeds and if necessary remove in accordance to the municipality's Weed Control Bylaw and TRCA policy.
- As sites are restored, specific areas may accommodate a low level of public use. This would be determined through a site specific evaluation.

4.5.4 Agricultural Reserve Zone

Resource management activities that are encouraged within an Agricultural Reserve Zone include environmental management projects that are designed to protect, enhance, or restore natural features, landforms, species, or habitats. This includes the control of topsoil loss through the implementation of sound soil management and drainage practices such as conservation tillage practices, windbreak establishment, crop rotation and grassed waterways.

- Permitted land uses within the Agricultural Reserve Zone include crop production, horticultural nursery operations, and associated farm buildings. Crop production of low to moderate intensity will be permitted including:
 - hay, legumes, grains (grass, clover, soybeans, wheat, barley, oats, mixed grains);
 - orchards, vineyards, market garden vegetation crops (e.g., tomatoes, squash, pumpkins); and,
 - the propagation and culture of native trees, shrubs, herbaceous and aquatic plants for environmental regeneration purposes.
 - Agricultural crops such as nursery sod farming will not be permitted.
 - Also, the rearing and grazing of livestock or fowl for commercial purposes will not be permitted within this zone.
- Cultivation and cropping should be limited to fields that are flat to gently rolling.
- All agricultural practices should have regard for the sensitivity of permanently or seasonally wet areas and fragile organic soils.
- Agricultural operations within this zone must emphasize integrated pest management (IPM) techniques for the control of undesirable vegetation and pests.
- Organic farming operations will be encouraged.
- Recreational and educational uses of low intensity may be permitted where the potential for damage to agricultural crops is minimal.

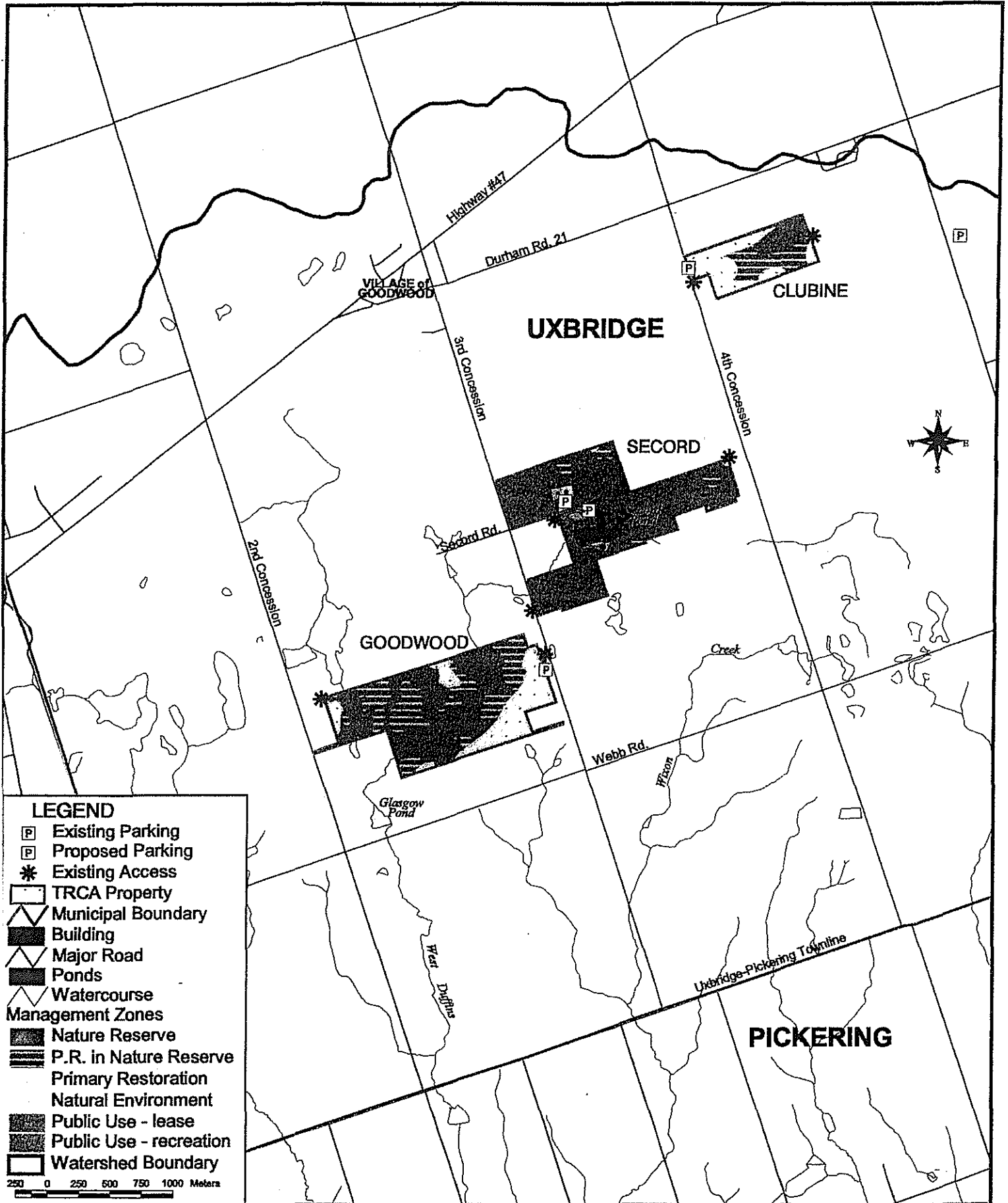
4.5.5 Public Use Zones: Recreation, Education and Lease

Resource management activities that are encouraged in the Public Use Zones include environmental management projects that are designed to protect, enhance, or restore natural features, landforms, species, or habitats.

- Ensure that there is a net environmental enhancement within the Public Use Zones when activities are developed.
- Encourage public use at the periphery in areas that can sustain the impact of development and have limited to no negative ecological or visual impacts on the adjacent lands.
- Provide limited facilities and services to support trail and educational activities that will occur in adjacent zones.
- Ensure that all development occurs with approved site plans and development plans which address issues of visual impact, size and extent of parking and building facilities, neighbour impacts and planting requirements.

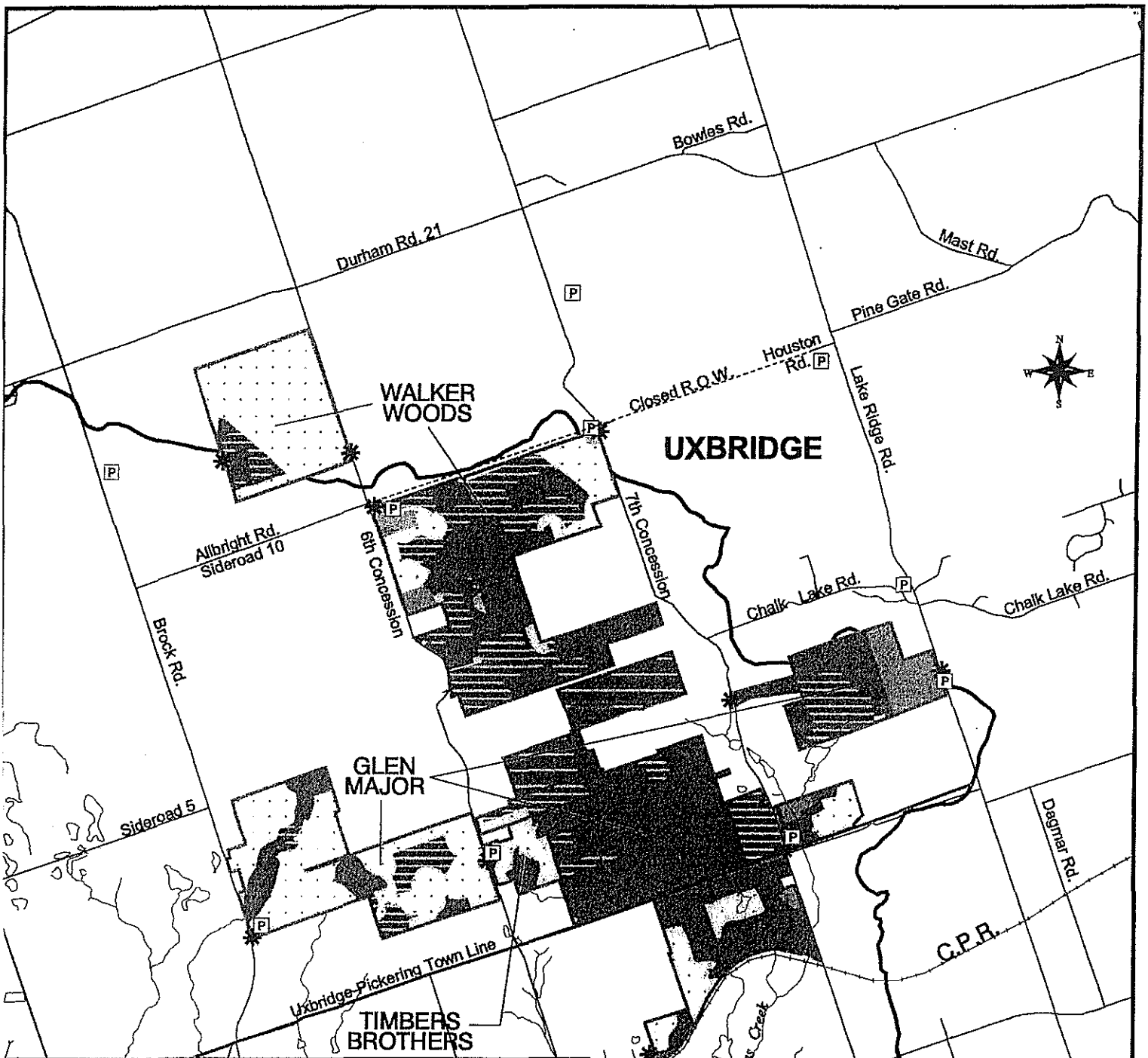
Since the public use zones would be limited in terms of the number of visitors that they can accommodate, some spillover parking on nearby roads may occur. In order to avoid overcrowding of certain sites and conflicts within local residents, prohibition of street parking should be enforced by local municipalities.

- TRCA will involve local municipalities in the design and detailed planning for trailheads and parking areas.



**MANAGEMENT PLAN
TRCA PROPERTIES ON
DUFFINS CREEK
HEADWATERS**

**Map 7a - GOODWOOD-SECORD-CLUBINE
Management Zones**



LEGEND

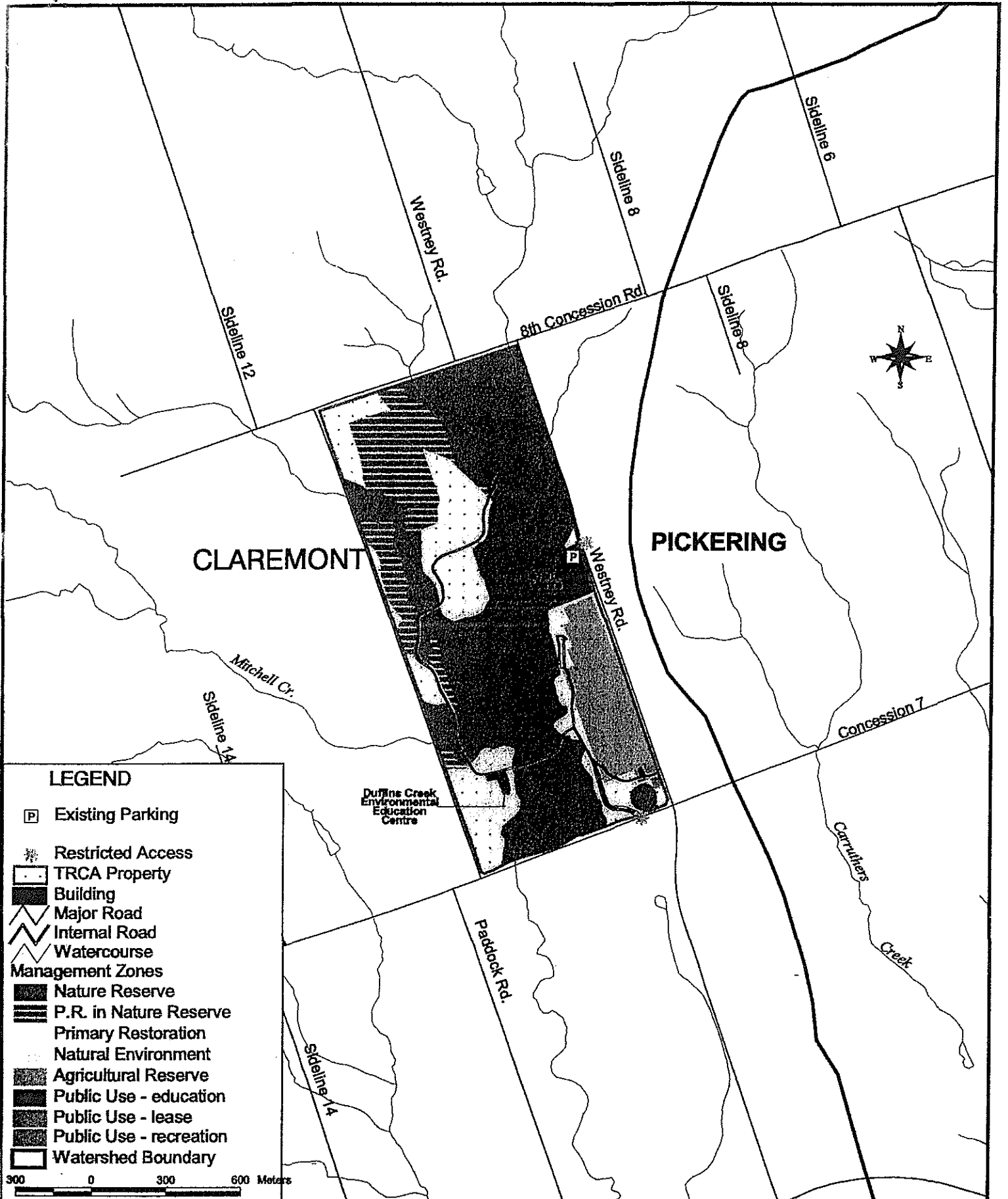
- | | | | |
|--|--------------------|------------------|-------------------------|
| | Municipal Boundary | | TRCA Property |
| | Existing Parking | | OHF Property |
| | Proposed Parking | Managed by TRCA | |
| | Existing Access | Management Zones | |
| | Proposed Access | | Nature Reserve |
| | Rail Line | | P.R. in Nature Reserve |
| | Major Road | | Natural Environment |
| | Watercourse | | Public Use - lease |
| | Building | | Public Use - recreation |
| | Watershed Boundary | | |

1000 0 1000 2000 3000 Meters

**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 7b - WALKER WOODS - TIMBER
BROTHERS - GLEN MAJOR
Management Zones**





LEGEND

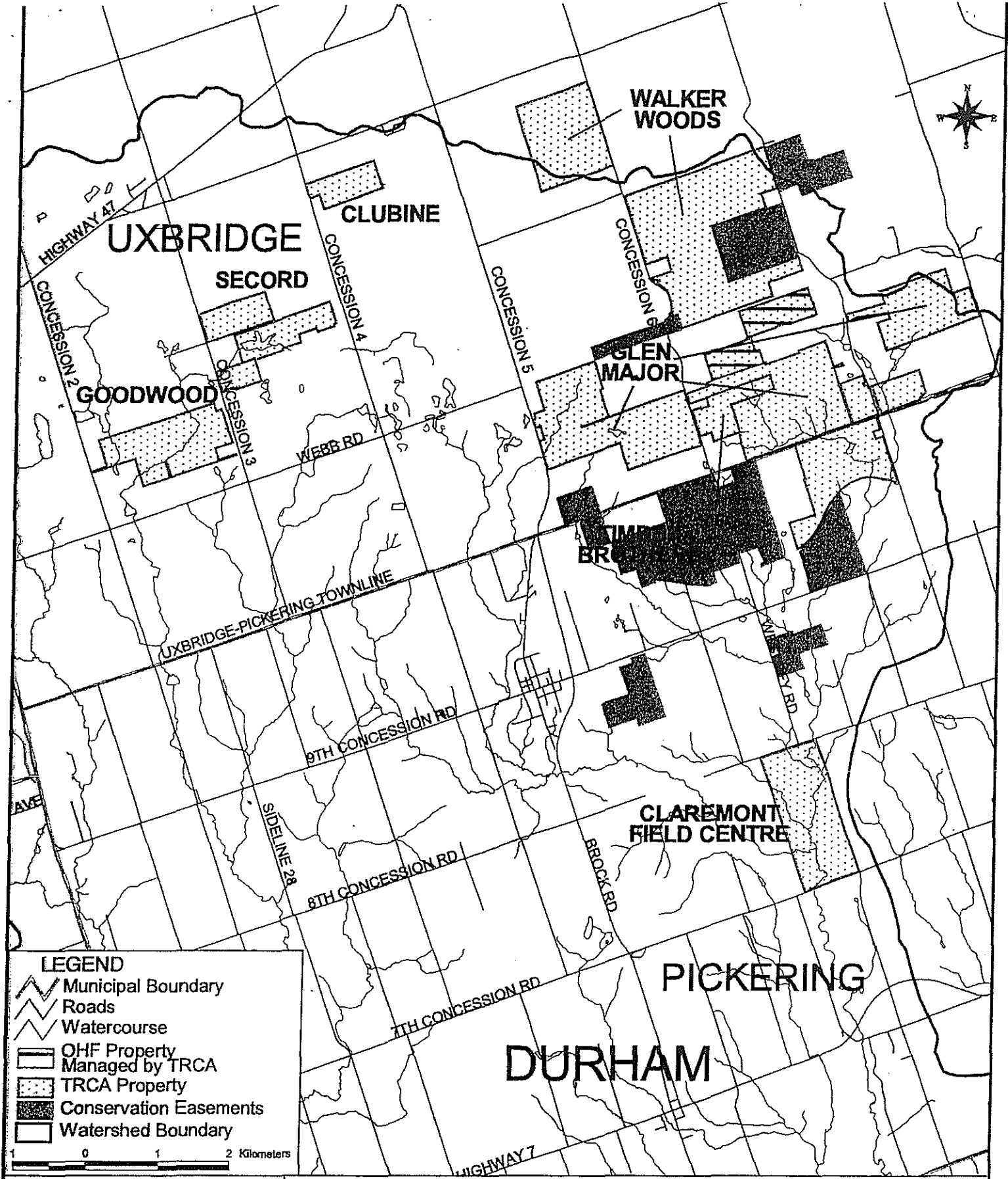
- Existing Parking
- Restricted Access
- TRCA Property
- Building
- Major Road
- Internal Road
- Watercourse
- Management Zones**
- Nature Reserve
- P.R. in Nature Reserve
- Primary Restoration
- Natural Environment
- Agricultural Reserve
- Public Use - education
- Public Use - lease
- Public Use - recreation
- Watershed Boundary

300 0 300 600 Meters

**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 7c - CLAREMONT
Management Zones**





LEGEND

- Municipal Boundary
- Roads
- Watercourse
- OHF Property Managed by TRCA
- TRCA Property
- Conservation Easements
- Watershed Boundary

0 1 2 Kilometers

**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 8 - DUFFINS CREEK WATERSHED
Conservation Easements**





CHAPTER FIVE

CONCEPT PLANS AND RECOMMENDATIONS

5.1 GOODWOOD/SECORD/CLUBINE CONCEPT PLAN

The Concept Plan for the Goodwood, Secord and Clubine properties was guided by the vision, goal and objectives set out in Chapter 2 of this document. Essentially, the concept involves the preservation of natural areas, linkages, cultural heritage features and scenic landscapes with a focus of outdoor recreational activities being provided at the Secord property. The concept can be described as enhanced passive recreation, environmental protection and stewardship. The realization of this concept will occur by fostering new partnerships with corporations or associations. All new partners will be required to follow the TRCA Living City Vision, Watershed Plan for Duffins Creek and Carruthers Creek and this document.

Refer to Map 9 for proposed site location details, with a separate detailed Trail Plan Map 10a also provided. Trail planning and development will only be permitted according to the recommendations provided in this report.

The key elements of the general concept for the properties include:

Goodwood Property

- Public Parking for up to twenty cars
- Hiking Trails including Oak Ridges and Regional Systems
- Nature Viewing
- Cross Country Skiing

Secord Property

- Public Parking for up to sixty cars
- Hiking Trails including Oak Ridges and Regional Systems
- Horseback Riding Trails
- Nature Viewing
- Cross-Country Skiing
- Existing Pet Cemetery
- Two Building Rentals
- Informal Picnic Area
- Public Staging Area
- Portable Toilets
- Fish Hatchery
- Fishing Opportunities and Public Fishing Membership
- Demolish former triplex building
- Decommission former Gatekeeper Residence

Clubine Property

- Public Parking for up to twenty cars
- Hiking Trails including Oak Ridges and Regional Systems
- Cross-Country Skiing
- Nature Viewing

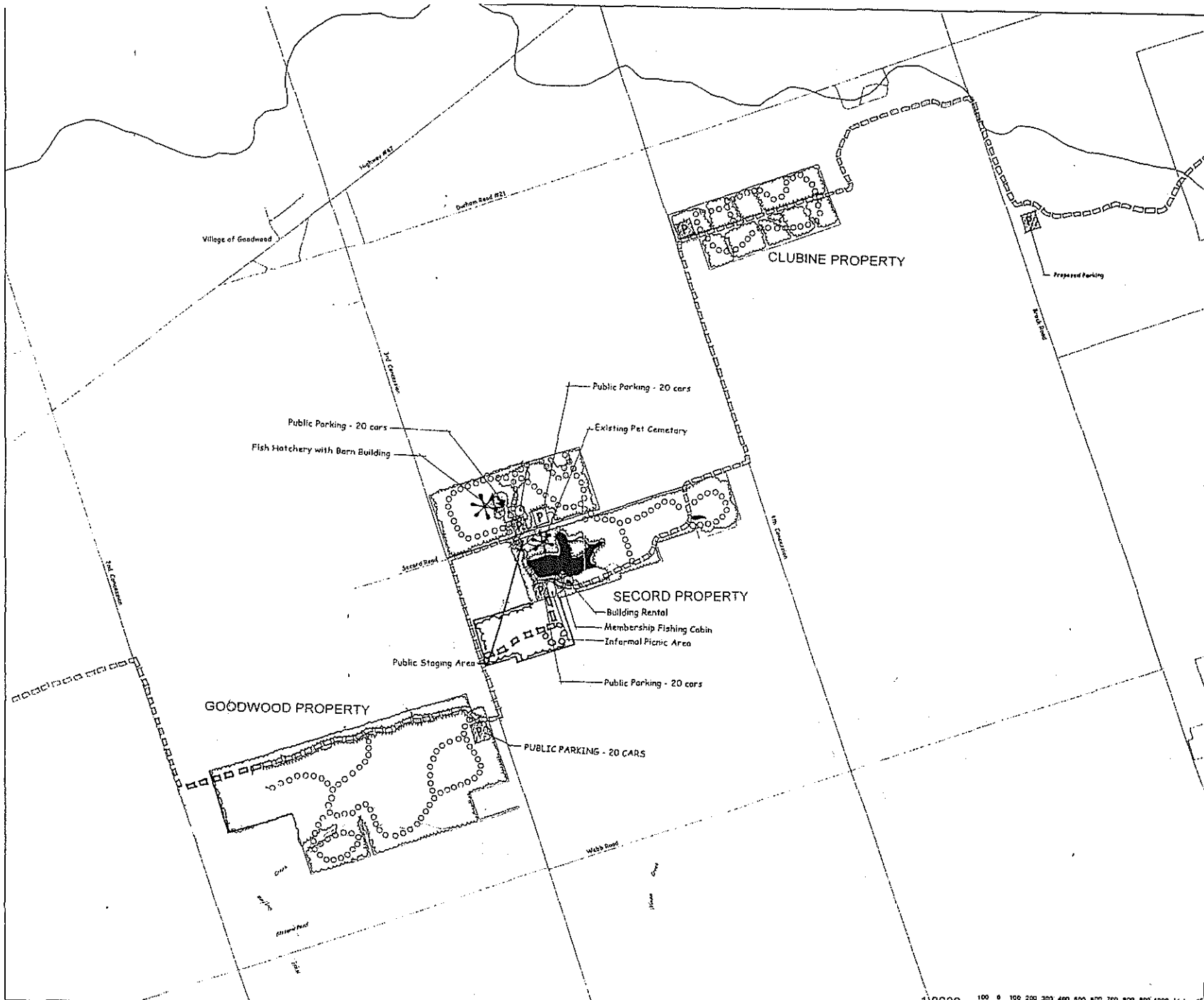
The concept plan protects and enhances the values of the property and maintains its ecological integrity, while providing for various recreational and public use opportunities.

5.2 CLAREMONT FIELD CENTRE CONCEPT

Incorporating the TRCA Living City Vision, the Claremont Field Centre will be focussed on outdoor and conservation education, much as it has been since it opened in 1970. Groups will come to the centre with the goals of learning about the environment through both team building and community living experiences. School groups will participate in field activities that emphasize active hands-on learning connected to their curriculum. There will also be a continued partnership with the Durham District School Board for the purpose of providing outdoor education programs to Durham Board students. The concept plan supports the School Board's objective to provide a facility to accommodate both residential and day programs when the project becomes economically feasible. The only trails that will be permitted on this land include local ones which support the students and environmental learning. Regional trails must be routed around the property with the exception of the Trans Canada Trail hiking portion, which is subject to TRCA environmental impact assessment, TRCA school use evaluation and Durham School Board agreement. Trail planning and construction will only be permitted according to the trail plan recommendations included in this report and associated with Map 10c. The only trail users that will be accommodated on this site include hikers and walkers.

The Concept also incorporates the Agricultural Reserve Zone allowing the Strip Crop Demonstration Farm to continue. Crops such as corn, oat seeded down, hay, and fall wheat may be produced. All crops are to be fertilized annually in accordance with standard requirements for the crop being grown. Restrictions on this farmland include hunting, trapping, garbage dumping, firewood cutting, and tree removal.

Cooperative stewardship and volunteer agreements with local residents and interest groups are also vigorously encouraged with this concept to establish natural area protection and conservation practices for private lands surrounding the Centre.



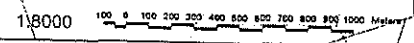
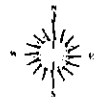
PUBLIC USE ACTIVITIES

GOODWOOD
 HIKING TRAILS
 CROSS COUNTRY SKI TRAILS
 NATURE VIEWING
 PUBLIC PARKING - 20 CARS

SECORD
 HIKING TRAILS
 HORSEBACK RIDING TRAILS
 CROSS COUNTRY SKI TRAILS
 NATURE VIEWING
 EXISTING PET CEMETARY
 PUBLIC WASHROOM
 INFORMAL PICNIC AREA
 FISH HATCHERY
 PUBLIC MEMBERSHIP FISHING WITH CABIN
 PUBLIC STAGING AREA
 BUILDING RENTALS
 PUBLIC PARKING - 60 CARS

CLUBINE
 HIKING TRAILS
 CROSS COUNTRY TRAILS
 NATURE VIEWING
 PUBLIC PARKING - 20 CARS

- Legend:**
- Oak Ridge Monarch Trail
 - Hiking/Cross Country/Ski Trails Multi Use Trails
 - Existing Parking
 - Proposed Parking
 - Fecal Area



Project Title: **DUFFINS CREEK HEADWATERS**
 MANAGEMENT PLAN FOR TRCA PROPERTIES

Drawing Title: **CONCEPT PLAN**
GOODWOOD/SECORD/CLUBINE
 Map 9



Fall 2001

CHAPTER SIX

TRAIL PLAN AND RECOMMENDATIONS

6.1 GENERAL TRAIL PLANS AND RECOMMENDATIONS

The TRCA properties located in the Duffins Creek headwaters are presently fairly undisturbed, yet the lands face the recreational pressures exerted from a fairly extensive trail system, which includes both existing trails and proposed trails. For the most part, the lands in the planning area have been designated as a Nature Reserve Zone. By increasing public access to such sensitive natural areas, trails can provide both valuable educational and aesthetic exposure to our natural heritage system. However the critical issue of not increasing the impacts on these natural areas to the extent that their ecological function becomes disrupted must be addressed and achieved.

The Trail Plans were developed by a dedicated sub-committee of interested Advisory Committee members. Each trail user group was represented and all proposed plans were presented to the Advisory Committee and the public. The information in the Trail Plan is intended to guide the development and management of trails, access points and related facilities in order to achieve the Management Plan goal and objectives. Refer to Map 10a for the Goodwood - Secord - Clubine Trail Plan, Map 10b for the Walker Woods and Glen Major Forest Trail Plan and Map 10c for the Claremont Field Centre Trail Plan.

Trail Plan Goal:

To protect and enhance the forest ecosystem while promoting public responsibility, understanding, appreciation and appropriate enjoyment of this important natural feature.

Trail Plan Objectives:

- To protect the environment by implementing sensitive trail design solutions.
- To promote limited and passive recreational uses that do not have any negative environmental impacts.
- To reduce social impacts (e.g. privacy, security, etc) on surrounding neighbors.
- To provide planned opportunities for access and circulation.
- To design a trail that meets the needs and requirements of the users and respects aesthetic considerations.
- To provide opportunities for interpretation and education.

Management Principles:

- Provide opportunities for appropriate recreational enjoyment consistent with the Management Plan.
- Provide a trail that will withstand an appropriate amount of use and enjoyment by users.
- Assess, analyze, and fulfill user needs while ensuring ease of movement, safety, comfort, and protection of the environment.
- Develop a comprehensive and integrated approach to interpretation of the forest's natural values, ecological processes and cultural heritage.

- Provide signage and a trail guide to educate, and promote appreciation and protection of the environment.
- Ensure the cumulative effects of land use and activities within the forest are monitored, assessed and managed in a way that protects, restores and enhances the forest environment.
- Close surplus trails to reduce user impacts and monitor trail use and if necessary close trails temporarily to protect the environment and ensure user safety.

6.1.1 Detailed Trail Planning Recommendations

PUBLIC USES - WALKER WOODS and GLEN MAJOR FOREST

Passive resource based recreational uses are permitted, including hiking, horseback riding, cycling and cross-country skiing.

- Provide a natural terrain trail surface with some spot hardening or boardwalks in wet areas.

TRAIL LINKAGES

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

- Encourage trail links to Duffins Creek, Oak Ridges Moraine, Durham Forest, and the Waterfront Trail.

IMPLEMENTATION STRATEGY

The trails will be implemented in segments building on some of the existing routes. High priority areas are located where existing use is heaviest and where major improvements are required, such as erosion repairs and drainage problems. Existing trails through sensitive areas will be closed and rehabilitated to a natural condition. Signage will be used to identify closed trails and to inform users.

The Walker Woods and Glen Major Forest Trail Plan should be implemented in three phases:

- Phase One - 2003/2004 - Walker Woods and Glen Major Forest between Concession 6 and Concession 7
- Phase Two - 2005 - Walker Woods and Glen Major Forest West of Concession 6
- Phase Three - 2006 - Glen Major Forest- East of Concession 7

The Goodwood, Secord and Clubine Properties Trail Plan should be implemented in two phases:

- Phase One - 2005/2006 - Entire Secord and Goodwood Properties
- Phase Two - 2007 - Entire Clubine Property

MONITORING AND REVIEW

The trail plan provides initial development and management recommendations. As the plan is implemented and uses change, the plan should be monitored and reviewed.

6.1.2 TRAIL DESIGN STANDARDS

TRAIL DEFINITIONS

The profile of a typical trail shows the basic components that make up the user zone for any trail type.

Clearing Width

- The dimension measured across the trail from which all vegetation, rocks or other obstructions are removed so as not to obstruct movement along the trail.

Clearing Height

- The vertical dimension which must be cleared of all branches that would otherwise obstruct movement along the trail.

Tread Width

- The horizontal dimension across the trail which provides adequate space for comfortable and safe movement.

Tread

- The traveled portion of the trail right-of-way typically sloped or crowned to shed water.

Drainage

- Provision of methods to manage excessive water runoff (ditch, dip, waterbar, culvert, French drain, etc.).

Clearing Limits

- Point at which the disturbance to the natural environment is limited. Defines the trail Right-of-Way (R.O.W.).

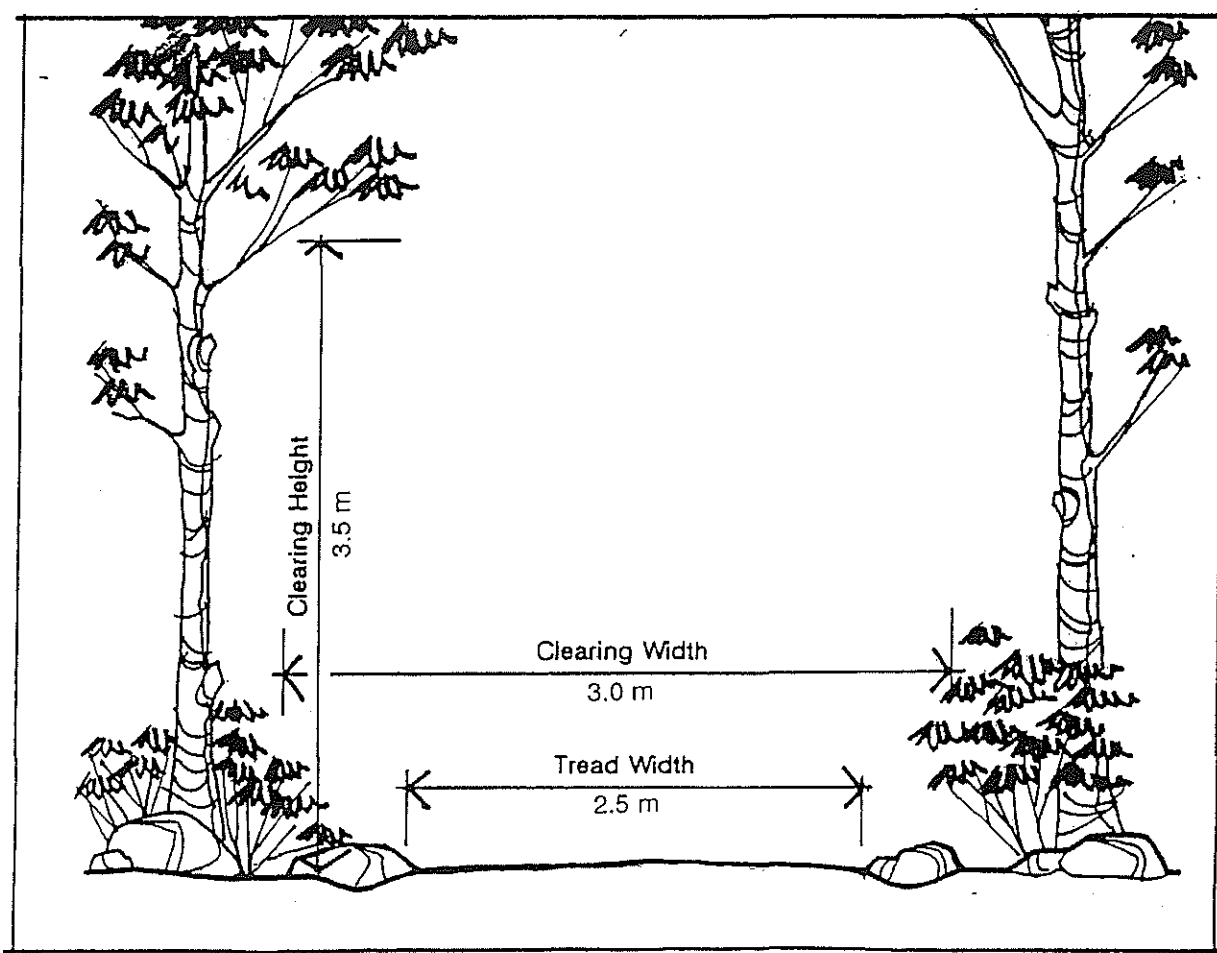
Walker Woods and Glen Major Forest Trail Standard

General Design Standards - Trans Canada, Oak Ridges and Multi-Use Trail

- Clearing Width: 3.0 metre
- Clearing Height: 3.5 metre
- Tread Width: 2.5 metre maximum
- Tread Surface: Native terrain
- Minimum Length: 1 kilometre loop minimum
- Optimum Length: 5-10+ km
- Desirable Grades: 0-15%
- Max. Sustainable Grade: 20%
- Desirable Duration: 1 - 2 hours loop
- Form: Loop or satellite loop (circular)

Minimum trail standard for a hiking trail provided for a low to moderate level of use is a cleared-right-of-way with minimum grubbing and no special tread surface, generally a natural trail.

Although multi-use trails generally allow a natural system to remain more-or-less intact because they do not alter the overall size and shape of habitat patches, trails may contribute to a reduction in the quality of the natural system. Therefore, careful trail planning, including decommissioning some trails, is recommended to protect the numerous vulnerable habitats at Glen Major.

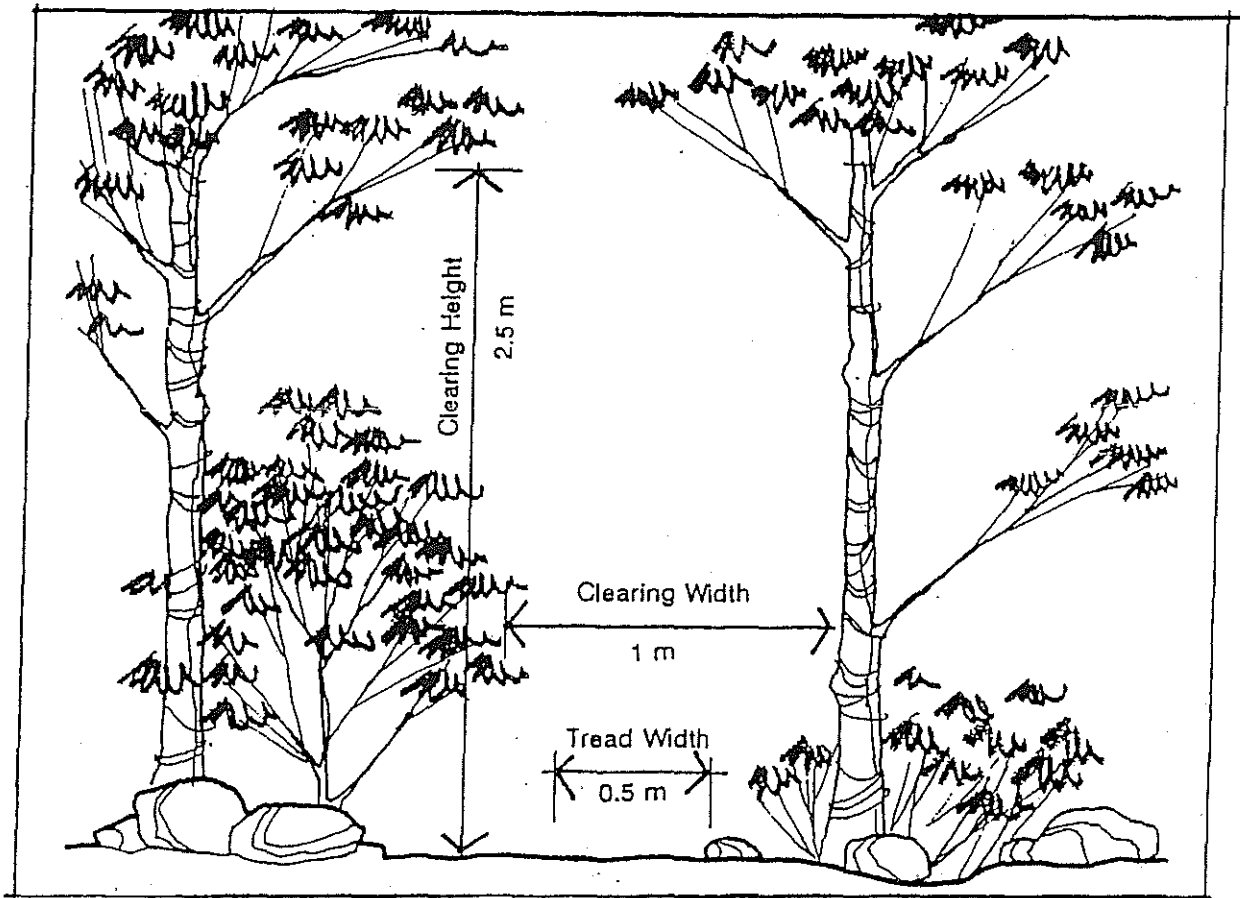


Note: These are general standards and are not intended for construction. Each trail should be designed based on its type, level of use and specific site conditions.

Walker Woods/Glen Major Forest/Goodwood/Secord/Clubine/Claremont Field Centre - Hiking, Trail Standard

General Design Standards - Hiking and Walking Trails

- Clearing Width: 1 metre
- Clearing Height: 2.5 metres
- Tread Width: 0.5 - 1.25 metres
- Tread Surface: Natural Terrain
- Minimum Length: 1 kilometre
- Optimum Length: 5 - 10 kilometre
- Desirable Grades: 0 - 20 % with maximum sustained grade of 25%
- Desirable Duration: 1 - 2 hours
- Form: Loop, satellite loop or maze



6.1.3 Trail Impacts and Mitigation Techniques

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

Clearing the trail route

- Route the trail to avoid important ecological elements, interpretive features, rare plants, and important habitat zones.
- Strictly control the limit of disturbance to within the defined R.O.W. Zone.

Human Contact

Wildlife species and plant communities have different environmental levels of tolerance to human activity which could result in abandonment of habitats or ecological imbalances.

Environmental impacts created by overuse can include:

- Trampled vegetation;
- Erosion on slopes;
- Compaction of soil;
- Increased root exposure;
- Trail widening around wet areas.

Actions should include:

- Avoid important habitat zones.
- Where there is question as to specific impacts, favour the environment.
- Locate activities for large groups and noisy recreational activities 100-200 m away from sensitive areas.
- Avoid the use of large scale equipment out of scale for the specific construction and schedule construction operations at times that do not conflict with critical phases of seasonal wildlife or plant community cycles.
- Provide access to sensitive habitat areas through small tributary trails and then only when kept to an acceptable level as determined by qualified staff (or discourage completely).
- Viewing stations allow visitors to view sensitive areas from suitable distances.
- Use can be controlled by making tributary trails dead end to minimize flow-through circulation.
- Design tributary trails to be suitably difficult to encourage only serious users. Lessen trail width and where applicable downgrade the trail surface. This will provide an immediate message to the user.
- Trail relocation.
- Restrict access to specific areas during critical seasons of the year;

Soil Erosion

Erosion affects functional utility, safety, ecological balance, and aesthetics. The effects are a loss of topsoil, root exposure, stream sedimentation, contamination of water supplies, slides and slumping. Erosion is caused by erosion susceptible soils (especially when wet), excessive removal of vegetation, excessive compaction due to trampling, uncontrolled surface runoff, and improper installation of bridges and culverts.

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

Trail-Side Trampling

Damage occurs to vegetation and soils by users who wander off trails. The causes include the trail being too narrow; too many users; ill-defined trail edges; difficult or unsafe trails (muddy, eroded, blocked, mud slides, etc.).

- Provide trail width that can accommodate expected traffic volume based on design standards.
- Provide widenings where people are likely to gather (viewing points, features of interest, displays, etc.).
- Raise the trail tread by using boardwalks.
- The trail width should be adequate to accommodate the expected traffic volume and allow for widening where people are likely to gather such as access points, viewing points, features of interest and interpretive displays.
- Management controls such as signage or temporary closures should restrict use to optimum levels.
- Frequent checks should be made to ensure that trails are not blocked or obscured by 'deadfalls'.
- Where there are problems keeping users on trails, logs, branches and rocks can be used to mark trail edges.

Short Cutting

Damage occurs to vegetation and soils by users who wander off trails. This is caused by the trail being too difficult or unsafe; user is attracted to an interesting feature off trail; or an easier route is visible.

- Use natural features such as land form and vegetation to block or screen potential shortcut routes. Placing rocks or planting shrubs provides a suitable natural deterrent.
- Restrict construction of switchbacks to only most essential circumstances as they quite naturally provide ample opportunity for shortcutting and will generally require a great deal of introduced deterrents such as planting or rock placement.
- Locate switchbacks with dense vegetation or rough ground between to eliminate the need for manmade barriers.
- Build in rough steps with boulders or logs on switchbacks to channel shortcutting traffic along a predetermined route.
- Adopt shortcuts which are superior to original routes as part of official route and close the original. Rehabilitate abandoned routes by natural plantings which closely resemble the native condition and vegetation.
- Close shortcuts which are hazardous or destructive, by placing obstruction at the entrance and along the route with rocks, branches, fallen trees, or new native plantings.

6.1.4 Construction

While ongoing use of trails creates impacts, the actual construction process results in a number of impacts to the environment. These can include pruning, removal of vegetation, and soil compaction caused by construction machinery repeatedly traveling over the same access route. Great care must be taken to control direct and indirect impacts during the construction process. Work done on existing and new trails should be completed so that the amount of disturbance to the site is minimized.

TIMING

- Timing of the construction is important. Wet/rainy periods and nesting/breeding seasons should be avoided to minimize impact.

CLEARING

The clearing operation not only refers to cutting of trees but the removal of all materials that may obstruct movement along the trail and create a potential hazard. Prior to clearing, a tree impact assessment will be completed that provides a description of the trees, numbers, species, condition and location to ensure appropriate trail routing with acceptable environmental impact. Large trees are to be felled, and stumps are to be cut off flush or preferably below grade and removed completely. Fallen trees should be cut into lengths that are manageable for removal from the trail. Complete flush-to-grade clearing will generally occur on the tread surface while the rest of the cleared R.O.W. will only see the removal of trees and large shrubs. Smaller shrubs and groundcover will remain.

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

SURFACING

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

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

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

BOARDWALKS

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

- Where drainage becomes a safety concern, boardwalks should be used. Boardwalks are required in a number of locations north of the Pickering-Uxbridge Townline in the Glen Major Forest on the Trans Canada Loop Trail and the Multi-Use Trail. Detailed site assessment should be conducted prior to construction.

BARRIERS

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

6.1.5 SIGNAGE

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

- Identification
- Direction
- Regulations
- Information/Interpretation

Location of signs is of utmost importance. All signs should be placed so that they face the anticipated direction of traffic, are unobstructed by vegetation, and are easy to read and understand. The colour and scale must be in keeping with the site conditions and the mounting height should fit the specific user.

PRIMARY TRAIL HEAD

There should be six primary trail head locations for Walker Woods and Glen Major Forest including:

- Intersection of Albright Road and Concession 6 *
- Concession 7, opposite Microwave Towers ✓
- Brock Road North of Uxbridge-Pickering Townline ✗
- Concession 6, 600 metres North of Uxbridge-Pickering Townline ✓
- Concession 7, 200 metres North of Uxbridge-Pickering Townline ✓
- Lake Ridge Road 800 metres South of Chalk Lake Road *

The facilities that should be provided at the Primary Trail Head includes:

- Parking
- General Signage with Identification, Direction, Regulations and Information about trail length, time and difficulty.
- Portable Toilet - To be determined as per site specific evaluation

SECONDARY TRAIL HEAD

There should be five secondary trail head locations for Walker Woods and Glen Major Forest including:

- Oak Ridges Trail as it enters North Walker Woods from the West ✓
- Concession 6, 400 metres north of Albright Road entering North Walker Woods ✓
- 500 metres west of Concession 6 and Albright Road ✓
- Concession 7, 600 metres South of Chalk Lake Road *
- South West corner of Glen Major Forest, north of Rail Line ✓

The facilities that should be provided at the Secondary Trail Head includes:

- General Signage Information with Identification, Direction, Regulations and Information about trail length, time and difficulty.

TRAIL MAP & GUIDE

A trail map and guide should be developed and made available to users for pick-up at primary trail head locations. Information in the guide should include:

- the location of formal trails, points of interest and rules of conduct for trail use ("Take nothing but pictures and leave nothing but footprints");
- a trail map with interesting features and facts about the natural and cultural heritage of the area that is cross referenced to numbered sign posts.

The trail map and guide should be made available to the trail user at trail head locations, public buildings and the TRCA web site.

INTERPRETIVE SIGNS

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

- highlight natural, cultural heritage facts and features;
- increase public awareness of conservation;
- increase public appreciation and respect of natural and cultural resources.

6.1.6 TRAIL MANAGEMENT

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

A Trails Implementation Committee should be established to assist TRCA with ongoing trail management and maintenance.

USER MANAGEMENT

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

MANAGING TRAIL USE

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

Advisory restrictions include posting of notices to warn users of ongoing maintenance work, fallen trees or other natural conditions which potentially restrict trail use. Signing should be positive and communicate a 'good host' image and explain why a particular behaviour is requested. Avoid negative signs.

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

6.1.7 MAINTENANCE

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

SURFACE TREATMENT

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

EROSION

- Monitor trails for erosion damage.
- Fill channels eroded through trails with appropriate material and compact.

- Serious damage should be given prompt attention while diverting trail traffic for safety reasons.

LITTER REMOVAL

- Ensure that garbage left along the trails by users or blown in from adjacent properties is picked up on a regular basis.
- Garbage checks should be made periodically, especially in high use areas.
- Bottles and tin cans should be separated from other garbage and be recycled.
- If excess litter becomes a problem, consider organizing clean-up days and providing scavenger proof disposal bins at access points and trail heads.

INVASIVE VEGETATION CONTROL

Plants include Dog Strangling Vine, Purple Loosestrife, Garlic Mustard, European Buckthorn, Dame's Rocket, Norway Maple, Manitoba Maple, Russian Olive, Japanese Knotweed

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

PRUNING AND TRIMMING

- Major limbs or trees adjacent to the trail which are in poor condition should be removed.
- Branches, limbs, and any other debris should be removed from the trail tread and piled to encourage wildlife use or as trail edges.
- Using pruners or loppers, prune back branches leaning into the trail R.O.W. and prune off at ground level any woody sapling growth in the R.O.W.
- Trails require sensitive vegetation control on a semi-regular basis to ensure the path is not crowded or blocked while maintaining natural character along the path edge.

WINDFALLS/HAZARD TREE REMOVAL

- Monitor trails for fallen trees, limbs, and debris and coordinate their removal as soon as possible.
- If material cannot be removed immediately, eliminate dangerous hanging branches and trunks or 'leaners'. Cut a path through fallen tree debris to allow user thoroughfare and leave remainder in place. Extra debris in the R.O.W. may be cleaned up at a later date.
- Tree trunks which have fallen over pedestrian trails may be left to deter vehicular traffic if it is not too difficult for pedestrians to cross.
- Redirect trail users during the clearance process or close the trail to ensure user safety.
- Remove debris entirely in trail head areas. In natural areas, the trunk and debris may be left to encourage wildlife use but it should be deposited out of sight from the trail.
- Ensure the trail is returned to its intended condition after maintenance has been completed. This may involve repairs to the trail surface.

STRUCTURES

- Inspect all structures for safety and stability on a yearly basis but a monthly check is also useful in preventing major damage or accident.

- Boardwalk decking and support members should be monitored on a regular basis and broken or rotting wood should be replaced immediately.

SIGNAGE

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

6.1.8 TRAIL DEVELOPMENT COSTS

Preliminary cost estimates for each phase of development are provided for budget purposes. The costs outlined are in 2003 dollars and are guidelines only. Cost savings can be incorporated with the help of volunteer labour for appropriate tasks. These savings have not been determined at this time.

Phase One Trail Development at Walker Woods and Glen Major Forest - 2003/04 - \$75,000
 • Parking/Signage/Boardwalks/Trail Routing Improvements/Trail Guide

Phase Two Trail Development at Walker Woods and Glen Major Forest - 2005 - \$50,000
 • Parking/Signage/Trail Routing Improvements

Phase Three Trail Development at Walker Woods and Glen Major Forest - 2006 - \$35,000
 • Parking/Signage/Trail Routing Improvements/Trail Guide

Phase One Trail Development at Goodwood and Secord Properties - 2005/06 - \$75,000
 • Parking/Signage/Boardwalks/Trail Routing Improvements

Phase Two Trail Development at Clubine Properties - 2007 - \$45,000
 • Parking/Signage/Trail Routing Improvements/Trail Guide

6.1.9 MONITORING AND MANAGEMENT SYSTEMS

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

- ESTABLISH MAINTENANCE OBJECTIVES

These may vary from trail to trail depending on traffic flow or special trail features such as ecologically sensitive areas. The major objectives will include ensuring user safety and maintaining the trail and its amenities at a level consistent with the design and planning standards.

- **EVALUATE TRAIL NEEDS**

This process of making lists of maintenance tasks and seasonal requirements would be required to satisfy the maintenance objectives.

- **DEVELOP A MAINTENANCE PROGRAM**

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

- **ESTABLISH A TRAIL MONITORING SYSTEM**

To facilitate prompt repairs along a trail system or determine whether or not a trail needs additional seasonal maintenance, it is important to monitor the trails regularly. This involves a thorough inspection of the trails, reporting all deficiencies and their location should be reported in a log format. Specific tasks can be assigned a code number for ease of reference and execution by staff.

- **SCHEDULE AND RECORD MAINTENANCE**

Regular maintenance can be scheduled on a yearly basis. This forms the basic structure of the maintenance program for which labour and equipment can be allocated but special maintenance (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 (sun, rain, brush, bog, etc.). These work reports should be kept in files pertaining to each particular trail. The reports allow for future reference regarding the condition of the trail and can be used to develop activity summary sheets or work standards. Activity summaries should be reviewed every two or 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.

- **MAINTENANCE EVALUATION**

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

6.1.10 VANDALISM

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

Although very little will stop the determined vandal, there are many techniques to deter casual vandalism or bring the vandal to justice. Bollards, posts, or gates should be used to control unwanted vehicular access. Semi regular police patrols can be used to monitor sections of trail which are particularly attractive to vandals. Strategically placed lighting will discourage destructive activity. Perhaps the most important effort which should be made in the prevention and

apprehension of vandalism is the education of the public. Various media, including television and newspaper as well as education programs in schools can raise public awareness regarding the issues which surround vandalism.

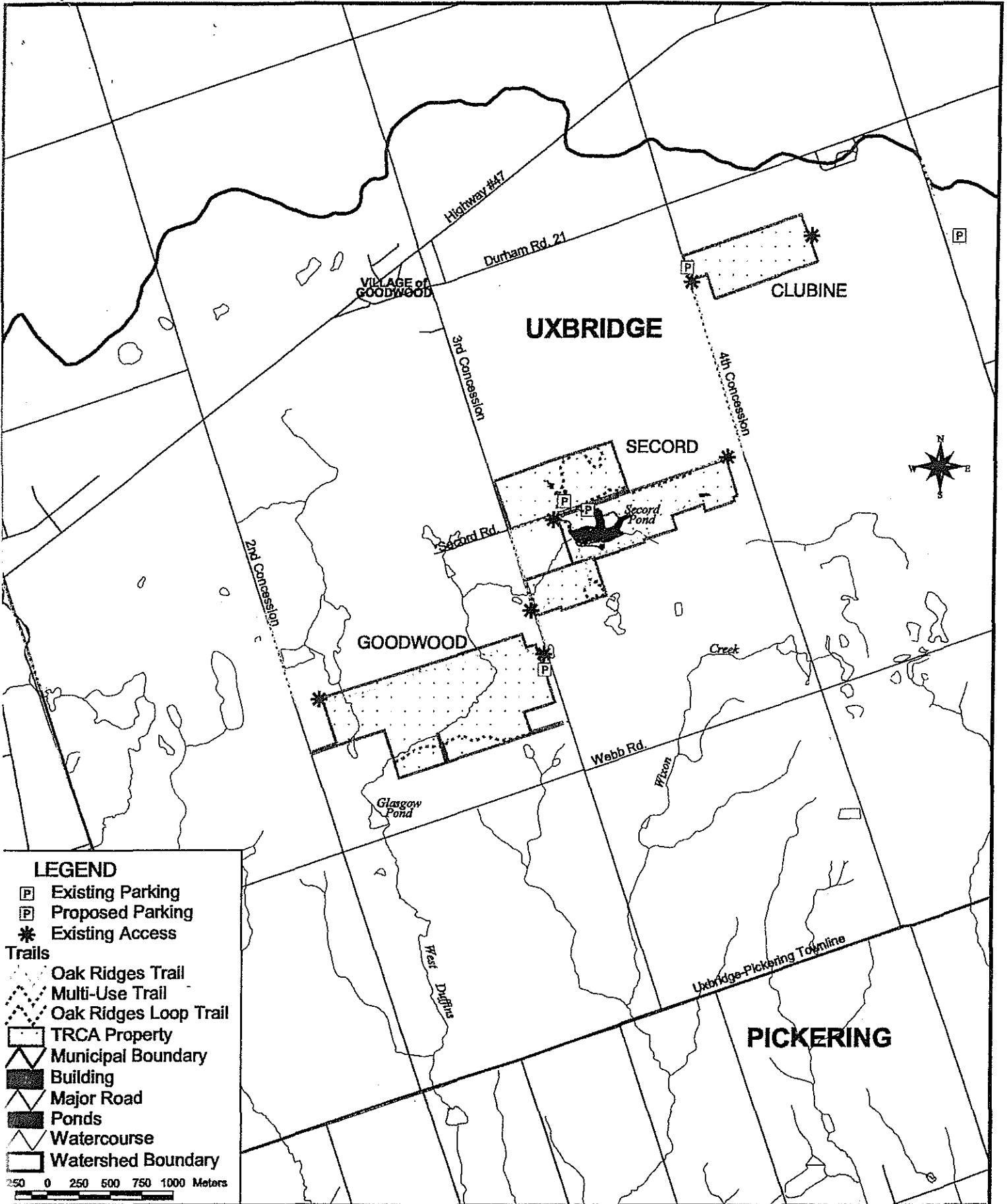
Within parks and along trails, orientation displays can be used to educate the trail users about the damages of vandalism. Trail brochures and eye-catching posters can also service similar functions. Outreach programs to children in their classrooms as well as sponsoring outdoor education programs allow the Authority to teach respect for the facilities and foster pride in the natural environment. Public scorn for vandalism is easily raised by such publicity and should be directed into positive activities such as Neighbourhood Watch and other volunteer surveillance programs.

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

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

6.1.11 SUMMARY

This plan provides an initial development and management strategy for the TRCA properties. It is essential that, as the plan is implemented and uses change, the entire plan should be monitored and reviewed.



LEGEND

- Existing Parking
- Proposed Parking
- Existing Access

Trails

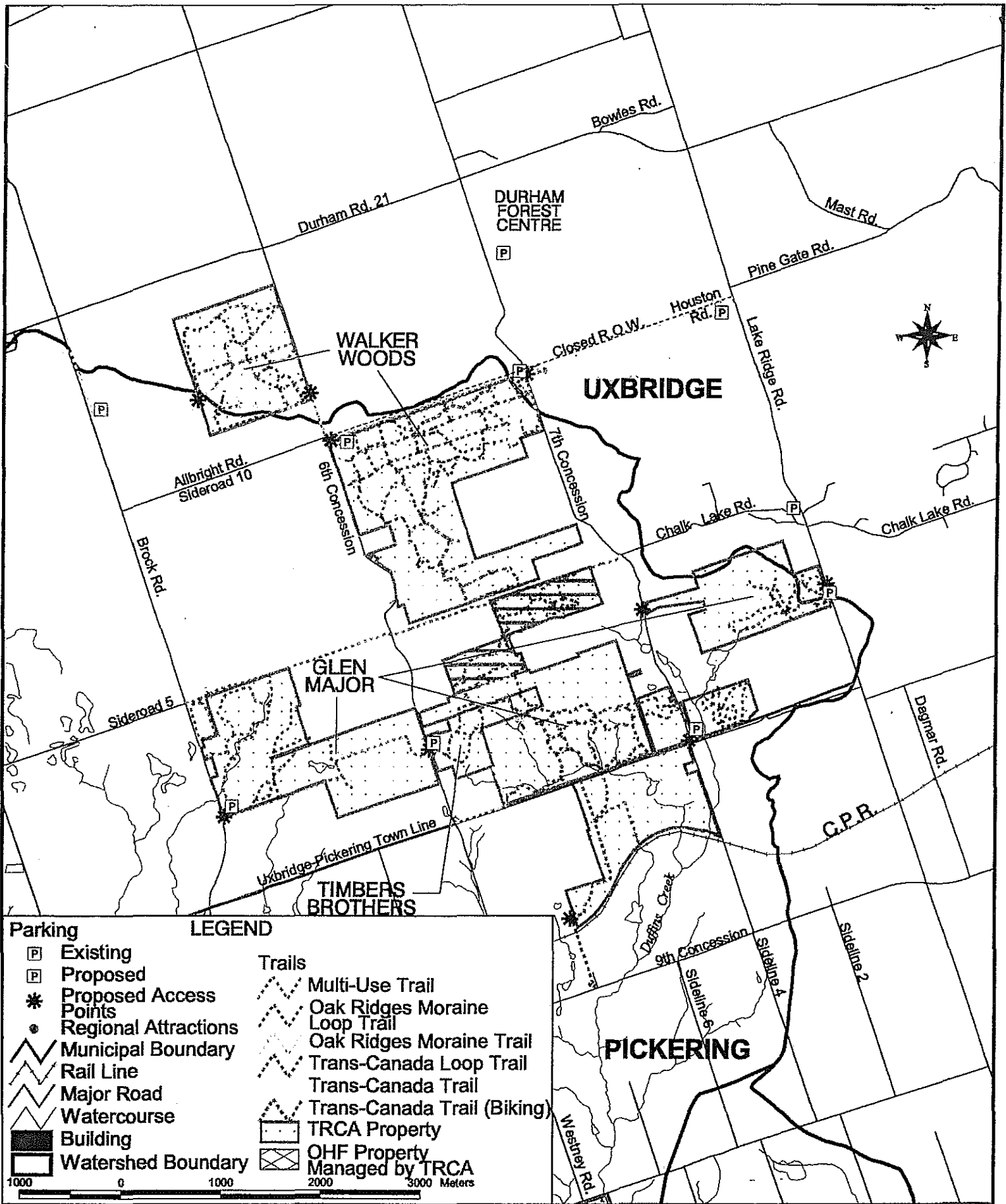
- Oak Ridges Trail
- Multi-Use Trail
- Oak Ridges Loop Trail
- TRCA Property
- Municipal Boundary
- Building
- Major Road
- Ponds
- Watercourse
- Watershed Boundary

250 0 250 500 750 1000 Meters

**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 10a - GOODWOOD - SECORD - CLUBINE
Trail Plan**





LEGEND

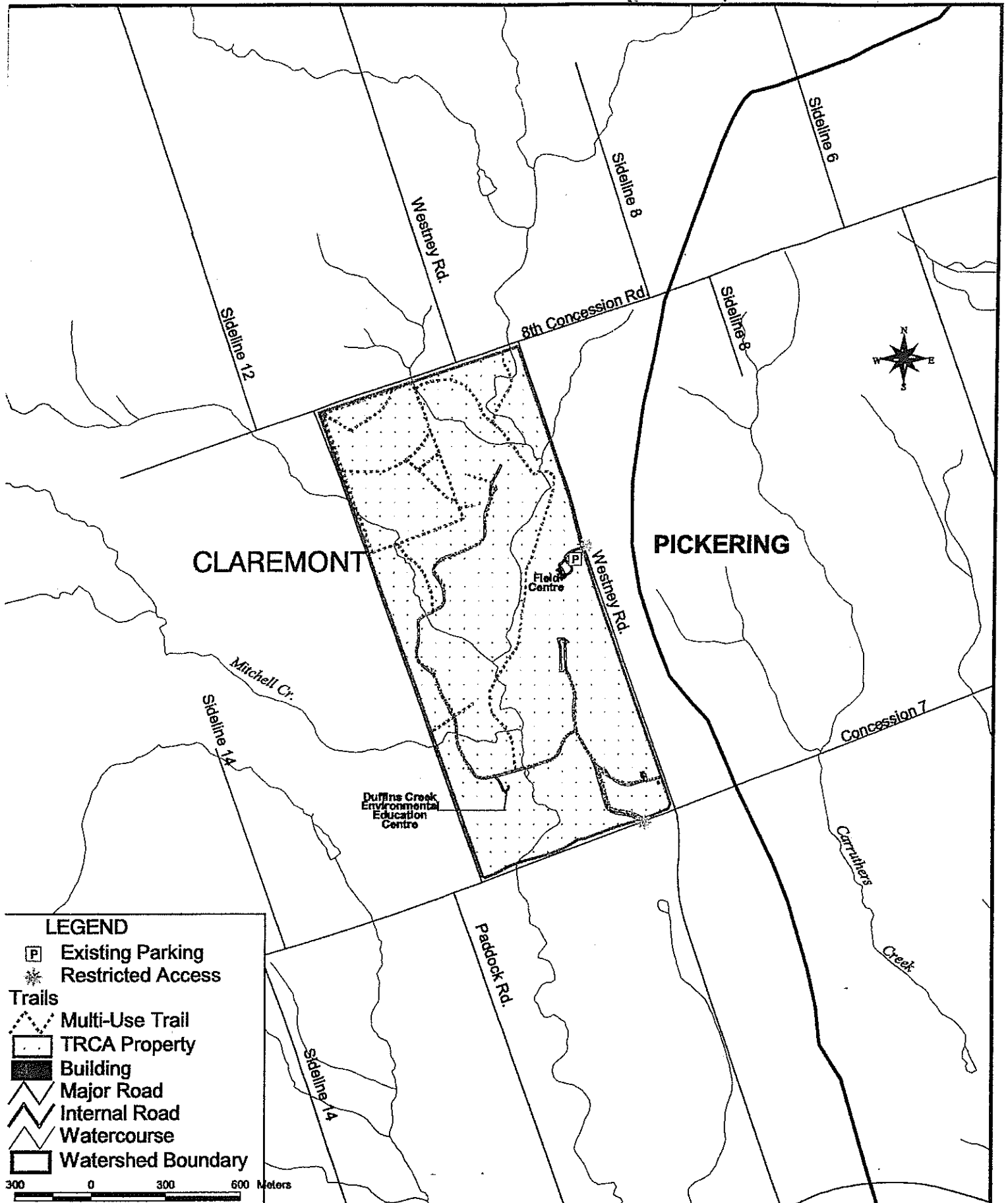
Parking	Trails
Ⓟ Existing	Multi-Use Trail
Ⓟ Proposed	Oak Ridges Moraine Loop Trail
* Proposed Access Points	Oak Ridges Moraine Trail
● Regional Attractions	Trans-Canada Loop Trail
▬ Municipal Boundary	Trans-Canada Trail
▬ Rail Line	Trans-Canada Trail (Biking)
▬ Major Road	TRCA Property
▬ Watercourse	OHF Property
■ Building	Managed by TRCA
▬ Watershed Boundary	

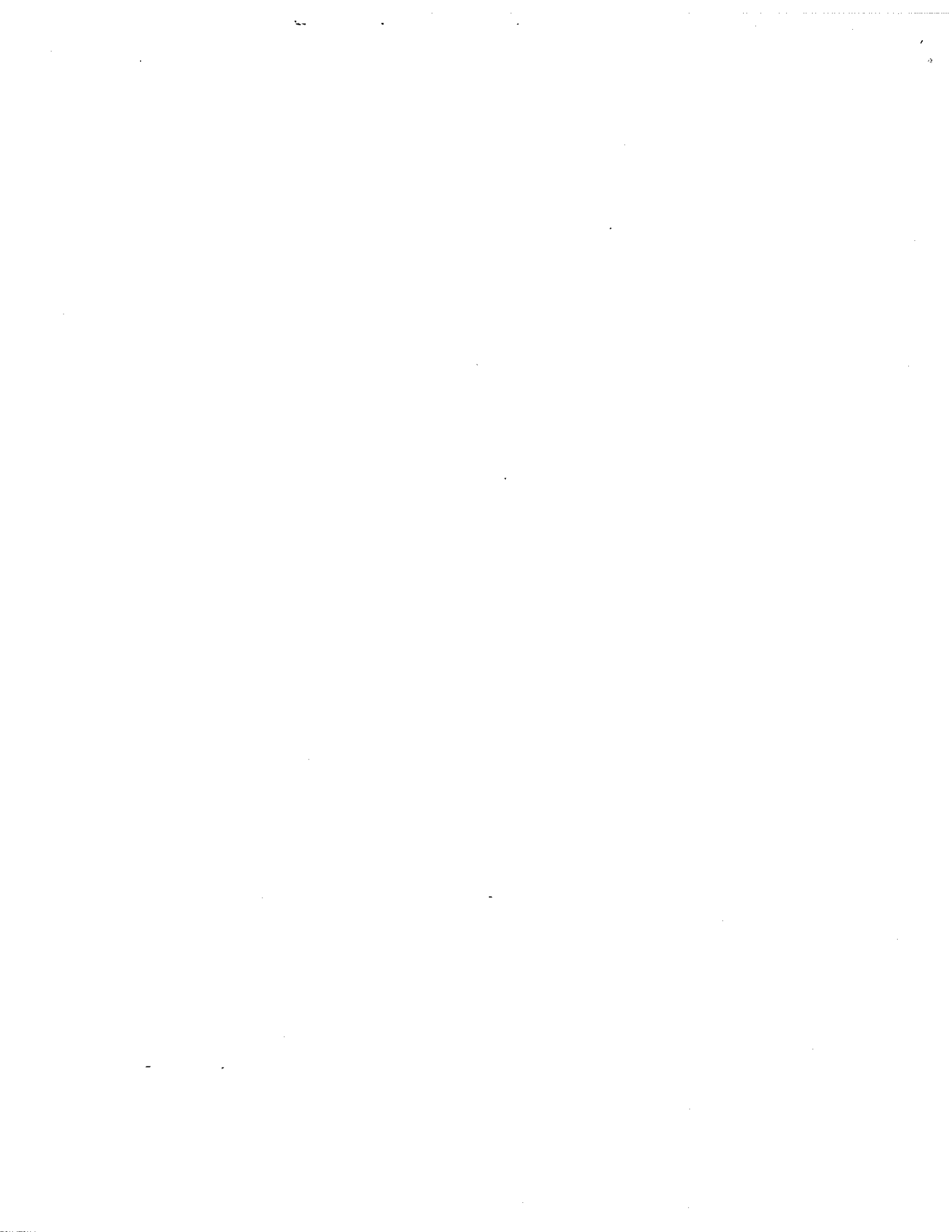
1000 0 1000 2000 3000 Meters

**DUFFINS HEADWATERS
MANAGEMENT PLAN
FOR TRCA PROPERTIES**

**Map 10b - WALKER WOODS - TIMBER
BROTHERS - GLEN MAJOR
Trail Plan**







CHAPTER SEVEN

PLAN IMPLEMENTATION

It is anticipated that the TRCA properties located in the Duffins Creek Headwaters will become a model of sustainability that will be achieved by protecting and enhancing the area's natural environment while providing environmental, recreational and outdoor education benefits to the community through self-sustaining revenues and community stewardship. It is therefore imperative that the management of the properties be based on sound environmental management principles, collaboration with partner municipalities, interest groups and the local community.

7.1 FUTURE MANAGEMENT

7.1.1 Agency and Municipal Stewardship

The natural, cultural, and recreational resources that exist on the Duffins Creek Headwater properties, provide benefits beyond the TRCA property boundaries. These resources extend into the surrounding landscape therefore, integration with the community was considered throughout the planning process. In support of the policies of the TRCA, 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 to maintain terrestrial natural habitat connectivity and interior habitats.
- Create publicly accessible trail systems that will connect communities to the Oak Ridges Moraine, the Trans Canada Trail and the Waterfront Trail.
- Promote private land stewardship that increases awareness about Best Management Practices and creates opportunities to engage landowners in the protection and enhancement of the TRCA properties and its valuable resources.

7.1.2 Community Stewardship

The Duffins Creek Headwater properties will continue to provide opportunities for outdoor recreation, conservation education, and nature appreciation to the surrounding communities. The area will also provide many health and economic benefits to the community. The key roles of the community to fulfil the goal and objectives of this Management Plan include:

- **Establish Two Stewardship Committees**

Two Stewardship Committees should be established, one for the East Duffins Creek Headwaters and one for the West Duffins Creek Headwaters, to assist with the implementation of this Management Plan. These committees could assist in the review of all proposed public uses and related activities for the property. The committees could also assist with specific aspects such as trails, education, and communications. Another important role will be to assist the TRCA in raising funds to implement site development, maintenance, environmental protection and restoration activities.

A list of general tasks that the Stewardship Committees may implement, is identified as follows:

- Prepare a communications plan to raise awareness and inform surrounding communities about the TRCA properties.
- Assist with the preparation of a detailed restoration plan and implementation schedule.
- Establish a network of groups and individuals interested in participating in a volunteer program.
- Prepare access and trail development plans.
- Prepare and install natural and cultural heritage interpretative signs.
- Assist TRCA in implementing the various stewardship programs including the Rural Clean Water Program.
- Develop educational resources and tools for private land owners and visitors.
- Build trail heads with signage and appropriate parking.
- Monitor the trail for invasive plant material and prevent their spread by using barriers and other eradication techniques.
- Monitor the presence of noxious weeds on site and remove as necessary.
- Organize celebration events to increase people's awareness.
- Assist TRCA in implementing the Terrestrial Natural Heritage Monitoring Program.
- Secure financial and in-kind resources to undertake the work.

Private Land Stewardship

Adjacent landowners and users of the TRCA properties can contribute to ensure that the surrounding landscape does not negatively impact the environmental quality of this unique natural area:

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

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

7.1.3 PUBLIC USE

It is critical that the Trail Plans, which were developed for this Management Plan, be completed and implemented in order to ensure protection of the environment, appropriate trail use and user safety. The trail plans were developed through extensive consultation with all user groups and the proposed plans are fully supported. In addition, the concept plans which have been developed should be further refined and implemented. These plans if realized will help TRCA to increase user enjoyment, protect the environment and increase revenues.

7.1.4 SAFETY AND SECURITY

Discussions will be made with police and other emergency services providers to identify their concerns and questions regarding accessing the lands for patrol and emergency response purposes. As a result of the lands natural character, many areas are inaccessible by conventional response vehicles (Fire, Ambulance and Police). Special considerations are therefore required including:

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

7.2 MAINTENANCE OF MANAGEMENT PLAN

At meeting #6/03, held on July 25,2003, The Toronto and Region Conservation Authority approved the Duffins Creek Headwaters Management Plan for TRCA Properties.

Resolution #A158/03

“THAT the Duffins Creek Headwaters Management Plan for TRCA Properties, dated June 2003, as attached, be approved;

THAT staff circulate the Duffins Creek Headwaters Management Plan for TRCA Properties to the Ontario Heritage Foundation, the Township of Uxbridge, and the City of Pickering for endorsement;

THAT staff send a letter of thanks to the members of the Duffins Creek Headwaters Advisory Committee for their dedicated assistance with the preparation of the Management Plan;

THAT copies of the Duffins Creek Headwaters Management Plan for TRCA Properties be circulated to the members of the Advisory Committee, the Township of Uxbridge, the City of Pickering, and other appropriate agencies, groups and individuals;

THAT staff work with the Township of Uxbridge staff to investigate options and develop a strategy to address limiting access on closed road allowances that are adjacent to TRCA owned land;

THAT staff prepare a report in fall of 2003 on Stewardship Management Plan implementation and the potential for integration with the Watershed Plan for Duffins Creek and Carruthers Creek;

AND FURTHER THAT staff be directed to utilize the Strategy for Public Use on Conservation Authority Lands (1995) when considering new public uses on the TRCA's Duffins Creek Headwater Properties".

7.2.1 PLAN REVIEW AND AMENDMENT

The Management Plan will undergo a review every seven to ten years. If major revisions are necessary to reflect changing environmental, social, or economic conditions, they will only be done after consultation with affected groups and individuals. Revisions of the Plan will be in keeping with the original stated vision and objective of the Plan to protect the natural, recreational and educational values of the property.

The Management Plan identifies potential public use zones. Any specific uses proposed within these areas will be screened and assessed according to the *Strategy for Public Use of Conservation Authority Lands* (1995). A community consultation process will also be employed at this later stage of planning to ensure local and regional interests have input into the concept and detailed design review. The Stewardship Committee will provide input on all such proposals. The screening process for specific public uses will ensure that all proposed uses, facilities, and landscape changes will be thoroughly examined and designed to minimize disruption, and to protect, enhance, or restore the natural values of the area.