Greenwood Conservation Area Management Plan

A Report of the Greenwood Conservation Area Management Plan Advisory Committee, Toronto and Region Conservation and Town of Ajax

Toronto and Region Conservation for The Living City

Member of Conservation Ontario Natural Champions

Ajax By the Lake

Greenwood Conservation Area Management Plan

Prepared By:

The Greenwood Conservation Area

Management Plan Advisory Committee

Toronto and Region Conservation

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Toronto and Region Conservation for The Living City

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The following Vision Statement was developed by the Greenwood Conservation Area Management Plan Advisory Committee, and together with the accompanying goal, objectives and management principles (See Chapter 2), should guide all current and future actions.

VISION STATEMENT

The Greenwood Conservation Area, with its unique natural features, including environmentally significant areas, spectacular vistas, healthy and diverse forests, regenerating areas, and a vibrant fishery, will become a model for public land stewardship. The property will be carefully managed and monitored, using an approach which balances the ecological, social and economic needs of the natural and human communities of the area. This approach will protect, conserve and regenerate the ecological integrity of the area, while ensuring the long-term sustainability of the outstanding environmental features and natural systems. Human activities and appropriate public uses will occur in harmony with the ecosystems of the property.

Acknowledgements

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

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CHAPTER 1 – INTRODUCTION

1.1 OVERVIEW

The Greenwood Conservation Area Management Plan provides direction to protect, conserve and restore the valuable ecological features and functions of the site, while guiding the current and potential future public uses of the area. This management plan arose as part of a management agreement and partnership with the Town of Ajax, which actively manages this conservation property within its municipal boundary.

The management planning process occurred in three phases which consisted of, among other actions, compiling background materials and research; holding public information and consultation sessions; holding Advisory Committee meetings; developing a vision, goal and objectives; and developing this management plan. The plan itself describes and evaluates the property based on relevant plans and policies, existing resource inventories and environmental conditions and site limitations and opportunities. Additionally, the plan identifies specific management zones for the site, which delineate and guide the types and levels of appropriate activities. Finally, the plan makes recommendations for future initiatives, including the protection of natural features and habitat regeneration based on an ecosystem approach to planning and management.

1.1.1 Towards a Living City Region

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

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

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

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

- Terrestrial Natural Heritage Strategy
- A Watershed Plan for Duffins Creek and Carruthers Creek

1.1.2 TRCA's Terrestrial Natural Heritage Approach

The approach used to develop this management plan recognizes the implications of rapid urbanization in the Greater Toronto Area. This approach is based on the principle that ensuring regional health requires more than protecting rare plant and animal species and environmentally significant sites.

The approach considers the site within the context of the region and regional pressures. It (1) provides clear and detailed direction for gathering and analyzing information about natural habitats, vegetation communities and species, and (2) 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 contribute to 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 watershed and subwatershed
- Municipal areas

A key component of TRCA's Terrestrial Natural Heritage approach is the scoring and ranking of vegetation communities and fauna species. The ranking information is used to determine if any species or vegetation communities of concern exist on the site. A second key component of the approach is that terrestrial natural heritage indicators and measures 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
- Biodiversity

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

1.1.3 A Watershed Plan for Duffins Creek and Carruthers Creek

Recommendations from this watershed plan were integrated into the Greenwood Conservation Area Management Plan to ensure a consistent watershed management approach.

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

- Net gain
- Environment first
- Balanced land use
- Human health and safety
- Everyone counts

The watershed plan promotes 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) that utilizes the principles of Smart Growth. The plan also recognizes linkages between our own human health and the health of our environment.

Seven objectives will measure the plan's success in achieving sustainable and healthy watersheds for Duffins Creek and Carruthers Creek. These include:

1. Strengthened foundations for protecting and enhancing the natural diversity of the Duffins Creek and Carruthers Creek watersheds, and a formal monitoring and reporting system to say clearly where we stand
2. Improved water quality conditions in Carruthers Creek and Duffins Creek and habitats, and the provision of safe drinking water
3. Increased knowledge of human and natural heritage resources in these watersheds, and the development of educational and outreach programs that support and apply this new knowledge base in the two watersheds and beyond
4. Increased opportunities for watershed residents and stakeholders to have a greater say in how these places are used and managed
5. Expanded knowledge and refined planning and management practices to reflect the importance of sustaining these systems

6. Expanded existing, and establishment of 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

7. Encouragement of private landowners to manage and exercise good stewardship of their lands to promote watershed sustainability

1.1.4 TRCA and Conservation Lands

TRCA's goal 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 STUDY PROCESS

Planning efforts show 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 a variety of uses for public lands, including outdoor recreation, ecological restoration and others. The provision of public uses on TRCA-owned land must consider economic factors and the recreational needs of the community, as well as ensure the natural landscape is protected and properly managed.

TRCA initiated the preparation of a comprehensive management plan for the Greenwood Conservation Area (GCA) in spring 2002. At Authority meeting #6/02 held on June 21, 2002, TRCA approved the process for preparing a management plan for the GCA.

Resolution # A155/02

"THAT staff be direct to assist the Town of Ajax with the development of a Greenwood Conservation Area Management Plan;

THAT staff be directed to establish an Advisory Committee, which would include members of the public, interested community groups, the Town of Ajax and the City of Pickering to assist with the development of the plan and facilitate the opportunity for public input;

THAT the management agreement with the Town of Ajax for the Greenwood Conservation Area be renewed for one year;

AND FURTHER THAT Authority staff work with municipal staff towards consolidating these lands and other suitable green space lands under a comprehensive management agreement with the Town of Ajax. "

The management plan was undertaken in three phases as follows:
Phase 1
– Prepare Greenwood Conservation Area Management Plan Background Report containing the following information:

- Review of existing plans and studies
- Summary of existing and proposed land use, municipal services, road classifications and property ownership
- Description of the current public uses and types of recreation activities occurring on the property and within the surrounding communities
- Description of the natural and cultural heritage, recreation and education resources

– Establish Advisory Committee.
– Develop project terms of reference.
– Hold public information session.

Phase 2
– Develop plan vision.
– Develop questionnaire and reports.
– Develop draft management zones.
– Develop draft management and implementation recommendations.
– Circulate management plan newsletter.
– Hold public meeting to present draft vision, goal and objectives, and draft management zones.
– Develop trail plan.

Phase 3
– Refine and finalize management zones.
– Finalize plan.
– Integrate plan with Town of Ajax plans, City of Pickering plans and A Watershed Plan for Duffins Creek and Carruthers Creek.
– Hold public meeting to present final draft plan.
– Hold public meeting to present plan and recommendations.
– Plan review with Town of Ajax, TRCA and other government agency staff.
– Submit plan for:

- Endorsement by Advisory Committee
- Approval by Town of Ajax
- Approval by TRCA

1.3 THE ADVISORY COMMITTEE

The Greenwood Conservation Area Management Plan Advisory Committee consisted of representatives from the following groups and municipalities:

- Town of Ajax
- Ajax Recreational Advisory Committee
- Ajax Environmental Advisory Committee
- Heritage Ajax
- Duffins Creek Task Force
- TRCA

The Advisory Committee assisted TRCA staff to finalize the project terms of reference, establish vision, goal, and objectives, determine the management zones and management recommendations and develop the trail plan and concept. 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:

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

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

1.4 PUBLIC CONSULTATION

At the outset of the management plan, it was agreed that public use, enjoyment and stewardship of TRCA's GCA would be important to the community. Consequently, the public had to 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 site
- Public meetings to present the background information, plan vision, proposed management zones, concept plans, trail plan and management recommendations

In general, the public responded very favourably to the proposed management plan. They found its vision, goal, objectives and management principles to be completely appropriate. The public preference was to keep as much of the planning area as natural as possible, with the majority of responders 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.

As part of the public consultation process, a questionnaire was distributed to communities surrounding the planning area, including Greenwood, Locust Hill and Ajax. Highlights from the questionnaire process included:

- One-third of respondents stated that they visit the GCA on a weekly basis.
- Walking and hiking were the most popular recreational activities cited, receiving 76% of participant responses.
- 40 per cent of respondents stated that they would not be in favour of the addition of recreational activities or facilities at the GCA, and 28% voted in favour of additional hiking trails.
- 97 per cent of respondents voted dirt bike use as the LEAST favourable potential activity – in other words, they do not want to see this activity occurring in the GCA.
- Area users commented on the need to improve washroom facilities and parking, as well as trail signage in the GCA.
- Appendix A contains a detailed summary of the compiled public questionnaire responses and comments. The original document is available from TRCA upon request.

1.5 LOCATION, SITE DESCRIPTION AND LAND USES

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

The GCA comprises approximately 283 hectares of greenspace within the Duffins Creek Watershed, which is located in the Regional Municipality of Durham, Town of Ajax and City of Pickering (See Map 1 – The Duffins Creek Watershed). The area offers

a variety of low- and medium-intensity public use opportunities to visitors, including hiking, cross-country skiing, picnicking, fishing, group camping and soccer playing, among others. The GCA also features conservation opportunities, former aggregate extraction sites and forest management programs. Each of these land uses affects the character and ecological functioning of the GCA, and must be carefully considered to ensure the long-term sustainability of the area's natural, resource and cultural features. Additionally, the GCA boasts a wealth of ecologically diverse vegetation communities, flora and fauna (plant and animal) species of concern and interior forest (See Map 3 – Interior Forest Areas within the Greenwood Conservation Area and Map 4 – Important Environmental Areas).

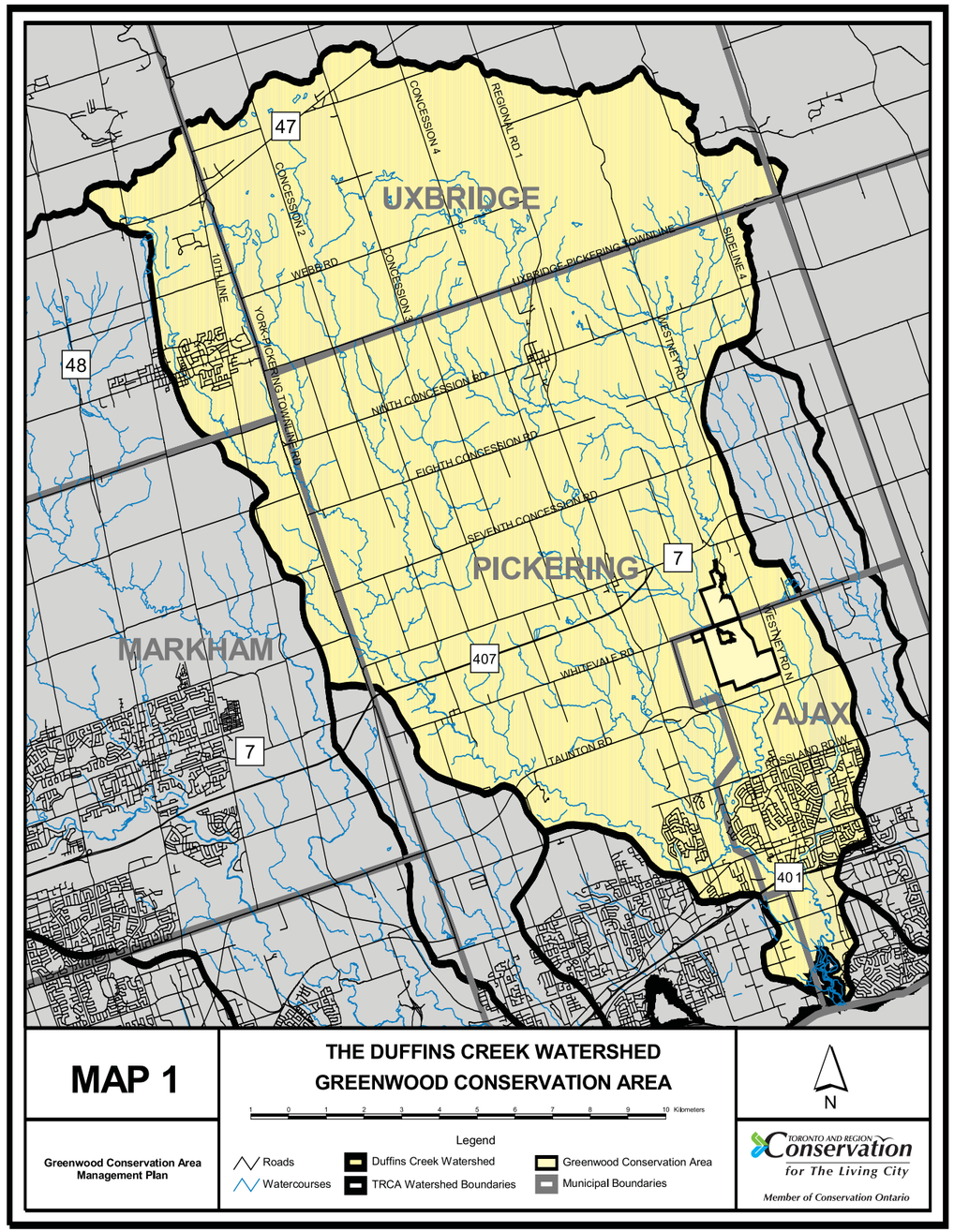
The GCA's location in the southern portion of the Duffins Creek Watershed, close to urban centres, makes it an important area for the provision of greenspace and natural ecosystem processes within the surrounding urbanizing environment. As a natural area within the Duffins Creek Watershed, the GCA provides habitat in the form of mixed upland forests, cedar swamps, wetlands, meadows, riparian habitat and a vibrant fishery.

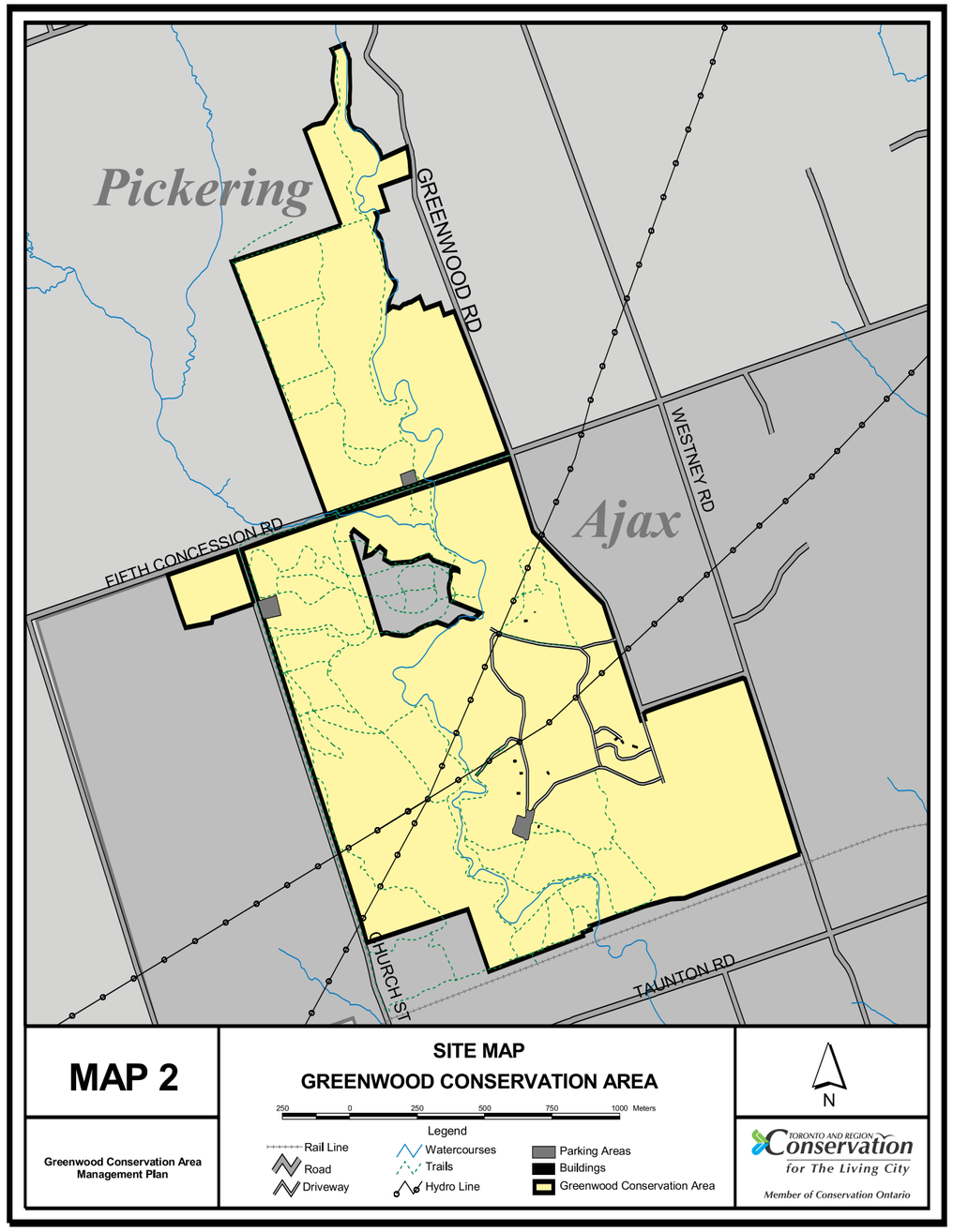
In the portion of the GCA located within the Town of Ajax, the lands east of the Duffins Creek are dedicated largely to low-impact public uses and access, including picnicking areas, soccer fields, parking, and other facilities and amenities. This area is also home to summer YMCA camps and other group camp sites. A loop trail also exists, with an access point situated close to the parking lot and access road. Thus, this portion of the property is more developed in terms of public uses than the lands west of the creek.

A large tract of healthy, diverse forest to the west of the Duffins Creek fulfills the habitat requirements for many species of flora and fauna, including many species of concern. This section of the GCA also contains several softwood plantations, part of TRCA's Managed Forest Program. Plus, a variety of hiking trails dissect this large forested area, providing access to the scenic landscape.

The Town of Ajax manages this property, under management agreement with TRCA. Responsibilities include day-to-day operations, and maintenance and upkeep of trails, facilities and infrastructure. Town staff also develop and coordinate programs, activities and events, such as the yearly fall festival "Pumpkinville."

The Rodar property, located in the City of Pickering and managed by TRCA, is less developed. It contains a small parking area, trail system, successional meadows, plantation forests and mature forests. This portion of the GCA offers opportunities for passive public use, including an interpretive trail systems and associated programs. Once actively managed by TRCA, the area provided group camping opportunities for Scout and Guide groups in the now-regenerating meadows situated on the tablelands west of the Duffins Creek. Due to financial constraints, this portion of the GCA property is no longer managed as an active site. As a result, any public uses at the site will be restricted to passive uses such as access to the Trans Canada Trail and other local trails (See Map 2 – Site Map).




Pickering
Ajax
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WESTNEY RD
FIFTH CONCESSION RD
CHURCH ST
TAUNTON RD
MAP 2
SITE MAP
GREENWOOD CONSERVATION AREA
250 0 250 500 750 1000 Meters
Legend
Rail Line
Road
Driveway
Watercourses
Trails
Hydro Line
Parking Areas
Buildings
Greenwood Conservation Area
N
Greenwood Conservation Area Management Plan
TORONTO AND REGION Conservation for The Living City
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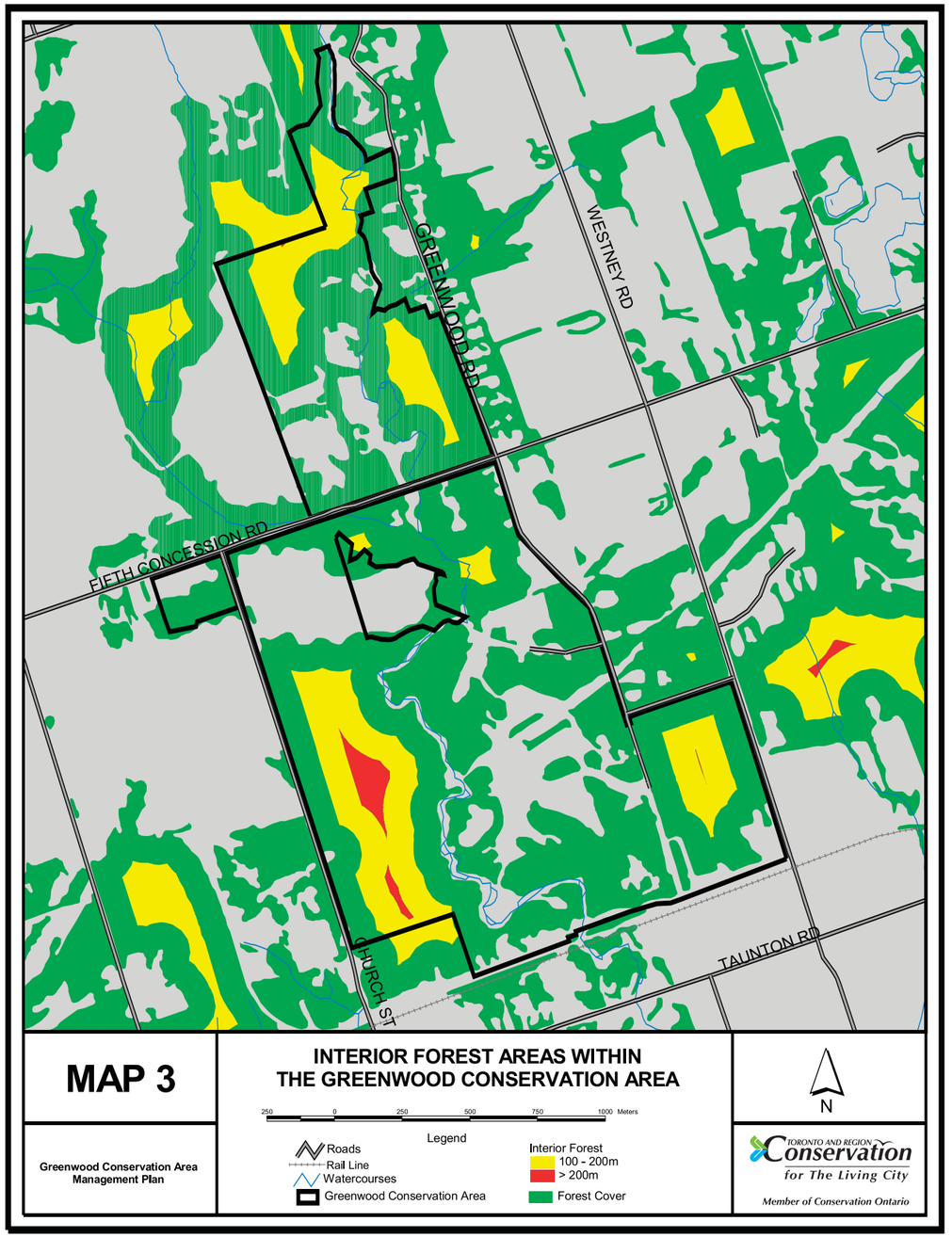
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WESTNEY RD
FIETH CONCESSION RD
CHURCH ST
TAUNTON RD
MAP 3
INTERIOR FOREST AREAS WITHIN
THE GREENWOOD CONSERVATION AREA
250 0 250 500 750 1000 Meters
Legend
Roads
Rail Line
Watercourses
Greenwood Conservation Area
Interior Forest
100 - 200m
> 200m
Forest Cover
N
Greenwood Conservation Area
Management Plan
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Conservation
for The Living City
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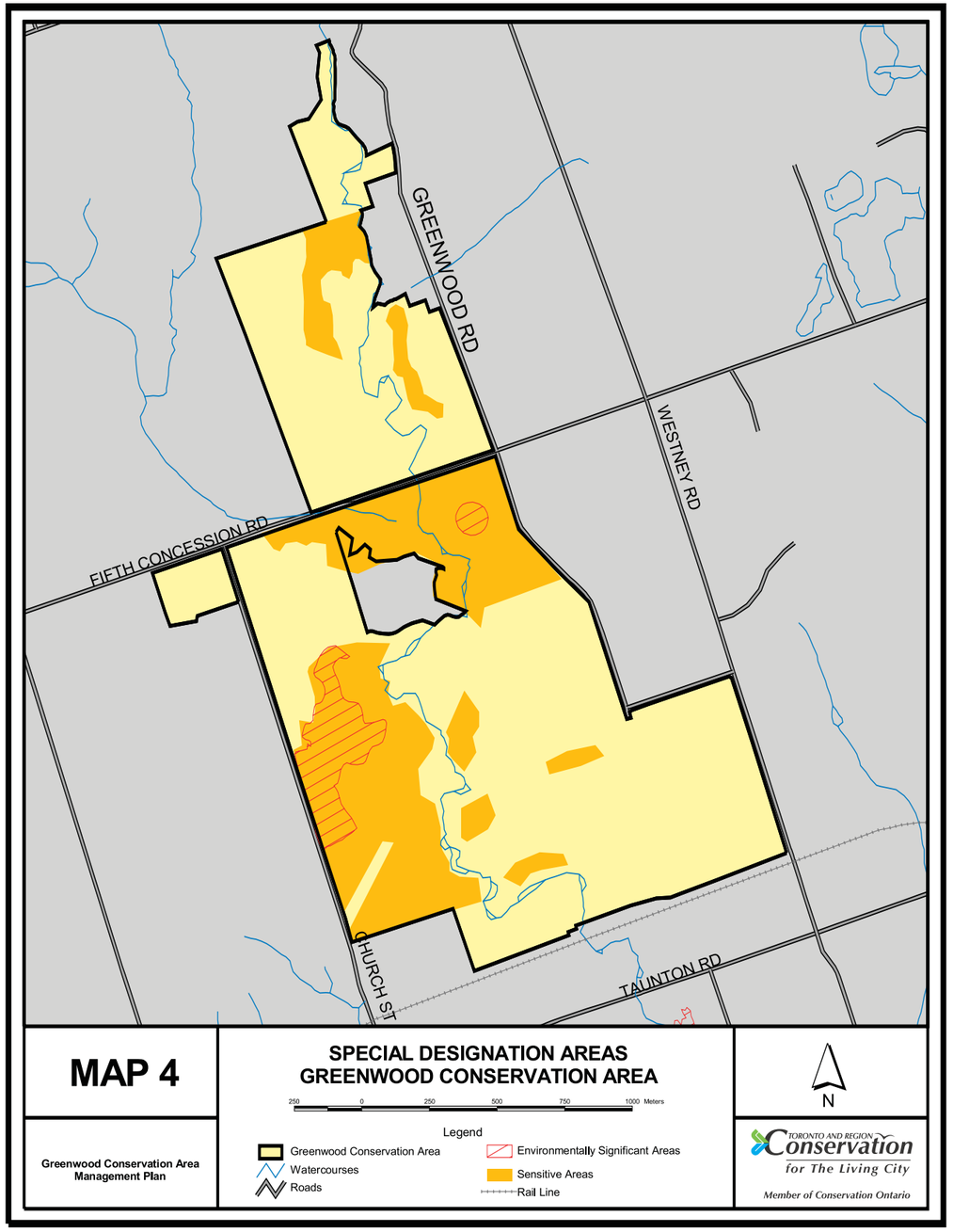
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WESTNEY RD
FIFTH CONCESSION RD
CHURCH ST
TAUNTON RD
MAP 4
SPECIAL DESIGNATION AREAS
GREENWOOD CONSERVATION AREA
250 0 250 500 750 1000 Meters
N
Legend
Greenwood Conservation Area
Watercourses
Roads
Environmentally Significant Areas
Sensitive Areas
Rail Line
Greenwood Conservation Area Management Plan
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CHAPTER 2 – PLAN VISION, GOAL, OBJECTIVES AND PRINCIPLES

2.1 A VISION FOR THE GREENWOOD CONSERVATION AREA

Because the Greenwood Conservation Area Management Plan is part of the larger Duffins Creek Watershed, it is integral that its vision, goal, objectives and principles adhere to and are integrated with the vision of A Watershed Plan for Duffins Creek and Carruthers Creek. This vision reads as follows:

> **Vision for the Duffins Creek and Carruthers Creek Watersheds**
> The Duffins Creek and Carruthers Creek will be healthy, dynamic and sustainable watersheds that continue to have clean, 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 growth and development will reflect this vision and the importance of protecting and enhancing this priceless legacy.

Working within this watershed framework, the vision for the Greenwood Conservation Area Management Plan reflects the essence of conservation planning values and sets a definite direction for the future management of the Greenwood Conservation Area (GCA).

> **Vision for the Greenwood Conservation Area**
> The Greenwood Conservation Area, with its unique natural features, including environmentally significant areas, spectacular vistas, healthy and diverse forests, regenerating areas, and a vibrant fishery, will become a model for public land stewardship. The property will be carefully managed and monitored, using an approach which balances the ecological, social and economic needs of the natural and human communities of the area. This approach will protect, conserve and regenerate the ecological integrity of the area, while ensuring the long-term sustainability of the outstanding environmental features and natural systems. Human activities and appropriate public uses will occur in harmony with the ecosystems of the property.

The primary focus of the vision centres on protecting and appreciating the ecosystems of the GCA. The vision is based on the premise that the health of natural systems depends 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 MANAGEMENT PLAN GOAL

The goal of the Greenwood Conservation Area Management Plan builds on the framework established by the plan's vision, and is consistent with A Watershed Plan for Duffins Creek and Carruthers Creek.

Goal: To protect and manage the conservation area using an ecosystem approach and in consultation with the community, ensuring sustainability of the natural and cultural heritage resources, while also encouraging a diversity of outdoor recreational and educational experiences that are compatible with healthy watersheds, respect the unique character of the area and which are sustainable in environmental, physical and economic terms.

2.3 MANAGEMENT PLAN OBJECTIVES

In keeping with the management plan vision and goal, the following seven objectives outline approaches for the various management components.

Natural Heritage – Protect, restore and regenerate the natural ecosystems by ensuring the health and diversity of native species, habitats, landscapes and ecological processes. In addition maximize connectivity of the natural heritage features to one another and to adjacent areas.

Cultural Heritage – Identify, protect and conserve the cultural heritage features for their inherent value, and to depict the long-term human use and occupancy of the area.

Land Use – 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 – Manage the GCA in a manner that will ensure the achievement of all objectives, and to provide for ongoing public involvement in the management process.

Education – Promote knowledge and understanding of the natural and cultural values of the land and water, their protection and management requirements, and their significance, sensitivities and interrelationships.

Stewardship – Promote and facilitate ongoing public involvement toward a partnership that will foster sustainable living, accomplish watershed management objectives as well as implement management plan recommendations.

Recreation – Provide opportunities for appropriate, accessible outdoor recreation activities that are consistent with all other objectives.

2.4 MANAGEMENT PRINCIPLES

The Greenwood Conservation Area Management Plan adheres to these principles:

- Conserve, protect and regenerate the ecological integrity of the area.
- Ensure natural and cultural heritage sustainability with a cost-effective approach.
- Promote and monitor the use and enjoyment of the land, ensuring minimal impact to the natural environment by striving for a balance between conservation and appropriate public uses.
- Promote cooperation and develop awareness between all stakeholders, and form partnerships that will enhance stewardship and provide protection of the lands.
- Promote active community involvement and develop community stewardship that will foster an integrated approach to land use planning and implementation strategies.
- Recognize, integrate, promote and enhance linkages between the conservation property, the Duffins Creek Watershed, and other natural and cultural features.
- Utilize adaptable 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 the Greenwood property.
- Utilize best practices for erosion management.
- Utilize best practices for forest management, where appropriate.
- Expand public land holdings through acquisition, conservation easements, donations and planning incentives.
- Effectively manage public use safety issues.
- Promote accessibility to GCA and its various facilities wherever possible.

CHAPTER 3 – MANAGEMENT ZONES

A variety of natural heritage and cultural ecology information was compiled for the Background Report, studied in Phase 1 of the management plan process. This information formed the basis for determining the management zones and their requirements (Figure 1). The eight zones (Nature Reserve, Natural Environment, Primary Restoration, Secondary Restoration, Public Use – Recreation, Public Use – Lease, Public Use – Park Operation Zone and Special Management Zone) are distinguished by their different levels of ecological protection, management needs and acceptable levels of public use. In addition to these management zone designations, the plan also incorporates Fisheries Management Zones as defined in the Fisheries Management Plan for Duffins Creek and Carruthers Creek. A copy of the full fisheries plan can be obtained by contacting TRCA.

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 the Greenwood Conservation Area (GCA). Given the current pressures of urbanization on the quality and quantity 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, TRCA and the Town of Ajax will move toward improving the condition and resilience of natural habitats in the Toronto region.

3.1 MANAGEMENT ZONES DEFINED

The eight management zones defined for the GCA include:

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 heritage system
Natural Environment	Existing and targeted natural cover within the targeted natural heritage system which does not currently meet the criteria of the Nature Reserve Zone
Primary Restoration	Priority lands within the GCA designated for active restoration to achieve the full potential of the TRCA targeted natural heritage system
Secondary Restoration	Lands within the GCA designated for passive or natural regeneration to achieve the full potential of the TRCA targeted natural heritage system
Public Use – Recreation	Areas with existing or potential recreational and educational uses, facilities or services
Public Use – Lease	Areas with existing lease agreements which should be renewed, and areas with restricted public access
Park Operation Zone	An area of the property containing operational buildings and their surrounding areas used by Town of Ajax staff for operational, maintenance and administrative duties
Special Management Zone	A zone which requires special management for the purposes of invasive plant species control and remediation

3.2 DETERMINING THE MANAGEMENT ZONES

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

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

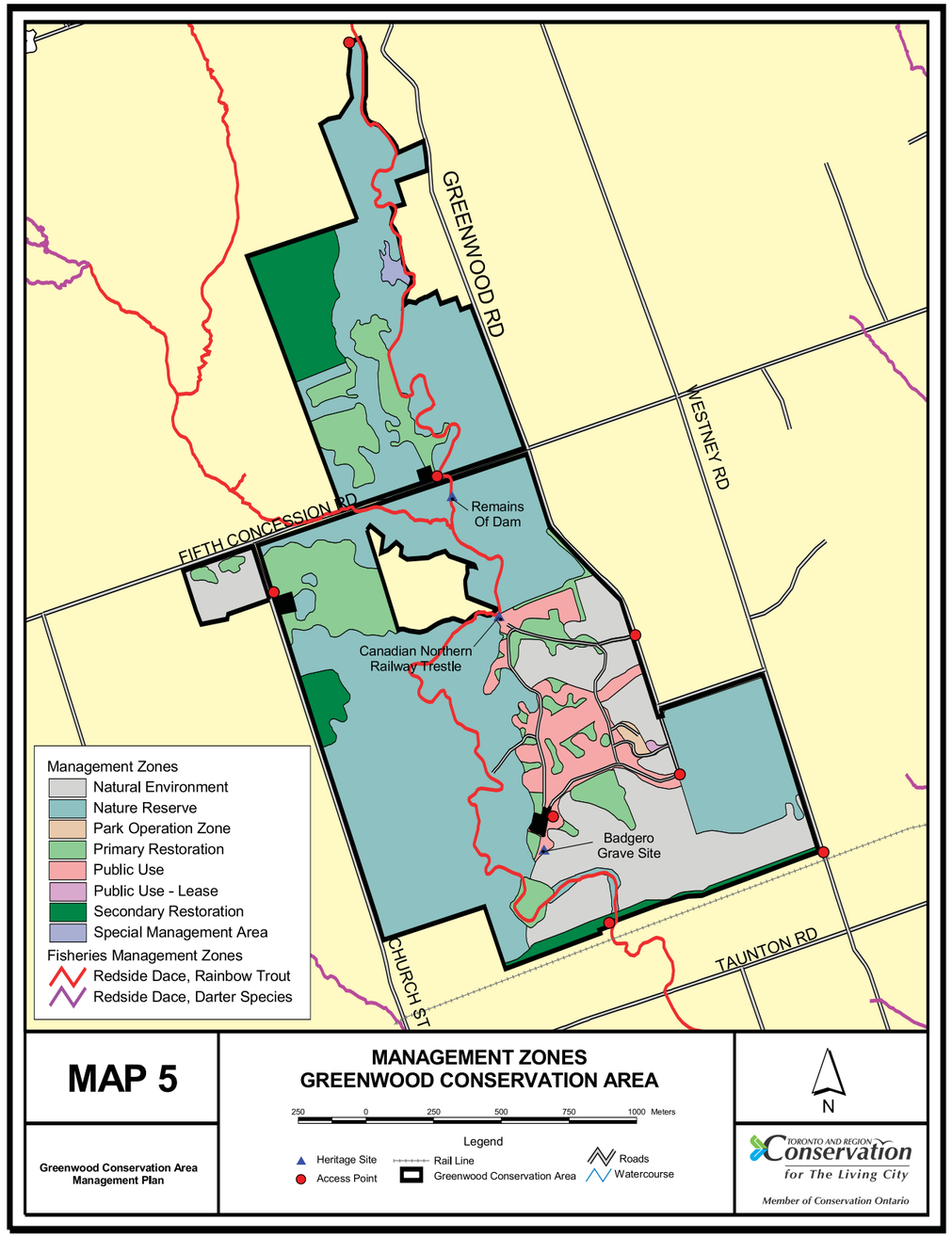
- Interior habitat
- Vegetation communities
- Species of concern
- Environmentally Significant Areas (ESAs)
- Areas of Natural and Scientific Interest (ANSIs)
- Classified and unclassified wetlands
- Existing public use areas
- Lease areas
- Existing infrastructure

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

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

Special Management Zones were designated after careful review and analysis of field data collected on site. The data revealed a high concentration of an invasive exotic plant species commonly known as dog-strangling vine. Because of this plant's ability to spread quickly, and its hardiness and resistance to control methods, this area was given a special designation and consequently specific actions toward preventing further spread of the plant.

Figure 1: Permitted Resource Uses		
Management Zone	Permitted Intensity of Uses	Resource Uses
Nature Reserve This zone includes areas which are ecologically significant such as ESAs, ANSIs, Interior Forest areas, etc.	None to Low Intensity.	Fish, wildlife and forest management; local and regional trails; nature viewing/interpretation; research; education; photography; regulated angling, where appropriate. Where possible, limit the extent of intrusion into this zone. If intrusion cannot be avoided, minimize the impact to interior habitat.
Natural Environment This zone includes areas that have potential for ecological succession and restoration.	Low Intensity.	Fish, wildlife and forest management; local and regional trails including walking, hiking, leashed dog walking, 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 regional trails; nature viewing/interpretation; research; education; photography; cross-country skiing.
Secondary Restoration This area will undergo natural succession and regeneration, ultimately becoming part of the surrounding Nature Reserve.	Low to Moderate Intensity.	Fish, wildlife and forest management; local and regional trails; nature viewing/interpretation; research; education; photography; cross-country skiing.
Public Use – Recreation This zone will feature a variety of activities deemed appropriate.	Low, Moderate and High Intensity.	Fish, wildlife and forest management; local and regional trails; nature viewing/interpretation; research; photography; cross-country skiing; fishing opportunities; facilities for group picnicking and camping; year-round comfort stations.
Public Use – Lease This zone houses a residential property that will be used as a private residence.	Low, Moderate and High Intensity.	To be considered a private area subject to specific lease agreements. The Town of Ajax will monitor area and conduct appropriate resource management activities (e. g. , pertaining to wildlife and forests).
Public Use – Park Operation Zone This zone contains buildings and facilities used by Town of Ajax staff.	Low, Moderate and High Intensity.	To be considered a private area for the purposes of Town of Ajax staff operations.
Special Management Zone This area contains a high concentration of invasive exotic plant species.	None to moderate intensity	Subject to invasive species management and control. Offers research opportunity for invasive species control. Limited or prohibited public access.



CHAPTER 4 – MANAGEMENT RECOMMENDATIONS

The management recommendations are intended to guide the actions of the Town of Ajax and TRCA, its partners and stakeholders to ensure that the property will remain a healthy and vital part of the Duffins Creek Watershed. The recommendations have been separated into Natural Heritage, Human Heritage, Public Use and Surrounding Land Use. They are consistent with the provisions outlined in TRCA's Valley and Stream Corridor Management Program (1994), the Strategy for Public Use of Conservation Authority Lands, and the watershed management objectives outlined in A Watershed Plan for Duffins Creek and Carruthers Creek.

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

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*.

Overall Recommendation

For both aquatic and terrestrial ecosystems, regular monitoring of the flora, fauna and overall condition of the ecosystems of the GCA is recommended to evaluate the effects of the various management policies, uses and activities on these ecological systems.

4.1.1 Valley and Stream Corridors

1. Manage the valley and stream corridor areas according to the criteria set forth in TRCA's Valley and Stream Corridor Management Program (1994).

2. Protect and restore ecological linkages associated with the valley corridors.

4.1.2 Aquatic Ecosystem and Habitats

General

1. Manage the aquatic ecosystem to achieve a fully functioning clean and healthy creek system, in accordance with the Fisheries Management Plan for Duffins Creek and Carruthers Creek.

2. Protect groundwater recharge and discharge areas.

3. Monitor septic systems in and adjacent to the properties in cooperation with the local health unit and the Ministry of the Environment.

4. Monitor surface and groundwater impacts due to agricultural activities.

5. Prohibit recreational activities that degrade water quality and aquatic habitat.

6. Protect, enhance or restore watercourses, aquatic habitat, riparian zones and wetlands as determined through inventory and monitoring.

7. Use native species in all restoration activities.

Wetlands

1. Inventory the presence of wetlands and identify species present.

2. Prohibit activities that will reduce the size or function of the wetland areas. Where inventory and monitoring indicate, undertake specific enhancement or restoration activities.

3. Use only native species for restoration activities.

4. Protect, establish, or otherwise manage vegetation to facilitate all the life stages of fish, other aquatic organisms and wildlife populations.

5. Manage invasive exotic plant species according to TRCA policies.

6. Where appropriate, develop interpretive displays and programs to raise awareness and promote stewardship of wetland areas within the GCA.

Fish

1. Protect and maintain fish habitat.

2. Protect fish populations and other desired aquatic organisms through proper timing of management activities.

3. Encourage conservation practices such as catch and release and the use of single barbless hooks.

4. Reduce angler catch and possession limits for trout.

5. Monitor aquatic habitat species regularly as part of TRCA's Regional Watershed Monitoring Program.

6. Prohibit baitfish harvest on the property.

4.1.3 Terrestrial Habitats

Terrestrial habitats include vegetation communities, as well as the wildlife which inhabit them. The objective of vegetation management is to ensure the ongoing health of native plant communities, and where necessary to restore vegetation to as close a natural system as possible.

Vegetation (Flora)

1. Protect vegetation communities and ensure their restoration where required.

2. Encourage the natural evolution and change of vegetation of the area over time through succession.

3. Protect vegetation from further degradation resulting from the negative impacts of human activities.

4. Use only native species for restoration activity; these must be suited to the local site conditions and complementary to the existing vegetation cover.

5. Where appropriate, reintroduce absent native species that are locally indigenous.

6. Manage invasive exotic plant species according to TRCA policies.

7. Undertake pest control management only in circumstances where insects and diseases threaten the integrity of the vegetation community, and in a manner consistent with TRCA policies and with the Town of Ajax's existing Plant Health Care Program: *Insect 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 (i. e. fire and wind damage). The recommendations below are twofold: (1) to protect and enhance the overall quality of the natural forest systems within the area, and (2) to improve the overall quality of the plantation areas on the property for the purposes of reintegrating these plantations with the natural forest areas.

1. Protect, restore and enhance the forests within an ecosystem context, and promote forest sustainability in perpetuity.

2. Manage all forests per an approved TRCA forest management plan.

3. Extend and manage the forest cover to improve water conservation, control erosion and sedimentation, provide aquatic and terrestrial habitat, increase forest interior, and provide opportunities for safe education and recreation.

4. 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.

5. Protect representative, unique and fragile vegetative communities.

6. 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 TRCA programs and policies and supportive of other public agency resource management objectives (i. e. , Ontario Ministry of Natural Resources, Ministry of the Environment).

7. Conduct all activities with respect for the forest environment, and maintain and protect the composition, structure and function of the forest ecosystem.

8. Manage forests to establish and maintain a healthy and diverse forest cover while striving for a sustainable balance between program costs and program revenues.

9. Evaluate management potential of forest compartments considering all objectives and the compartment features before considering the level of active management.

10. Manage for a variety of habitat types.

11. Convert plantations to mixed species forests.

12. Implement improvement and sanitation cuts to promote forest health and vigour.

13. Monitor and inventory forest compartments after management operations.

14. Establish reforestation to increase forested area to aid in water retention.

15. Establish riparian plantings to establish vegetated stream buffers.

16. Identify areas of natural succession.

17. Retain a diversity of tree species and age-classes to promote a variety of wildlife habitats.

18. Reforest large blocks of land to create more interior forest habitat and improve overall patch size and shape.

19. Reforest to create linkages between forested areas.

20. Monitor forest compartments for signs of wildlife.

21. Plan forest operations to avoid sensitive seasons for wildlife use.

22. Construct brush piles in conjunction with forest management operations.

23. Retain mast-producing trees and shrubs and potential den trees.

24. Retain and manage for old growth features.

25. Allow for downed, woody material and debris to accumulate on the forest floor.

26. Use management techniques to create and maintain habitat.

27. Retain natural open space.

Recommended Silvicultural Systems

The management plan recommends implementing 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. It thus enhances biodiversity within the forest landscape through maintaining a mixed representation of early, mid- and late successional stages.

Plantation management is directed primarily toward stand conversion – the process of changing the cover composition from a coniferous monoculture to a mixed deciduous-coniferous stand. In managing plantations, 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)

1. Ensure the healthful perpetuation and diversity of native species through appropriate management activities of terrestrial animal life.

2. Protect wildlife populations from human disturbance through controlled and restricted public access, proper timing of management activities and buffering between land uses.

3. Protect, maintain and enhance habitat to provide shelter, travel corridors and foraging areas for wildlife.

4. Wherever possible, prevent the introduction of invasive species into the ecosystems of the GCA.

5. Prohibit lighting that interferes with wildlife behaviour.

6. Monitor the area for rare species or species of concern. Specific protection or recovery programs to ensure their continued presence may be undertaken as necessary.

7. Prohibit public hunting and trapping.

8. Require that all dogs stay on leashes at all times, except in designated "dog-off-leash" areas, and enforce this regulation.

4.2 CULTURAL HERITAGE MANAGEMENT

For detailed information regarding human heritage in the GCA, please refer to the Background Report, the State of the Watershed Report for Duffins Creek and Carruthers Creek, and A Watershed Plan for Duffins Creek and Carruthers Creek.

The Duffins Creek Watershed in general, and the GCA in particular, are rooted deeply in human heritage, both historic and prehistoric. The watershed's ample water supply in

the form of ponds and stream corridors attracted abundant flora and fauna, which in turn attracted early nomadic Aboriginal groups, followed by 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 and human heritage features within and surrounding the GCA include known and predicted locations of archaeological sites, the presence of artefacts or historical sites on the property and records of past land uses and ownership.

4.2.1 Archaeological Resource Management

1. Preserve all archaeological sites (known and unknown) on the GCA, either by avoidance or through excavation subject to TRCA procedure when land use modification may occur.

2. Precede all land use modifications on TRCA properties by an archaeological investigation and assessment with notification to appropriate agencies. The assessment will be conducted by TRCA staff.

4.2.2 Historic Resource Management

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

1. Recognize heritage sites as important cultural resources.
2. Identify and document heritage sites and their relationship with the environment.
3. Protect and conserve heritage sites.
4. Undertake efforts to raise awareness of the value that heritage sites contribute to recreational and environmental resources.
5. Wherever possible, when the Primary Restoration Zone features historic resources, include heritage themes in the restoration plan.

4.2.3 Heritage Sites within the Greenwood Conservation Area

Canadian Northern Railway

This site provides a dramatic vista overlooking the site of the former crossing of the Canadian Northern Railway over the Duffins Creek. Remains of the concrete piers on the valley floor can be seen from this lookout location.

Oliver Badgero Grave Site

Oliver Badgero was one of the notorious "Markham Gang" members who terrorized the countryside north of Toronto in the 1840s. His gravestone is located on the GCA, southeast of the parking lot.

Dam Remains

Remains of wooden and concrete dams are located just south of the Fifth Concession.

4.3 PUBLIC USE

4.3.1 General Public Use

Recreation, lease and park operation facilities will be managed according to the following recommendations:

1. Report annually, through the Town of Ajax, on the projects planned for the GCA, and on the resources required to implement the planned projects.

2. Monitor and evaluate the effects of existing public uses to ensure their compatibility with the goals and objectives of the management plan to protect the ecosystems and their functions.

3. Ensure that all public use developments or proposed materials reflect, to maximum extent possible, the ecological function of the specific area.

4. Precede all land use modifications on TRCA properties by an archaeological investigation and assessment with notification to appropriate agencies. The assessment will be conducted by TRCA staff.

5. Review public use proposals in accordance with the municipal Official Plans and bylaws.

6. Undertake public consultation and environmental education through the screening process outlined in TRCA's Strategy for Public Use of Conservation Authority Lands (1995) or any updated TRCA Public Use Strategies, when planning for any future public use.

7. Wherever possible, plant native vegetation as a buffer between public use and natural areas.

8. Integrate protection, restoration and enhancement of natural resources into all public use plans.

9. Focus public uses on outdoor education and passive, appropriate recreation.

10. Ensure that public use proposals address risks to flooding and erosion, as outlined in TRCA's Valley and Stream Corridor Management Program (1994).

11. Include the following in public use proposals: stormwater management, erosion and sediment controls, and fencing.

12. Maintain the lot grading and drainage patterns to protect flora and fauna.
13. Establish setbacks from Natural Area Zones to prevent public uses from conflicting with the flora and fauna, wherever necessary.

14. When developing public use proposals, consider the sensitivity of the natural areas prior to providing access to such areas.

15. Take into account the sensitivity of the site's natural system when planning and developing a trail system. Doing so requires that trail planning and development adhere to and follow the guidelines set forth in TRCA's Trail Planning Guidelines (1992), the policies of the Valley and Stream Corridor Management Program (1994) and the information provided in the Terrestrial Natural Heritage Inventory of the site.

16. Maximize public use and recreation opportunities by enhancing linkages to the Trans Canada Trail (TCT) and other public trail systems when the opportunity exists.

17. Prohibit lighting that interferes with wildlife behaviour.

18. Require that dogs be kept on leash at all times, and enforce this requirement, except in designated dog-off-leash areas, to be determined by TRCA, with input from partner municipalities and stakeholders.

19. Prohibit public hunting or trapping within the GCA.

20. Delegate/appoint management of existing infrastructure to the Town of Ajax. Where lands are leased, the proponent/tenant will be responsible for approved public uses, upgrades or replacement of the infrastructure, unless other terms and conditions are established with TRCA.

21. Include new technologies relating to construction, grounds maintenance and water conservation in proposals for Public Use Zones where possible, to maintain the ecological integrity of the GCA and to demonstrate sustainable practices.

22. The Town of Ajax and TRCA should investigate the opportunity of jointly hosting a Children's Groundwater Festival with Durham Region and the Central Lake Ontario Conservation Authority (CLOCA).

4.3.2 Infrastructure

Existing infrastructure will be managed by the Town of Ajax. Where lands are leased for approved public uses, the Town of Ajax in partnership with the TRCA will be responsible for upgrades or replacement of the infrastructure, unless other terms and conditions are established.

1. Maintenance of and upgrades to any and all facilities on the GCA, including mown turf areas, should follow best management practice guidelines as outlined in the TRCA's Best Management Practices Report. They should also incorporate environmentally sustainable technologies and approaches.

2. Upgrades should be considered for the washroom facilities in the public use area, including examination of potential alternatives to septic systems (e. g. , composting toilets and/or year-round washroom facilities).

3. TRCA staff, including the Conservation Land Planning Group and the Terrestrial Natural Heritage Group, should be consulted regarding any proposed changes to existing facilities or proposed development of new facilities at the GCA.

4. The Town of Ajax, working in partnership with TRCA, should seek out innovative technologies for developing or ameliorating current infrastructure. In particular, an opportunity exists for Ajax to partner with TRCA to improve current roads, particularly the lower main parking area which drains poorly. Through investigation and analysis, Ajax and TRCA could determine the feasibility and appropriateness of installing more permeable surfaces, such as porous pavement to these areas of the property. This type of innovative work, in addition to improving site conditions, can also serve as a demonstration project.

5. A longer-term recommendation is to close the road system and associated parking at the main entrance to the GCA to vehicular traffic, except in cases of emergencies, park operations, group requirements or other special events requiring vehicular access. At the main entrance to the area, off Greenwood Road, parking would occur outside the gate house area. Visitors would walk in from the gate house along the gravel path to access the facilities. Appropriate parking facilities would be developed outside the gate house area, and the gate house itself would be developed as an information centre for park visitors, providing trail maps and other information for visitors to the area.

Development of the parking area and gate house also includes restoration of the stone pillars lining the entrance into the GCA. A distinguishing feature of the GCA, these pillars are currently in disrepair due to failing foundations. Their restoration is key to maintaining the character of the area.

This project should be undertaken by the Town of Ajax with participation from TRCA and the Stewardship Committee. In the shorter term, the recommendation is to close the gates on the weekdays and open them on weekends to accommodate parking needs.

4.4 SURROUNDING LAND USE

Land uses adjacent to and surrounding the GCA influence the ecological function of the natural heritage system of the area. As a general rule, adjoining natural cover is beneficial, while agricultural uses and other recreational uses such as golf courses exert a moderately negative influence. Urban uses, such as roads, housing developments and supporting infrastructure, exert a strongly negative influence.

In the case of the GCA, several different surrounding land use elements influence the ecological functioning of the area. A network of roads immediately surrounds the GCA, essentially encompassing it. Greenwood Road bounds the GCA to the east, and Church Street bounds it to the west. To the north, the Fifth Concession divides the Greenwood property between the Town of Ajax and the City of Pickering,. To the south, a rail line bounds the area. These transportation corridors provide public access to the GCA, but from an ecological viewpoint they inhibit the movement of various animal species, and can affect the GCA ecosystem through increased runoff and pollution.

In terms of larger-scale land uses, the area is immediately surrounded by estate and rural residential lands, areas of aggregate extraction, a former garbage disposal site and a golf course. In addition, a variety of natural cover areas help connect the GCA to other natural areas by forming "stepping stones" for wildlife. Furthermore, the Duffins Creek, a focal point of the GCA, forms a corridor connecting a series of natural areas, both aquatic and terrestrial, along its length.

Nearby natural areas include the Claremont Field Centre to the north, and smaller parks, such as Paulynn Park, to the south. These offer some ecological benefit to GCA. The City of Pickering and Town of Ajax Official Plans depict natural area systems as designated through the Official Planning process (See Background Report, Chapter 4). These systems, which include core areas, corridors, and open space areas, create a network of connected natural areas necessary to sustain ecological structure and function.

With increasing urbanization pressures in both Ajax and Pickering, however, the potential negative impacts from urban development are significant. Official Plan designations for lands surrounding the GCA, in both Ajax and Pickering, depict lands remaining primarily rural, with Ajax's urban boundary limit occurring at Taunton Road, south of the GCA.

In the longer term, the overall increase in surrounding development, imperious surfaces, infrastructure, noise and light pollution, surface water runoff and human populations, among other impacts, will have a negative effect on the overall ecological conditions of the Greenwood property. While consideration of the impacts of development of the immediate surroundings is crucial, it will also be critical to consider the impact of the proposed large-scale development of the Seaton lands, the result of the land swap to protect the Oak Ridges Moraine. While this proposed change to the landscape may seem removed from the GCA, its impacts will most definitely be felt over time.

Some of the potential impacts include increases in visitation to the GCA; increased air, water, noise and light pollution; and increased fragmentation of surrounding ecosystems due to development. As such, monitoring the health of the natural heritage system at the GCA and long-term data collection of the ecological conditions will be important steps in evaluating and mitigating impacts. Furthermore, the Greenwood lands must be considered at the broader scale, in tandem with the surrounding natural areas, as part of a targeted natural heritage system in order to ensure long-term health and sustainability of the ecosystems of the Duffins Creek Watershed and TRCA jurisdiction overall.

Despite the Official Plan status of surrounding land uses, it is important to ensure the continued protection and enhancement of the broader overall ecosystem of the municipalities of Ajax and Pickering, as well as Durham Region in general. Therefore, the following recommendations should be followed:

1. Protect the natural heritage system surrounding the GCA through the land use planning process.

2. Retain natural cover to maintain the range of flora, fauna and community types (to protect high quality habitats such as the GCA, it is important to protect regional landscapes).

3. Protect and rehabilitate lands in the Duffins Creek Watershed, particularly the East Duffins Creek, identified for natural area regeneration through the application of the Terrestrial Natural Heritage approach. This will require support from private landowners, agencies, municipal government and community leaders.

4. Maintain or enhance the current connectivity between the site and its immediate natural surroundings, where appropriate. NOTE: While the connectedness of the GCA to other natural areas and corridors is important for healthy ecological functioning and species mobility, it can also encourage the spread of undesirable invasive species, such as dog-strangling vine. As a result, careful planning and monitoring should be undertaken to ensure that this does not happen.

5. Identify and protect groundwater recharge and groundwater pathways, and discharge points to maintain water levels in wetland areas.

6. Protect and secure lands identified for natural area regeneration.

7. Conduct public information and outreach for local residents and private landowners to encourage sustainable private land practices and encourage stewardship of the GCA and its surrounding areas.

8. Advocate the development of sustainable communities in surrounding areas, including sustainable building design, compact, sustainable housing and subdivision design which protects Terrestrial Natural Heritage features, and any new approaches to such design that will minimize the impacts of development on the GCA.

9. In cases of future development and modification of road infrastructure, housing or other developments, ensure that development plans address issues of light and noise pollution. This includes selecting appropriate lighting to prevent negative impacts of lighting on the species within and surrounding the GCA.

10. Pursue opportunities for land donations and acquisition for the following parcels of land, in particular:
    - Parcel of land south of the Fifth Concession, currently owned by Miller Paving
    - Parcel of land located at the southwest corner of the GCA, at Church Street and the rail line
    - Lands owned by the City of Toronto, located west and north of the GCA

4.5 MANAGEMENT ZONE RECOMMENDATIONS

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

4.5.1 Nature Reserve Zone

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

1. The level and type of activity allowed in the Nature Reserve Zone will range from none to low intensity recreation and education uses depending on the sensitivity of the terrestrial and aquatic features.

2. The TCT will be permitted within this zone subject to detailed trail routing studies 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.

3. All primary natural areas will be protected and managed for the continuation of natural processes.

4. Cultural heritage features and sites, including the vista overlooking the remains of the Canadian Northern Railway trestle, will be protected and managed in association with the protection of natural areas.

5. Cross-country skiing will be permitted within this zone on the approved and open trail system.

6. Limited interpretive facilities, such as signage, and scenic or wildlife viewing locations, may be provided in selected locations.

7. A connected trail system will be identified and formalized through the Nature Reserve Zone, as per the proposed trail plan and concept (Chapter 5) to ensure that public access minimizes negative impacts to the ecosystem.

8. Trails located within the Nature Reserve Zone that contribute to streambank or soil erosion, loss of riparian vegetation or are located inappropriately in sensitive areas will be decommissioned or relocated as per the proposed trail plan (Chapter 5).

9. Areas within the Nature Reserve Zone which contain interior forest and/or Environmentally Significant Areas (ESAs) will be monitored and protected to ensure that public use or other factors do not negatively impact them.

10. Motorized vehicles of any kind will not be permitted in the Nature Reserve Zone, except in cases of medical emergency or to remove of fallen or hazardous trees along trails.

11. To that end, any natural materials that accumulate in the Nature Reserve Zone, such as dead standing or fallen trees, will be left in place, unless posing a serious risk to the public.

12. The prevention of prohibited activities within the Nature Reserve Zone will be accomplished through signage (including information on alternative locations for such activities, i. e. , mountain biking and dog-off leash activities), and the presence and vigilance of park staff, enforcement staff, local citizens and members of the Stewardship Committee. Outreach and education will also be an important component of discouraging and preventing prohibited uses within the GCA. Problem areas and their associated uses include:
    - Dog-off-leash uses in the Rodar property
    - Dog-off-leash use along the Duffins Creek corridor and in interior forest areas
    - Mountain bike use in ESAs and interior forest
    - Motorcycle/ATV use in the Rodar property and in the former aggregate extraction area located east of Church Street

Special Designation – Aquatic Resources/The Duffins Creek

The Duffins Creek route through Greenwood, including the area up to the stable top of bank, will be designated a "Nature Reserve Zone" with a special sub-designation as an "Aquatic Resource Zone. "

1. The Duffins Creek and its associated aquatic resources will be protected, and where necessary, regenerated. The creek, and the aquatic ecosystem it supports, will be managed as an integral part of the overall ecosystem of the area.

2. The creek will also be recognized and managed as a critical, distinct ecosystem, with specific and unique requirements and issues.

3. Any and all actions or recommendations pertaining to aquatic resources at the GCA will adhere to the information, guidelines and requirements set forth in A Watershed Plan for Duffins Creek and Carruthers Creek, and the Fisheries Management Plan for Duffins Creek and Carruthers Creek.

4. Core nodes will be designated along the Greenwood portion of the Duffins for protection, education and where needed, regeneration purposes. These nodes will be determined through careful field investigation with TRCA fisheries staff as key habitat or spawning areas for aquatic species of concern, such as red-side dace and rainbow trout.

5. Core nodes will be created along the Duffins Creek to accommodate angling, signage and interpretation, and to provide vistas and views of the creek. Public use activities will then be restricted and prohibited in other areas of the creek, particularly in sensitive areas. This will restrict public use activities along the creek and limit impacts to node areas.

6. As part of the development of interpretive nodes along the creek, TRCA fisheries staff will conduct field investigation along the length of the creek through the GCA to determine key areas (pools, riffles, spawning areas, etc.) for protection, regeneration or public use.

7. As a significant aquatic habitat and fisheries resource, the cold water fishery at the GCA will be protected and managed for long-term sustainability and health.

8. Any natural materials present in the creek which form barriers or natural dams,and any naturally occurring changes to the morphology of the creek, will be allowed to occur uninterrupted, as part of the natural processes of the Duffins Creek.

4.5.2 Natural Environment Zone

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

1. The Natural Environment Zone will support low-intensity recreation and education uses.

2. Existing uses such as properly sited local trails may remain in the zone during the transition period toward the ultimate goal of land restoration and required trail relocation.

3. Regional trails will be permitted within this zone subject to detailed trail routing studies currently underway. Field checking will identify the most appropriate route with the least impact (See Chapter 5 for trail plan and concept). Also, the same level of trail investigation work will be required to locate any proposed local trails within this zone.

4. Restoration of the Badgero gravesite, including an appropriate monument and/or plaque, will be permitted in this zone.

4.5.3 Primary Restoration Zone

Resource management activities encouraged in this zone include environmental management projects designed to protect, enhance or restore natural features, landforms, species or habitats. By undertaking successful restoration activities, which would be allowed to mature over time, these areas would evolve into either Natural Environment or Nature Reserve Zones. The exception is the cluster of small patches of restoration areas located within the larger Public Use Zones. These are, in fact, regeneration areas rather than true restoration sites. These small regeneration patches serve to create visual interest and provide shade and treed areas for public use. They also function as stepping stones for wildlife through the Public Use Zones and reduce the amount of culturally maintained landscapes within this zone. Thus, this section addresses two types of Primary Restoration Zones:

1. Undertake restoration initiatives consistent with terrestrial and aquatic natural heritage approaches, features and functions, and which will enhance the natural heritage system of the area.

2. Ensure that all restoration initiatives enhance the local and broader-scale regional natural character of the area.

3. Use restoration processes and techniques with the least amount of negative impact on the natural and cultural surroundings, especially in or close to sensitive areas, such as riparian zones.

4. 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.

5. Use managed succession sparingly to establish forest cover to create critical linkages and buffers in the short term. Use managed succession where degraded lands inhibit naturalization. Consider methods of minimizing possible incompatibilities between residents and nearby naturalization initiatives.

6. Maintain cultural landscape heritage values within a functioning forest ecosystem (i. e. , retention of rural hedgerows, farmstead plantings).

7. Wherever possible, establish the ecological and social conditions favourable to natural regeneration and succession.

8. Develop restoration plans and activities in collaboration with TRCA staff and municipal staff.

9. Ensure that any and all restoration activities occurring within the GCA are reviewed and approved by the Conservation Land Planning Group and TRCA's Terrestrial Natural Heritage Group.

10. In consultation with the tenants, modify leases to encourage environmentally positive changes.

11. Allow trail use for recreational and educational purposes and where appropriate, permit other recreational uses.

12. Monitor for the presence of noxious weeds and if necessary, remove in accordance to the municipality's Weed Control Bylaw and TRCA policy.

13. As sites are restored, specific areas may accommodate a low level of public use. This would be determined through a site-specific evaluation.

14. Ensure that all plant materials used in restoration activities at the GCA are indigenous to the area and supplied from a reputable local native plant nursery.

15. For the regeneration of patches within the larger Public Use Zones (see also 4. 5. 5 Public Use Zone), encourage the restoration of areas along road sides and as buffers to adjacent Natural Environment or Nature Reserve Zones, and supplement these restoration areas with native tree plantings to create more linkages to adjoining natural areas.

Specific Restoration Areas

1. Former Aggregate Extraction Site
This site, located southeast of the intersection of Church Street and the Fifth Concession, is highly disturbed due to former aggregate extraction. In the past, portions of the area were bermed and planted with moderate success. The area, however, still requires extensive restoration to create the environmental conditions favourable for the establishment and survival of native species. Additionally, two wetland areas which have developed within the site would greatly benefit from the buffering effects of surrounding restoration plantings which would also eventually help connect these wetlands to the Nature Reserve Zone located due south.

All restoration efforts within this zone must be planned and implemented in collaboration with TRCA and Town of Ajax staff, and must adhere to TRCA policies and procedures.

2. Areas within the Rodar Property
As part of the Ontario Living City Legacy, TRCA has received funding to restore portions of the Rodar property, located north of the Fifth Concession. This site is largely within the floodplain of the Duffins Creek and is accessible to the public through informal parking. Used in the past for group camping, large grass areas require native tree and shrub plantings to increase natural cover, improve conditions of riparian vegetation and create nodes of wildlife habitat. TRCA will work to develop an appropriate planting plan for this area.

3. The Pond
The pond and its surrounding area, located on the east side of the Duffins Creek, southwest of the main parking area, were created originally as a swimming area within the GCA. The pond is no longer open for swimming due to unsuitable conditions, and because of potential ecological value of the pond. This area has the potential to provide quality public use experiences, such as interpretive and educational experiences, as well as wildlife habitat. The pond would benefit from an assessment of its current conditions and a subsequent planting plan which would include appropriate aquatic and riparian species. Since this site is located close to Public Use Zones and public access, involving members of the public and community groups in planting events would be an asset. Also, some interpretive features, such as a possible viewing platform and signage, could be part of the longer term plan for this site. TRCA and the Town of Ajax will evaluate the site's potential for other recreational activities, such as fishing or skating, and determine whether or not such activities will be permitted at the pond.

4. Regeneration Patches within the Public Use Zone
Several regeneration patches have been identified within the Public Use Zone east of the Duffins Creek. These small patches are designed to provide shade, privacy and interest to the public using this zone. The intention is to plant the areas with native tree species, and buffer the plantings with restoration areas to create small naturalized patches. These patches will not only create a more secluded and natural feel in the picnic areas, but will also provide small-scale wildlife habitat and act as stepping stones to aid species mobility through the Public Use Zone.

4.5.4 Secondary Restoration Zone
These areas within the GCA will be allowed to undergo the processes of natural regeneration. Over time, these areas are expected to evolve into Natural Environment or Nature Reserve Zones.

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

4.5.5 Special Management Zone
Resource management activities encouraged in this zone include environmental management projects designed to protect, enhance and restore natural features, landforms, species or habitats wherever possible. Specifically, resource management activities will focus on dog-strangling vine, an invasive exotic species dominating this zone.

1. Use this site as a research opportunity for TRCA and partner municipalities to gain a better understanding of the impacts and issues associated with dog-strangling vine, as well as any opportunities which exist to control the spread of this species.
2. Encourage and develop partnerships with local organizations, educational institutions, research groups and other groups for research and stewardship.
3. Discourage other public use activities, such as hiking, in this zone to prevent the involuntary spread of the invasive plant species to other areas within and outside of the property.
4. Research the most up-to-date academic, technical and applied information regarding the control of invasive exotic plant species to determine whether or not a control application would be appropriate.
5. Ensure that all decisions made with respect to the control or removal of dog-strangling vine within and beyond this management zone adhere to both municipal policies and TRCA policies on pesticide use.
6. Ensure that any decisions regarding the control of this species are approved by the TRCA Board.
7. Ensure that any methods chosen for the control of dog-strangling vine exert the least amount of negative environmental impact on the surrounding vegetation and faunal community.

4.5.6 Public Use Zone

Recreation

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

1. Follow guidelines and policies from TRCA's best management practices for the management of conservation lands.

2. Ensure that a net environmental enhancement within the Public Use Zones results from any activities.

3. Encourage public use at the periphery in areas that can sustain the impact of public use activities and facilities and that have limited to no negative ecological or visual impacts on the adjacent lands.

4. Provide limited facilities and services to support trail and educational activities that will occur in adjacent zones.

5. 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.

6. Local Municipalities should enforce prohibition of street parking to avoid overcrowding of certain sites and conflicts with local residents. This policy will be necessary since some spillover parking on nearby roads may occur.

7. The Town of Ajax, working in partnership with TRCA, should seek out innovative technologies for developing or ameliorating current infrastructure. In particular, an opportunity exists for Ajax to partner with TRCA to improve current roads, particularly the lower main parking area which drains poorly. Through investigation and analysis, Ajax and TRCA could determine the feasibility and appropriateness of installing more permeable surfaces, such as porous pavement to these areas of the property. This type of innovative work, in addition to improving site conditions, can also serve as a demonstration project.

8. The municipalities and TRCA will collaborate on the design and detailed planning for trailheads and parking areas.

9. Clearly mark property boundaries and entrance/access points through signage and fencing as deemed appropriate.

10. Develop restoration and planting patches within the Public Use Zone (as depicted on Map 5 – Management Zones, as Primary Restoration patches within Public Use zoning).

Site-Specific Recommendations

1. Discourage secondary parking along Church Street through signage and enforcement.

2. Discourage inappropriate public uses, such as motorized vehicle use (motorcycle/ATV) and mountain biking, within the GCA through signage and enforcement.

3. Conduct site analyses of two possible locations for the dog-off-leash area to determine which site is most appropriate from an ecological and public-use perspective. The site analyses will consider the ecological sensitivity of the areas in question, as well as the availability of useable space and supporting infrastructure for leash-free activities. The two sites under evaluation are:
   - The current location of the dog-off-leash area at the former gravel pit on the east side of Church Street
   - The parcel of TRCA-owned land located on the west side of Church Street, south of the Fifth Concession

4. Upon completion of the site analysis, TRCA and the Town of Ajax will present the plan for the dog-off-leash area to the public for comment.

5. Investigate opportunities for the development of year-round washroom facilities and alternative technologies for such facilities (e. g. , composting toilets).

6. Review cultural heritage practices within the picnic and soccer field areas to reduce resource use and improve ecological conditions.

7. Plant areas adjacent to the portion of the Greenwood Multi-Use Trail which passes through the Public Use Zone to provide shading and a buffer to adjacent uses.

8. Discourage the illegal dumping occurring along Church Street through enforcement.

Lease and Park Operations

The lease and park operation designations of the Public Use Zone represent areas of the GCA that contain operational and residential buildings used by employees of the Town of Ajax. As a result, access in these areas is restricted to Town of Ajax or TRCA staff.

1. The Town of Ajax will manage and operate the buildings and facilities located within the lease and park operation areas of the Public Use Zone.

2. The approval of TRCA staff, including the Conservation Land Planning Group and the Terrestrial Natural Heritage Group, will be required for any and all proposed changes to existing facilities or proposed development of new facilities within the lease and park operation areas.

3. The Town of Ajax, working in partnership with TRCA, should seek out innovative technologies for the development or amelioration of current infrastructure within the lease and park operation areas.

CHAPTER 5 – TRAIL PLAN CONCEPT AND RECOMMENDATIONS

5.1 INTRODUCTION

The Greenwood Conservation Area (GCA) is currently a healthy and diverse natural environment, with several special designation areas, including Environmentally Significant Areas (ESAs) and interior forests. Additionally, the GCA features the Lake Iroquois Shoreline, and is home to a variety of plant and animal species of concern. As a result, any and all public uses must be carefully planned, implemented and monitored to ensure the long-term sustainability of these and other natural features and functions. While these lands remain healthy and high-functioning from an ecological perspective, they face the recreational pressures exerted from a fairly extensive trail system, which includes both existing and proposed trails. For the most part, the lands in the planning area have been designated as a Nature Reserve Zone. Through increased public access to such sensitive natural areas, trails can provide both valuable educational and aesthetic exposure to our natural heritage system. However, the critical issue of not increasing the impacts on these natural areas to the extent that their ecological function becomes disrupted must be addressed and achieved.

As part of the management plan process for the GCA, the Advisory Committee, with support from TRCA, the Town of Ajax and the Trans Canada Trail Committee, has developed a trail plan for the area. The trail plan complements the overall management plan for the GCA, and offers guidelines for developing an integrated trail system through the property. The plan includes local loop trails within the GCA, as well as the Trans Canada Trail (TCT) through the GCA. The trail systems outlined in the plan are designed to address the different levels and abilities of hikers, and thus offer a variety of trail lengths, difficulties and types.

The information in the trail plan is intended to guide the development and management of trails, access points, signage and related facilities in order to achieve the goal and objectives of the Greenwood Conservation Area Management Plan.

Refer to Map 6 – Trail Plan for the Greenwood Conservation Area for details.

5.2 TRAIL PLAN GOAL, OBJECTIVES AND MANAGEMENT PRINCIPLES

5.2.1 Trail Plan Goal

This plan aims to develop a trail network that (1) provides an opportunity for appropriate public enjoyment, and (2) promotes public stewardship, responsibility, understanding and appreciation of the GCA, while protecting and enhancing the ecosystem processes within this important natural feature.

5.2.2 Trail Plan Objectives

1. Promote limited and passive public uses that have minimal negative environmental impacts.
2. Protect the environment by implementing sensitive trail design solutions.
3. Provide opportunities for interpretation and education.
4. Provide planned opportunities for trail access, wherever possible, to all members of the community.
5. Provide planned opportunities for user circulation along the trail systems, offering users a variety of options.
6. Design trails that meet the needs and requirements of the users and respect aesthetic considerations.
7. Reduce social impacts (e. g. , privacy, security, etc.) on neighbouring properties.

5.2.3 Management Principles

1. Ensure the cumulative effects of land use and activities within the GCA are monitored, assessed and managed in a way that protects, restores and enhances the natural environment.
2. Provide opportunities for appropriate public use consistent with the management plan.
3. Provide a trail system that will withstand an appropriate amount of use and enjoyment by users.
4. Assess, analyze and fulfill user needs while ensuring ease of movement, safety, comfort and protection of the environment.
5. Develop a comprehensive and integrated approach to interpreting the area's natural values, ecological processes and cultural heritage.
6. Provide signage and a trail guide to educate and promote appreciation and protection of the environment.

5.3 EXISTING REGIONAL AND LOCAL TRAIL SYSTEMS

5.3.1 Existing Regional Trails

A number of existing and proposed trail systems connect the natural and cultural heritage, recreational and educational features in the planning area with each other and with other destinations in the Duffins Creek Watershed and beyond. These include the Regional Trail System and the TCT.

Regional Trail System

TRCA approved the concept of the Greater Toronto Regional Trail System in 1992. Together with its partners,TRCA has actively participated in the preliminary stages

of planning this trail. The trail will be constructed according to TRCA's Trail Planning and Design Guidelines (1992), and will meet the guidelines for walking trails based on a minimum width of 2. 5 metres on a compacted granular base.

The Regional Trail System is essentially a linking of many existing and proposed trails throughout the Greater Toronto Area. In Ajax, the Duffins Creek Trail runs through the GCA, as mentioned above, and continues south to join the Waterfront Trail. In addition, a planned northern addition to the Regional Trail will connect the GCA to the Oak Ridges Moraine.

Trans Canada Trail
Planning and organizational development for the Ontario portion of the TCT is an ongoing process. Initially, the Ontario Trails Council (OTC), under its partnership with the Trans Canada Trail Foundation, coordinated the development of the TCT route across Ontario. Support was given to the OTC's concept of a "Trillium Trail" network of community-based, shared-use trails that would provide the main trunk of the TCT and provide connecting links to areas that are not part of the main TCT route (e. g. , Owen Sound, Stratford, Kingston and Timmins).

The Ontario portion of the TCT will be over 3500 kilometres long, which represents about 25% of the national total. The Ontario section of the TCT will be the result of linking up to 200 different segments of community shared-use trails. The TRCA coordinated a north–south link into the Greater Toronto Area from Uxbridge via the east Duffins Creek to Ajax, Pickering and the Toronto waterfront. Currently, the TCT Pickering–Ajax Task Force is working with TRCA, the City of Pickering and the Town of Ajax to select a detailed trail route from the Town of Uxbridge to the Lake Ontario Waterfront.

The north–south link will involve trail links through the GCA. While the network of existing trails at the GCA may be suitable for hiking and walking, alternate routes may be required to accommodate the more intensive uses, including horseback riding, cross-country skiing and cycling.

Additionally, the Town of Ajax has numerous existing and proposed trail systems developed as part of a 20-year master plan.

Vision 2020 – A Trail System Master Plan
The Town of Ajax has produced Vision 2020:A Bicycle and Leisure Trail System Plan that details plans and objectives for a town-wide system of trails, supported by a network of roads and road-based connections (Vision 2020, I). Vision 2020 represents a 20-year plan to guide trail development in existing and urbanizing areas as Ajax grows from its present 68,000 to 121,000 by 2021. Consistent with the policies and directives of the town's Official Plan, the following goal was adopted for the Trail System Master Plan:

> "Encourage the use of trails and bikeways for recreational enjoyment, and as alternative transportation corridors through the provision of facilities and user education" (Vision 2020).

The Duffins Creek is one of the primary structuring elements of the trail system plan, along with Millers Creek, Carruthers Creek and the Waterfront Trail. Additionally, the TCT route will pass through the GCA and then south through the Town of Ajax. The Duffins Trail passage through the GCA marks the northern municipal boundary for Ajax. The park provides an excellent opportunity for a trailhead with parking, picnicking, washrooms and other facilities.

5.3.2 Existing Local Trails
Currently, the GCA features several well-used recreational trails in both the northern and southern portions. Over many years, however, both the trails and their signage have become degraded. Additionally, due to intensive and prolonged use of the area by hikers, cyclists, anglers and other recreational users, side trails that are unmarked have become pervasive.

The Duffins Trail
The Duffins Trail is the main trail running in a primarily north–south direction along the west side of the Duffins Creek for approximately 2. 5 kilometres. The trail begins its journey east of the creek, close to a parking area, and winds through cedar forest until it crosses the creek. From here, the trail proceeds north to the former quarry area before returning south once again. A highly scenic trail, it passes through a variety of landscapes, including dense forests and steep valley vistas.

Unfortunately, parts of the trail are in disrepair and poorly located. For example, over the years, some of the lookout points near the steep valley slopes have become worn, reducing vegetation and making such areas prone to erosion. Additionally, side trails have emerged adjacent to the creek's edge in areas where the valley is wide and flat. Once again, these trails increase the risk of erosion by compacting soils and trampling riparian vegetation.

Signage for the Duffins Trail is also in disrepair. Currently, trail markers consist of brown wooden posts with a white arrow indicating the direction of the trail. Some posts are damaged, or entirely destroyed. Furthermore, the posts are not always clearly placed, making them difficult for trail users to follow.

This trail is a favourite among trail users and dog walkers alike. It also passes through significant forest areas containing sensitive bird species, and through the ESA located between the creek and Church Street on the west side of the property. Therefore, this trail demands our attention and care.

The Bird Walk
While this shorter loop trail is no longer popularly known as the Bird Walk, it was given this name in one of the last trail guides produced by TRCA for Greenwood. The Bird Walk is located on the east side of the Duffins Creek, closer to parking areas, and the more intensive recreational areas within the GCA. This makes the Bird Walk more readily accessible to visitors.

This trail has several interesting features, including a large viewing platform overlooking the Duffins Creek. It is also accessible to people with special needs.

Like the Duffins Trail, this trail faces problems of overuse and disrepair. The current trail design intends the viewing platform to be accessed from the upper portion of the trail. Unfortunately, many trail users seem to access the lookout from the trail below, which involves travelling directly up an extremely steep slope. This raises issues for both the safety of trail users and the environmental conditions of the slope itself. Additionally, the platform itself is situated at the edge of a rather steep and eroding slope, making it potentially unstable.

This information is preliminary, and based on observation. Further, more detailed examination of the site would be required to make conclusive decisions about the state of the viewing platform.

Trails in the Northern (Rodar) Portion of the Greenwood Conservation Area
The northern portion of the Greenwood property also boasts 4 kilometres of excellent hiking trails running from the parking lot north to the property boundary, and looping back through the upper areas of the property, returning to the former group camping area. It is relevant to note that trails do continue north, outside of the park boundary, and can lead as far as the Pickering Village Museum, and possibly beyond. Also, there is no distinguishing signage or feature denoting the northern Greenwood boundary, so it is difficult to know when one reaches the property boundary.

These trails boast a variety of forest types, from plantations to low-lying cedar swamps to upland hardwood forests. There is also a diversity of terrain to traverse as one hikes this trail system, from wet low-lying areas, to steep climbs and flat upland paths.

5.4 PROPOSED TRAIL SYSTEMS

5.4.1 Trans Canada Trail

It is recommended that TCT hiking route pass through the GCA, providing TCT hikers with aesthetically pleasing vistas and challenging terrain, while also acting as a suitable rest stop for long-range hikers. Currently, the proposed TCT route through the GCA exists in draft form, and does not represent the final trail route.

The TCT passes through the Greenwood property in a more or less linear fashion, taking hikers on either a through-hike or allowing them to loop back to their starting point using one of the many other trails within the GCA. The TCT will pass through diverse vegetation communities and topography that are varied and "natural" in character, and will also take hikers to the public use areas of the property.

Beginning at the northern edge of the Greenwood lands (Rodar Property), the proposed TCT hiking route will essentially follow the Duffins Creek along the existing trail. Moving in an essentially southerly direction, the trail exits this northern portion of the property at the access point and parking area situated on the north side of the Fifth Concession. From here, the trail follows the Fifth Concession west for approximately 0. 3 kilometres, before crossing the road and entering the southern portion of the property (in the Town of Ajax).

This trail will then lead the hiker into the TRCA-owned portion of the former aggregate extraction site and continues south to connect with the existing Duffins Trail. The trail will then follow the Duffins Trail along the western side of the creek until crossing over to the eastern side of the property at the upper bridge. Crossing here allows the hiker to take advantage of the facilities located on the eastern side of the property, including picnic areas and washrooms. Continuing south, the trail winds along the eastern side of the Duffins Creek to the principal parking area. At this point, the proposed route diverges into the optimal route and the interim route.

The interim route through the south end of the Greenwood property will serve as the initial route, until such time as the optimal route (see Map 6) is feasible. The interim route differs from the final optimal route for a portion of the trail north of the Canadian Pacific rail line at the south end of the GCA. At this location, the interim route exits Greenwood at its eastern boundary at Westney Road to connect to the Miller Creek trail system. The optimal route, on the other hand, exits Greenwood at the south end, passing underneath the rail line and proceeding south to Taunton Road.

The multi-use portion of the TCT, which will accommodate cyclists and other higher intensity uses, will proceed south along Greenwood Road, past the Fifth Concession and out to Westney Road. From here it will continue south along Westney Road to the rail line.

5.4.2 The Greenwood Trail

The Greenwood Trail will provide hikers with a challenging and scenic loop trail with options for exploring secondary trails along the way, to lengthen or shorten the hike. The trail will begin at the main parking lot in the southern portion of the GCA, and travel north to a bridge crossing where it will traverse the Duffins Creek and proceed north to the Fifth Concession. It will continue in the northern portion of the property (Rodar), forming a large loop that will eventually return hikers to the southern parking area. Several secondary trails and alternate loops will allow hikers to choose the type and length of hike they like. For large stretches, the Greenwood Trail will follow the same path as the TCT (as displayed on Map 6), thus requiring thorough signage for clarity.

5.4.3 Greenwood Multi-Use Trail (Special Needs Access, Hiking, Cross-Country Skiing)

The Greenwood Multi-Use Trail will be a loop trail located close to the main Public Use Zone and parking of the area. The trail will serve hikers and cross-country skiers, and in particular will be designed to accommodate visitors with special needs. As a result, the trail design standards for this multi-use loop will follow the standards outlined in Section 5. 6 Trail Design Standards under "Multi-Use Trail (Access for People with Special Needs). "The more generous trail width and harder surface will allow wheelchair and other special needs access.

This trail will form a loop, beginning and ending at the secondary access point located at the main entrance (gate house). From here, the trail will travel north toward the soccer field area, along the eastern section of the property, and then wind northwest to the lookout point and heritage site of the Canadian Northern Railway. The trail will then return south alongside the western stretch of the driveway until it reaches the

main parking area. At this point the trail will veer to the east and return to its starting point at the gate house, once again travelling beside the driveway.

In addition to the main loop, the Greenwood Multi-Use Trail will include a stretch leading south from the main driveway through forested areas to a dramatic lookout platform overlooking the Duffins Creek. The platform already exists, providing accessibility to people with special needs. Nonetheless, monitoring and amendments will be required to both the platform and the trail leading to it, to ensure safety and ease of movement. Another stretch will be established to lead visitors from the main parking lot southwest to the pond. Again, this trail will provide a destination and interpretive opportunity for users, in addition to providing access to the Duffins Creek. Once again, a survey of this area will be required to ensure that an appropriate grade exists, or to amend the area to provide such a grade.

5.4.4 Realigned Trail

This trail is located in the large Primary Restoration Zone just east of Church Street. The realignment of this trail serves to accommodate the two Nature Reserve Zones located within the larger Primary Restoration Zone. It also allows access to the interior portion of the former aggregate extraction site which remains under private ownership. Currently, the trail follows a more southerly path, which puts it through the newly designated Nature Reserve Zones. As a result, the recommendation is to shift this trail further north to by-pass these sensitive areas to the south.

5.4.5 Trailheads and Access Points

Map 6 features both primary and secondary trailheads, descriptions of which can be found in section 5. 9 Signage. The trailheads will be located at formal and informal access points as follows:

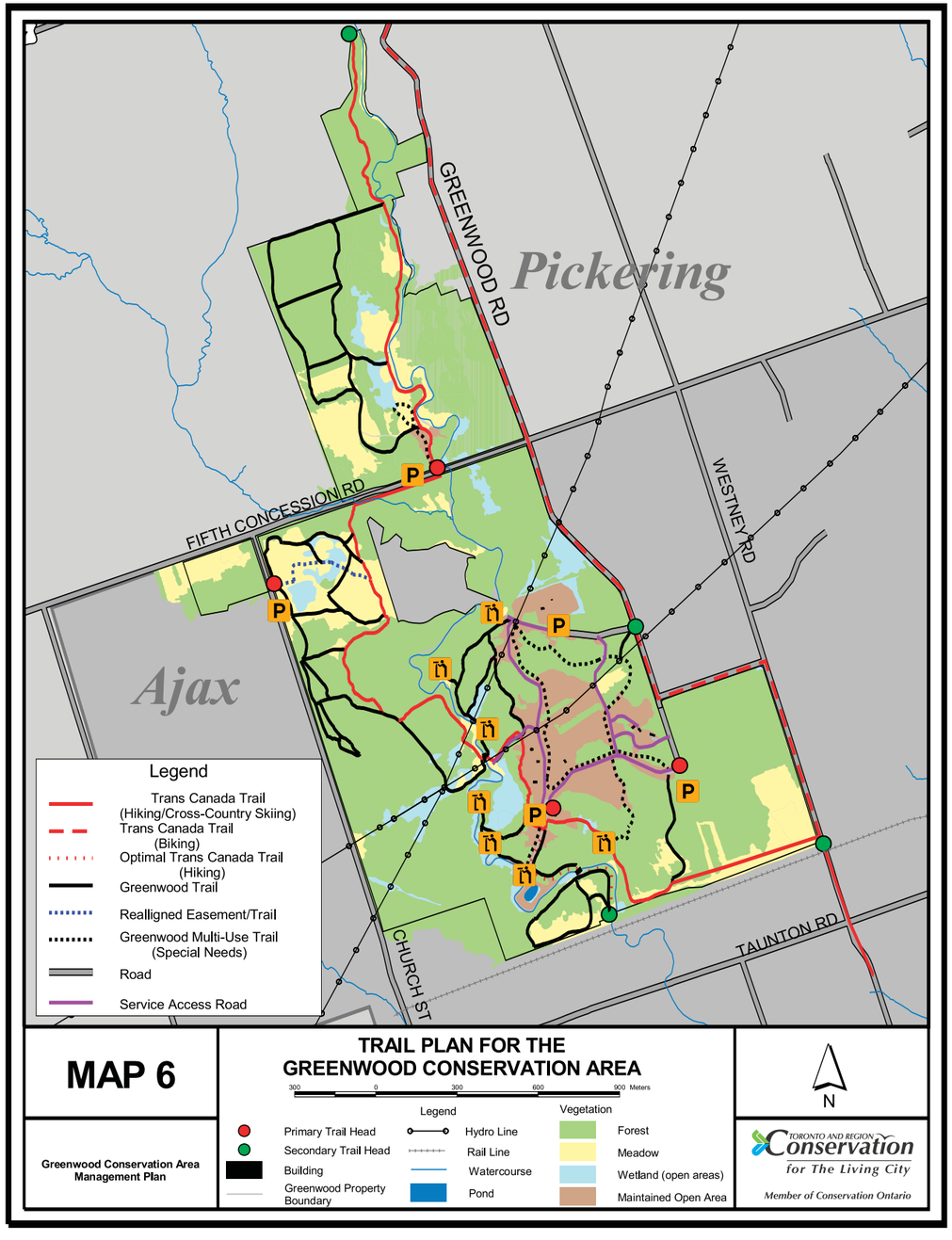
Formal Access Points

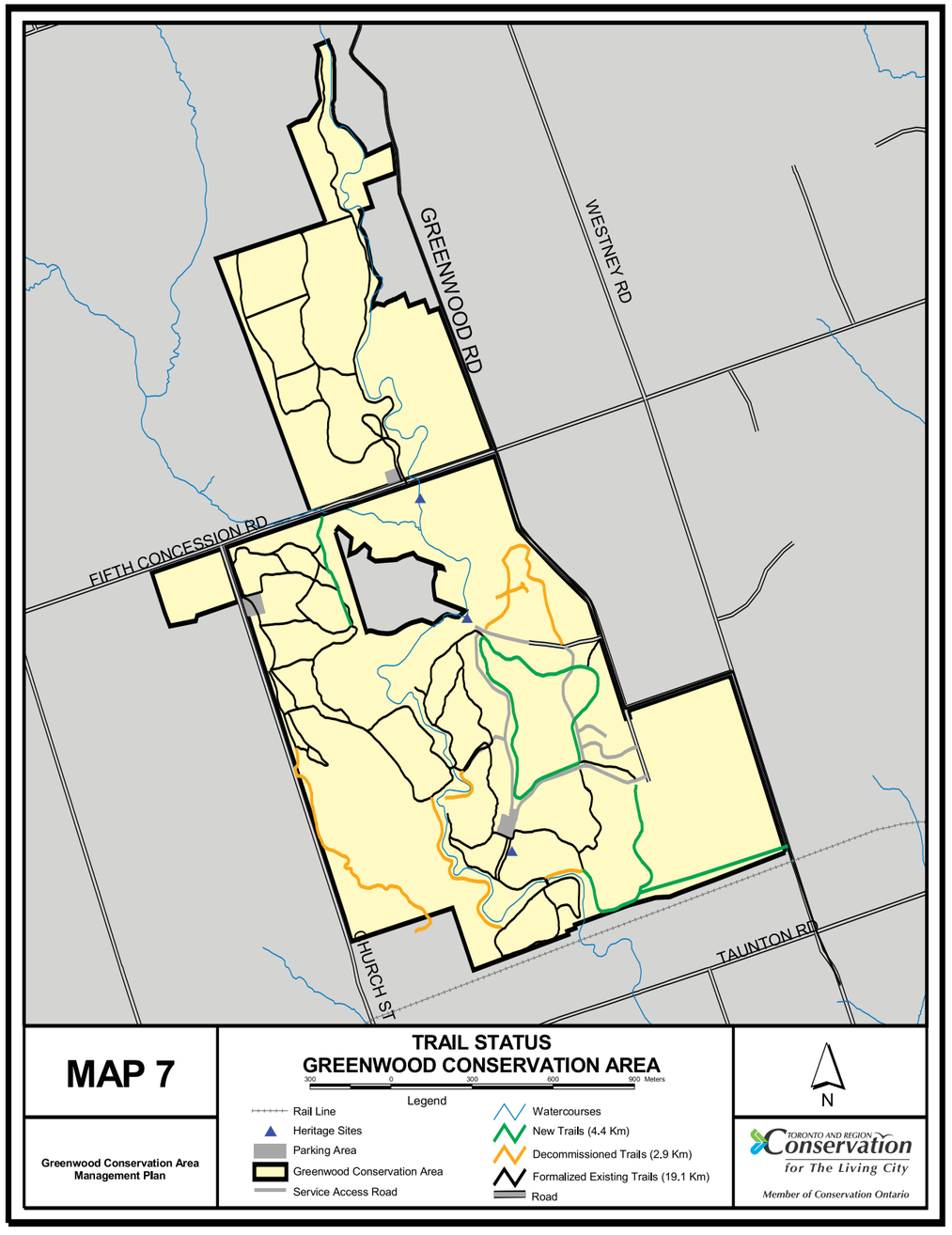
- Main parking lot in southern portion of the GCA*
- Parking area at the Rodar property
- Parking area on east side of Church Street, south of the Fifth Concession
- Gate house at the main entrance to the southern portion of the GCA
- Access point located on Greenwood Road, north of the main entrance and gate, south of the Fifth Concession

Informal Access Points

- Southern edge of the GCA, at the Canadian Pacific rail line, where the TCT enters the Greenwood property
- At the northern boundary of the Rodar property, where the TCT route will enter/exit the GCA

*This access point will be modified as necessary to accommodate Recommendation 5 of Section 4. 3 Public Use, Subsection 4. 3. 2 Infrastructure




GREENWOOD RD
WESTNEY RD
FIFTH CONCESSION RD
CHURCH ST
TAUNTON RD
MAP 7
TRAIL STATUS
GREENWOOD CONSERVATION AREA
300 0 300 600 900 Meters
Legend
Rail Line
Heritage Sites
Parking Area
Greenwood Conservation Area
Service Access Road
Watercourses
New Trails (4.4 Km)
Decommissioned Trails (2.9 Km)
Formalized Existing Trails (19.1 Km)
Road
N
Greenwood Conservation Area Management Plan
TORONTO AND REGION Conservation for The Living City
Member of Conservation Ontario

5.5 PLANNING RECOMMENDATIONS

This trail concept provides a general overview of trail locations and associated recommendations. It is strongly recommended that the Town of Ajax collaborate with TRCA staff to develop a detailed trail plan. This detailed plan will:

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

Recommendations

1. Provide detailed information for inclusion in signage and interpretive materials.
2. Create an interpretive trail guide, map and signage for trailheads.
3. Ensure that property boundaries and access points of the GCA are clearly marked through signage or fencing or both, as deemed appropriate through further investigation.
4. Clearly sign and distinguish between primary and secondary trailheads.
5. Generate a trail map of the GCA to be posted at primary trailheads.
6. Use the gate house, located at the main entrance to the GCA as a primary trailhead location and information centre. Trail maps and guides, along with the trail user code, guidelines and regulations, and other visitor information could be located here.
7. Highlight vistas and ecological features located along trails through signage and interpretive posts. Mark these areas on trail maps and guides, and provide interpretive information.
8. Distinguish the TCT from other trails within the GCA through the use of TCT trail markers and signage.
9. Clearly distinguish and sign the various trails, trail types, trail lengths and level of difficulty in both trailhead signage and trail guides.
10. In the case of the Greenwood Multi-Use Trail, designed to accommodate special needs visitors, plantings should occur adjacent to the trail to provide shading, visual interest and a buffer from adjacent public use activities.
11. Evaluate the condition of the lookout platform located in the southeast portion the property (along the former Bird Walk Trail), to determine the stability of the footings, and make amendments as required.

12. Evaluate areas where trails or vistas are located close to slope edge's to determine if relocation or slope stabilization is required.

13. Close surplus trails with the use of signage brush piles and native plantings.

14. Consistent with efforts to minimize the environmental impact of the trail systems within the GCA, it is recommended that the existing asphalt road system be replaced with a system of pulverized gravel/limestone screening paths.

A longer-term recommendation is to close the road system and associated parking at the main entrance to the GCA to vehicular traffic, except in cases of emergencies, park operations, group requirements or other special events requiring vehicular access. At the main entrance to the area, off Greenwood Road, parking would occur outside the gate house area. Visitors would walk in from the gate house along the gravel path to access the facilities. Appropriate parking facilities would be developed outside the gate house area, and the gate house itself would be developed as an information centre for park visitors, providing trail maps and other information for visitors to the area.

Development of the parking area and gate house also includes restoration of the stone pillars lining the entrance into the GCA. A distinguishing feature of the GCA, these pillars are currently in disrepair due to failing foundations. Their restoration is key to maintaining the character of the area.

This project should be undertaken by the Town of Ajax with participation from TRCA and the Stewardship Committee. In the shorter term, the recommendation is to close the gates on the weekdays and open them on weekends to accommodate visitor flow.

5.5.1 Public Uses

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

Recommendations

1. Provide a natural terrain trail surface with some spot hardening in wet areas.

2. Permit hiking and cross-country skiing on trail systems.

3. Create a trail system to accommodate people with special needs who are unable to access the more remote trails.

4. Disallow mountain biking, horseback riding and all motorized recreational vehicle use on trails.

5. Provide signage clearly identifying permitted trail uses at all access points and trailheads.

5.5.2 Trail Linkages

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

Recommendations

1. Encourage trail links to the TCT, the Duffins Trail System, the Ajax Trail System and the Waterfront Trail.

2. Provide information through signage detailing links to adjacent trail systems.

3. Promote such linkages through collaboration with adjacent municipalities and regions.

5.5.3 Implementation Strategy

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

Greenwood Conservation Area from its Southern Boundary to the Fifth Concession: Town of Ajax

Phase 1 – 2004:

- Develop the Greenwood Multi-Use Trail.
- Decommission trails through signage and barriers if necessary to discourage use. The trails to be decommissioned are those located within the interior forest area to the west of the Duffins Creek, in the southwest quadrant of the GCA, and those trails running from the intersection of the hydro corridors south along the west side of the creek. ;
- Decommission trails in east Gravel Pit area – refer to Map 7 for locations of decommissioned trails.
- Develop the primary trailhead locations.
- Where needed, replace existing boardwalks through wet areas and construct boardwalks and footbridges where necessary to accommodate trail passage over wet and sensitive areas.

Phase 2 – 2005:

- Develop secondary trails which will provide linkages from access points and trailheads to main hiking trails.
- Develop secondary trailheads.
- Improve the trail systems. This will include improving areas of poor drainage or rerouting trails around such areas, improve problems of erosion through surfacing or rerouting, and construct railings or barriers as required to prevent the spread of erosion and trampling problems.
- Develop main interpretive sites and accompanying signage, such as for the Canadian Northern Railway Heritage Site.

Phase 3 – 2006:

- Develop trail through the Primary Restoration Zone located on the east side of Church Street south of the Fifth Concession, on the former aggregate extraction site.
- Monitor, maintain and review all trail systems and amenities.

Greenwood Conservation Area – Rodar Property: TRCA

Phase 1 – 2004:

- Develop primary trailhead and signage for the TCT and Greenwood Trail.
- Develop the TCT and Greenwood Trail.

Phase 2 – 2005:

- Develop secondary trailhead and signage.
- Sign and distinguish northern and western boundaries of the Rodar property.
- Develop secondary trails.

5.5.4 Monitoring and Review

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

5.6 TRAIL DESIGN STANDARDS

5.6.1 Terminology and Definitions

The profile of a typical trail shows the basic components that comprise 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 travelled portion of the trail right-of-way (ROW) typically sloped or crowned to shed water
Drainage	Provision of methods to manage excessive water runoff (ditch, dip, waterbar, culvert, French drain, etc.)
Clearing Limits	Point at which the disturbance to the natural environment is limited. Defines the trail ROW.

5.6.2 Trail Standards

Trans Canada Trail – Use TRCA and Municipal standards accordingly

General Design Standards – Minimum

- Clearing Width: . . . . . 1 m
- Clearing Height: . . . . . 2. 5 m
- Tread Width: . . . . . 0. 5 m
- Tread Surface: . . . . . native terrain
- Desirable Grades: 0-20%
- Max. Sustainable Grade: . . 25%
- Form: . . . . . linear

Minimum trail standard for a hiking trail provided for a low to moderate level of use is a cleared ROW with minimum grubbing and no special tread surface (i. e. , a natural trail). Although multi-use trails generally allow 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 trails which are inappropriately located, is recommended to protect the numerous sensitive areas at the GCA.

Greenwood Hiking Trail
General Design Standards – Minimum

- Clearing Width: . . . . . 1 m
- Clearing Height:. . . . . 2.5 m
- Tread Width:. . . . . 0.5 m
- Tread Surface:. . . . . native terrain
- Minimum Length: . . . . . 1 km
- Optimum Length: . . . . . 5–10 km
- Desirable Grades:. 0–20%
- Max. Sustainable Grade: . 25%
- Desirable Duration: . . . . . 1–2 hours
- Form: . . . . . loop, satellite loop or linear

Multi-Use Trail – Access for People with Special Needs
General Design Standards – Minimum

- Clearing Width: . . . . . 2.5 m
- Clearing Height:. . . . . 3.5 m
- Tread Width: . . . . . 2.5 m max.
- Tread Surface: . . . . . limestone screening
- Minimum Length: . . . . . 1 km loop min.
- Optimum Length: . . . . . 2–5 km
- Desirable Grades: 0–8%
- Max. Sustainable Grade: . 8%
- Desirable Duration: . . . . . 1–2 hours loop
- Form: . . . . . Loop or satellite loop (circular)

Figure 2: Trail Design Standards for Hiking Trails within the Greenwood Conservation Area

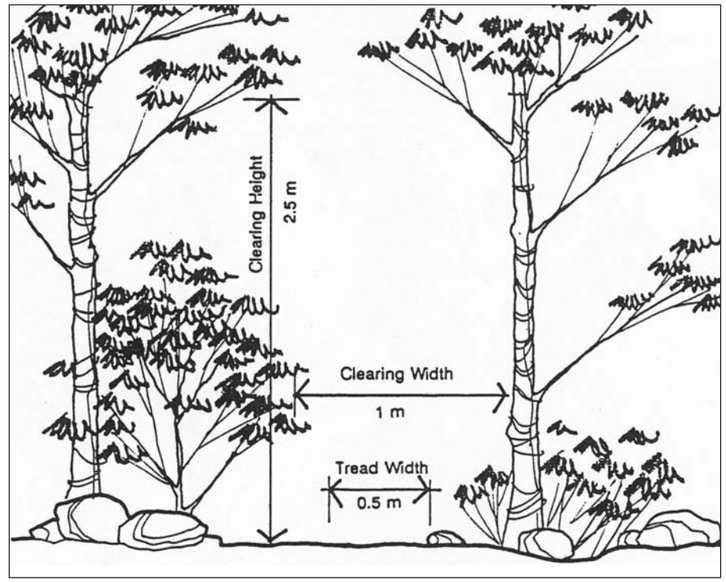
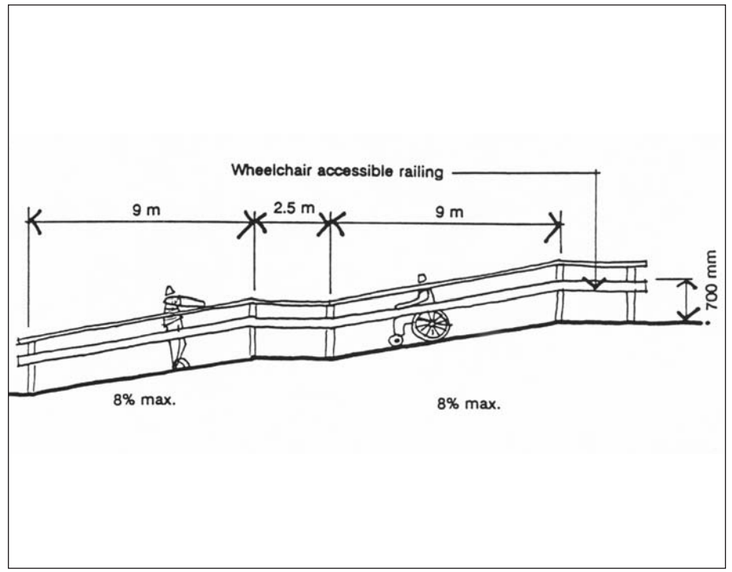


Figure 3: Trail Design Standards for Multi-Use Trails for People with Special Needs



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.

5.7 TRAIL IMPACTS AND MITIGATION TECHNIQUES

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

5.7.1 Clearing the Trail Route

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

Recommendations

1. Route the trail to avoid important ecological elements, interpretive features, rare plants and important habitat zones.

2. Strictly control the limit of disturbance to within the defined ROW zone.

5.7.2 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. As a result, trail routing and accompanying signage should focus on preventing disturbance to sensitive or rare species through avoidance of associated habitats. Education and proactive approaches such as signage and positive interpretation can also help ensure that interactions between humans and wildlife within the GCA are positive.

Recommendations

1. Ensure that detailed trail routing is conducted both on site and using detailed natural heritage mapping to route trails appropriately with respect to species of concern, interior forest, ESAs and other natural features.

2. Erect signage and provide interpretive sites along the trail to encourage viewing opportunities which are safe for both humans and wildlife, and minimize the potential negative impacts of human contact with wildlife.

3. Decommission trails which currently travel through ecologically sensitive areas, including ESAs, Interior Forest habitat and other areas deemed ecologically sensitive through the Natural Heritage approach.

4. Apply all of the above recommendations to aquatic as well as terrestrial habitats within the GCA.

5.7.3 Environmental Impacts Created by Overuse

Environmental impacts caused by overuse can include, among others, trampled vegetation, slope erosion, soil compaction, increased root exposure and trail widening around wet areas. These impacts can negatively impact the surrounding natural area and features over time. The result is a spreading, compacted trail system which not only affects the ecological quality of the surroundings, but also negatively affects the user experience.

Recommendations

1. Avoid important habitat zones.

2. Where there is question regarding specific impacts, favour the natural environment.

3. Locate activities for large groups and noisy recreational activities 100–200 metres away from ESAs.

4. Avoid the use of large-scale equipment for the specific construction and schedule construction operations at times that do not conflict with critical phases of seasonal wildlife or plant community cycles.

5. 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).

6. Develop viewing stations to allow visitors to view sensitive areas from suitable distances.

7. Control use by turning tributary trails into dead ends to minimize flow-through circulation.

8. 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.

9. Monitor trail condition throughout the year and relocate trails as required.

10. Restrict access to specific areas during critical seasons of the year, and where necessary, close trails during spring melt or other significant weather events to prevent damage and reduce risk to human safety.

5.7.4 Soil Erosion

Erosion affects functional utility, safety, ecological balance and aesthetics. The effects include loss of topsoil, root exposure, stream sedimentation, contamination of water supplies and slides and slumping. Erosion is caused by erosion-susceptible soils (especially when wet), excessive removal of vegetation, excessive compaction due to trampling, uncontrolled surface runoff, and improper installation of bridges and culverts. The GCA has a significant amount of groundwater discharge areas. These areas tend to remain wet year round thus making them particularly sensitive to erosion from trail use. Trails should be planned and designed accordingly, with boardwalks and other construction features offering possible solutions to minimize impacts from trails.

Recommendations

1. Locate trails where soils are most resistant to erosion. In general, the coarser and more porous the soil, the greater the resistance to erosion.

2. Use tread surfacing or bridging to protect soil. Provide dry walking surfaces in wet areas or poor soil conditions, particularly in groundwater discharge areas.

3. Ensure proper control of drainage on sloping trail sections by use of waterbars or culverts. Cross-slope the tread in the direction of the natural grade.

4. 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.

5. For low use hiking trails, incorporate natural trail dips into the trail surface to divert drainage at frequent intervals of 50–75 metres.

6. 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 per cent thus minimizing ponding.

7. Use switchbacks on steep slopes to maintain optimum grades.

8. Slope cross section of tread a minimum of 2 per cent to direct small amounts of water across the trail surface.

9. Intercept excessive runoff with ditches and a central crown and provide periodic crossings of culverts to minimize runoff build-up.

10. Maintain vegetation as close to the trail edge as possible to stabilize soil and encourage percolation of water into the soil.

11. 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 construct bridges as they are more suitable than culverts for large streams.

5.7.5 Trail-Side Trampling

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

Recommendations

1. Provide trail widths that can accommodate expected traffic volume based on design standards.

2. Provide widenings where people are likely to gather (viewing points, features of interest, interpretive displays, etc.).

3. Raise the trail tread by using boardwalks.

4. Restrict use to optimum levels through management controls such as signage or temporary closures.

5. Perform frequent checks to ensure that "deadfalls" do not block or obscure trails.

6. Use logs, branches and rocks to mark trail edges wherever problems occur in keeping users on trails.

7. Designate travel routes for maintenance vehicles within the GCA. Keep vehicles off sensitive terrain and non-designated routes.

8. Consider applying special tread surfaces to routes designated for maintenance or emergency vehicle access to reduce compaction and erosion problems.

5.7.6 Shortcutting

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

Recommendations

1. 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.

2. Restrict construction of switchbacks to only most essential circumstances as these naturally provide ample opportunity for shortcutting and will generally require numerous introduced deterrents such as planting or rock placement.

3. Locate switchbacks with dense vegetation or rough ground between to eliminate the need for constructed barriers.

4. Build in rough steps with boulders or logs on switchbacks to channel shortcutting traffic along a predetermined route.

5. Adopt shortcuts that are superior to original routes as part of the official route and close the original. Rehabilitate abandoned routes with natural plantings that closely resemble the native condition and vegetation.

6. Close hazardous or destructive shortcuts by placing obstructions at the entrance and along the route in the form of rocks, branches, fallen trees or new native plantings.

5.8 TRAIL CONSTRUCTION

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

5.8.1 Timing

Timing of construction is important. Avoid wet/rainy periods and nesting/breeding seasons to minimize impact.

5.8.2 Clearing

The clearing operation refers to cutting of trees and to removing all materials that may obstruct movement along the trail, thus creating a potential hazard. Prior to clearing, a tree impact assessment will be completed to describe the trees, numbers, species, condition and location. The assessment will ensure appropriate trail routing with acceptable environmental impact. Large trees will be felled, and stumps will be cut off flush, or preferably below grade, and removed completely. Fallen trees should be cut into manageable lengths for removal from the trail. Complete flush-to-grade clearing will generally occur on the tread surface, while the rest of the cleared ROW 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 so as not to cause a fire hazard.

5.8.3 Surfacing

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

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

Recommendations

1. Wood chips should be placed on the trail in sections where root exposure is extreme or drainage is a slight problem.

2. Where wood chips are required they should be laid down the width of the tread at a depth of 50–75 millimetres. Chips should be no larger than 50 millimetres by 10 millimetres thick. Subgrade preparation is generally not required for this application.

5.8.4 Boardwalks

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

Recommendations

1. Where drainage becomes a safety concern, boardwalks should be used. Boardwalk construction or improvements are required in a number of locations along GCA trails.

2. A detailed site assessment should be conducted prior to construction.

5.8.5 Barriers

Barriers can be constructed from 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 being able to blend into the natural landscape. “Green” barriers may also be suitable in certain situations (i. e. hawthorn, raspberry bushes, etc.).

Recommendations

1. Barrier construction will likely be required in certain locations within the GCA, such as the proposed vista and heritage site of the Canadian Northern Railway to ensure public safety along this steep edge of slope.

2. Careful assessments of all potential barrier sites should be conducted prior to constructing or establishing any barrier.

5.9 SIGNAGE

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

- Identification
- Direction
- Regulations
- Information/Interpretation

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

5.9.1 Primary Trailhead

There should be four primary trailhead locations for the GCA, including:

- Main parking lot in southern portion of the GCA
- Gate house at the main entrance to the southern portion of the GCA. This area will be used as a trailhead for times when the gates are locked, or for visitors choosing to start a hike from this point.
- Parking area and access point to Rodar property on north side of the Fifth Concession
- Parking area and access point on east side of Church Street, just south of the Fifth Concession

The facilities that should be provided at the primary trailhead include:

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

5.9.1.1 Potential Future Primary Trail Head

A new primary trailhead will be required once the optimal route for the TCT is established

- South end GCA half way between Westney Road and Church Street where the TCT will enter the GCA

5.9.2 Secondary Trailhead

There should be four secondary trailhead locations for the GCA, including:

- Access point located on Greenwood Road, north of the main entrance and gate, south of the Fifth Concession
- At the southern edge of the GCA, at the rail line, where the TCT enters the GCA
- At the northern boundary of the Rodar property, where the TCT route will enter/exit the GCA
- South east corner of GCA and Westney Road north of the railway

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

5.9.3 Trail Map and Guide

A trail map and guide should be developed and made available to trail users at trailhead locations, public buildings and the TRCA and Town of Ajax Web sites. Information should include:

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

5.9.4 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 of and respect for natural and cultural resources

5.10 TRAIL MANAGEMENT

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

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

5.10.1 User Management

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

5.10.2 Managing Trail Use

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

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

- Frequent patrolling of trail by maintenance and/or security staff or responsible user groups.
- Remove trail signage or interpretive posts; remove bridges or other access features; allow natural regeneration of the trail; erect barriers (plantings, fences, gates or natural stone blocks); and erect positive signage describing the reason for the closure, and where possible describing nearby alternatives.
- The decommissioning of trails, especially well established, long-term trails, can result in negative reactions from user groups. For this reason, it is important that the process by open and involve public outreach and education. A key group to assist in this work will be the Greenwood Stewardship Committee, along with local hiking or trail groups.
- In cases where trail uses are to be restricted, such as restricting bicycle use while allowing pedestrian use, providing barriers may help restrict bicycle access while allowing pedestrian (hiking) access. The decision to erect barriers, in addition to signage in this instance should be carefully considered and analyzed, and any barriers erected must be frequently monitored to ensure that the barrier is successful. In this instance, monitoring will involve determining whether or not the undesired use is in fact being restricted, or whether users are simply creating new trails or access areas.
- Advisory restrictions include posting of notices to warn users of ongoing maintenance work, fallen trees or other natural conditions which potentially restrict trail use. Positive signage communicates a "good host" image and explains why a particular behaviour is requested. Negative signage should be avoided.
- Community involvement and support for prohibitions prior to taking action will help in enforcing restrictions. Notices of restrictions should be shown on maps as well as newsletters and trail guides.

5.11 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 should be carried out on a regular basis by TRCA and Town of Ajax staff and with the help of the Stewardship Committee to prevent the trails from falling into disrepair.

5.11.1 Surface Treatment

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

5.11.2 Erosion

1. Monitor trails for erosion damage.
2. Fill channels eroded through trails with appropriate material and compact.
3. Give prompt attention to serious damage while diverting trail traffic for safety reasons.
4. During periods of snow melt or heavy rain fall, such as in spring and fall, close certain trails to minimize damage to trails and risk to human safety.

5.11.3 Litter Removal

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

5.11.4 Invasive Vegetation Control

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

Recommendations

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

5.11.5 Pruning and Trimming

1. Remove major limbs or trees adjacent to the trail that are in poor condition.
2. Remove branches, limbs, and any other debris the trail tread. These can be piled to encourage wildlife use or used as trail edges.
3. Using pruners or loppers, prune back branches leaning into the trail ROW and prune off at ground level any woody sapling growth in the ROW.
4. Conduct sensitive vegetation control on a semi-regular basis. This is necessary to ensure that the path is not crowded or blocked while maintaining natural character along the path edge.

5.11.6 Windfalls/Hazard Tree Removal

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

5.11.7 Structures

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

5.11.8 Signage

1. Check to ensure that signs have not been removed or repositioned. Replace missing signs as soon as possible, even if a temporary sign is required.
2. Replace or repair damaged signs as soon as possible to maintain trail quality and direction.

3. Evaluate signage on a regular, yearly basis to maintain finish and message quality. Repaint or stain as necessary.
4. Straighten and secure posts.
5. Install seasonal signs with appropriate sign posts. Remove them promptly when their message is no longer appropriate or necessary.

5.12 MONITORING AND MANAGEMENT SYSTEMS

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

1. Establish Maintenance Objectives

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

2. Evaluate Trail Needs

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

3. Develop a Maintenance Program

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

4. Establish a Trail Monitoring System

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

5. Schedule and Record Maintenance

Regular maintenance can be scheduled on a yearly basis. This forms the basic structure of the maintenance program for which labour and equipment can be allocated. However, special maintenance (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 filed according 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.

6. Maintenance Evaluation

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

5.13 VANDALISM

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

Although very little will stop the determined vandal, many techniques deter casual vandalism or bring the vandal to justice. Bollards, posts or gates should be used to control unwanted vehicular access. Semi-regular police patrols can be used to monitor trail sections that are particularly attractive to vandals. Strategically placed lighting will discourage destructive activity. Lighting should be placed at main trailhead locations, and associated with buildings wherever possible. Also, all lighting should function on motion sensors and be directional – directed downward, lighting only the area associated with the building or trailhead. 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 surrounding vandalism.

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

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

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

5.14 SUMMARY AND CONCLUSION

Through collaboration and consultation with the Greenwood Conservation Area Stewardship Committee, TRCA and Town of Ajax staff, Ajax Environmental and Recreation Advisory Committees, Heritage Ajax and representatives from the Trans Canada Trail Committee, the Town of Ajax should implement the proposed trail plan and undertake detailed trail design and implementation plans, management and maintenance of the trail system at the GCA. Additionally, TRCA, in collaboration with the Greenwood Conservation Area Stewardship Committee, the Greenwood community, the Town of Ajax and the City of Pickering should implement the proposed trail plan and undertake detailed trail design and implementation plans, management and maintenance of the trail system in the Rodar property.

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

CHAPTER 6 – PLAN IMPLEMENTATION

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

6.1 FUTURE MANAGEMENT

6.1.1 Key Management Plan Recommendations

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

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

1. Complete a full assessment of the management plan and establish priorities for implementation.
2. Implement a detailed trail plan and develop a trail guide for users.
3. Develop detailed restoration plans for all Primary Restoration Zones within the GCA, with priority given to:
    - former aggregate extraction area
    - areas within the Rodar property
    - pond, and surrounding riparian areas and unstable slope
    - restoration patches within main Public Use Zone

4. Develop a "River First" approach in the Aquatic Resource Zone and implement key Fisheries Management Plan recommendations.
5. Develop and maintain a GCA newsletter and communications plan to raise awareness and inform surrounding communities about the area.
6. Negotiate with the private landowners in and around the GCA regarding stewardship practices, conservation easements, land donations and sales.
7. Pursue opportunities for land donations and acquisition for the following parcels of land in particular:
    - south of the Fifth Concession, currently owned by Miller Paving
    - southwest corner of the GCA at Church Street and the Canadian Pacific rail line
    - lands owned by the City of Toronto, located west and north of the GCA
8. Manage forests with a focus on increasing diversity in plantation areas and improving overall health and diversity of native species.
9. Establish a list of volunteers willing to aid in a volunteer program.
10. Prepare and install natural and cultural heritage interpretive signs.
11. Assist the Town of Ajax and TRCA in implementing the various stewardship programs including the Rural Clean Water Program.
12. Develop educational resources and tools for private landowners and visitors.
13. Build trailheads with signage and appropriate parking.
14. Monitor the trails for invasive plant material and prevent their spread with barriers and other eradication techniques.
15. Monitor the presence of noxious weeds and remove as needed.
16. Organize celebration events to increase public awareness.
17. Assist TRCA in implementing the Terrestrial Natural Heritage Monitoring Program.
18. Secure financial and in-kind resources to undertake the work.

6.2 AGENCY AND MUNICIPAL STEWARDSHIP

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

1. Protect, restore and enhance as many natural open spaces as possible to maintain terrestrial natural habitat connectivity and interior habitats.

2. Create publicly accessible trail systems that will connect communities to the Trans Canada Trail, the Ajax Trail System and the Waterfront Trail.

3. Promote private land stewardship that increases awareness about best management practices and creates opportunities to engage landowners in protecting and enhancing the GCA and its valuable resources.

6.3 PRIVATE LAND STEWARDSHIP

The GCA will continue to provide opportunities for outdoor recreation, conservation education and nature appreciation to the surrounding communities. It will also provide many health and economic benefits to the community. Adjacent landowners and users of the TRCA properties can help to ensure that the surrounding landscape does not negatively impact the environmental quality of this unique natural area. Their key roles to fulfil the goal and objectives of this management plan include:

1. 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.

2. Leash pets on site to minimize disturbance to wildlife, and promote "poop and scoop" to prevent pet feces from entering the watercourses after rainfall events.

3. Protect and restore private lands identified for natural area regeneration through the application of TRCA's Terrestrial Natural Heritage approach.

4. Participate in a private land stewardship program, which assists landowners with agricultural best management practices and preservation of woodlots and other wildlife habitat on their property.

5. Participate in TRCA's Rural Clean Water Program.

6. 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.

6.4 PUBLIC USE

Completion and implementation of the trail plan, which was developed for this management plan, is critical to ensure protection of the environment, appropriate trail use and user safety. The trail plan was developed through extensive consultation with all user groups, and the proposed plans are fully supported. If realized, this plan will help the Town of Ajax and TRCA to increase user enjoyment and protect the environment.

6.5 SAFETY AND SECURITY

Discussions will be held 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 land's natural character, many areas are inaccessible by conventional response vehicles (fire, ambulance and police). Special considerations are therefore required, including:

1. A trail locator system such as a series of distance markers along the trails to locate/orient trail users.

2. Geographic integration of the trail location system into the emergency response system of the fire, police and ambulance departments. A fully integrated map depicting all named trails and locations of markers along each trail should be installed at all primary and secondary trail heads.

3. An emergency response plan for the GCA with involvement from local and neighbouring emergency service providers.

6.6 ENDORSEMENT AND MAINTENANCE OF MANAGEMENT PLAN

As a partnership between the Town of Ajax, TRCA, the Advisory Committee, the community and City of Pickering, this management plan required endorsement from a variety of groups. The public, local community and GCA users were informed and consulted throughout the process through newsletters, questionnaires, open houses and public meetings held for each phase of the management plan process. Their concerns, comments and suggestions were heard and integrated into the plan.

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

At meeting #6/04, held on June 25, 2004, TRCA approved the Greenwood Conservation Area Management Plan.

Resolution #A179/04

"THAT the Greenwood Conservation Area Management Plan, dated May 2004, as attached, be approved;

THAT staff circulate the Greenwood Conservation Area Management Plan to the Town of Ajax, the City of Pickering and Durham Region for endorsement;

THAT staff send a letter of thanks to the members of the Greenwood Conservation Area Management Plan Advisory Committee for their dedicated assistance with the preparation of the management plan;

THAT the Greenwood Conservation Area Management Plan be circulated to members of the advisory committee, the Town of Ajax, the City of Pickering and other appropriate agencies, groups and individuals;

THAT staff prepare a report in the fall of 2004 on management plan implementation and stewardship, including the integration with A Watershed Plan for Duffins Creek and Carruthers Creek;

AND FURTHER THAT the Toronto and Region Conservation Authority (TRCA) and Town of Ajax staff be directed to utilize the Management Plan (Strategy) for Public Use on Conservation Authority Lands (1995) when considering new public uses in the Greenwood Conservation Area (CA). "

Additionally, the Town of Ajax Council approved the management plan on November 22, 2004.

The Management Plan was also presented to the City of Pickering Council for endorsement fall of 2004.

The Town of Ajax, TRCA and the newly formed Stewardship Committee will continue to work together towards implementing, maintaining and adapting the plan.

6.7 PLAN REVIEW AND AMENDMENT

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

The management plan identifies potential Public Use Zones. Any specific uses proposed for 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 that 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 are thoroughly examined and designed to minimize disruption, and to protect, enhance or restore the natural values of the area.

6.8 THE STUDY PROCESS AND IMPLEMENTATION WORK FLOW

GREENWOOD CONSERVATION AREA
MANAGEMENT AGREEMENT
TOWN OF AJAX AND TRCA

GREENWOOD CONSERVATION AREA
MANAGEMENT PLAN
ADVISORY COMMITTEE

MANAGEMENT PLAN ENDORSED
BY TOWN OF AJAX AND TRCA

LONG-TERM AGREEMENT BETWEEN
TOWN OF AJAX AND TRCA
– MANAGEMENT AND FISCAL RESPONSIBILITIES
OF PROPERTY

STEWARDSHIP COMMITTEE
TOWN OF AJAX/TRCA/THE PUBLIC

Figure 4: The Study Process for Implementation of the Greenwood Conservation Area Management Plan

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