

Turning over a new leaf: The Etobicoke and Mimico Creeks Watersheds Report Card 2006



Etobicoke and Mimico
Creeks



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Watersheds Report Card 2006**

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Message from the Coalition

This report card is a snapshot of the lives of two severely degraded watersheds. Etobicoke and Mimico creeks are polluted, their banks are eroding, there are few natural areas left in the watersheds, and many species of fish and wildlife have disappeared. But things don't have to stay this way. Our creeks can be restored to health if we work together and make them a priority. The Etobicoke-Mimico Watersheds Coalition is committed to continue to work with our partners to restore ecosystem health in our watersheds and improve the quality of life for our communities. The Coalition is a volunteer, watershed-wide advisory committee established by Toronto and Region Conservation (TRCA) to help achieve The Living City vision of healthy rivers and shorelines, regional biodiversity and sustainable communities. It is composed of volunteer citizens and members of community groups, as well as municipal representatives from Caledon, Brampton, Mississauga and Toronto.

Why are we so determined?

First, we believe that healthy watersheds are crucial to our social and economic well-being. In our own interests, we need to restore these systems to health.

Second, we are beginning to see signs of progress as more people become aware of environmental issues, get engaged in environmental stewardship activities and become involved in actions to improve the environment. This includes citizens, government agencies, institutions, organizations and businesses.

Third, we know that it takes time to see measurable results from our actions and that we must continually sustain and extend our efforts if we are to bring about positive environmental change.

Why a report card?

A report card allows us to track progress towards our goals and shows where we need to work harder or change tactics. The report card assesses the state of the watersheds against generally accepted standards and guidelines, and uses methods that can be repeated at regular intervals. Finally, and perhaps most important, the report card helps to make us and our partners accountable. In 2012 we will ask again: Did we do what we said we would do? Did we achieve the intended results? Are environmental conditions in the watersheds improving?

Turning over a new leaf...

Conservation initiatives in our watersheds began in 1946 when the Etobicoke River Conservation Authority was formed. Although this body and its successors had good intentions for sound management of the watersheds, they were undermined by a lack of environmental legislation, simplistic approaches to flood control and the absence of environmental priorities in urban development. Six decades later, we realize, sadly, that we have learned a lot about what not to do. A few years ago we began to turn over a new leaf by developing the 2002 Revitalization Strategy, *Greening Our Watersheds*, which laid out a blueprint for bringing the Etobicoke and Mimico creeks watersheds back to health. The Coalition invites you to join us in the important business of implementing the strategy. Working together, we are confident that our watershed communities, businesses and agencies can make a difference, so that our 2012 report card will truly show that we have made significant progress in achieving healthier watersheds.

Handwritten signatures of Suzanne Barrett and Irene Jones in black ink.

Suzanne Barrett, Co-Chair and Irene Jones, Co-Chair

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Introduction

Background

In 1999, Toronto and Region Conservation (TRCA) created the Etobicoke and Mimico Creeks Watersheds Task Force. Its mandate was to develop an ecosystem-based management strategy to help restore two of the most degraded watersheds in the Greater Toronto Area. After two years of intense work, in 2002 the multi-stakeholder task force released *Greening Our Watersheds*, the Watersheds Revitalization Strategy that provided a guiding vision and objectives, and recommended actions for restoration of the Etobicoke and Mimico creeks watersheds. *Greening Our Watersheds* also included the first report card on the health of these watersheds.

Among the many recommendations contained in *Greening Our Watersheds* was the creation of the Etobicoke-Mimico Watersheds Coalition (the Coalition) to oversee implementation of the Watersheds Revitalization Strategy. The Coalition includes watershed residents, elected representatives, stewardship group representatives, agency representatives, community groups and watershed businesses. The Coalition's work includes the advocacy, outreach and "hands-on" projects to improve the health of the watersheds. The Coalition also establishes Community Action Areas, helps to set up stewardship groups in these areas and develops report cards at periodic intervals to measure progress in attaining the goals laid out in *Greening Our Watersheds*.

About this Report

Turning over a new leaf: The Etobicoke and Mimico Creeks Watersheds Report Card 2006 has been prepared by the Etobicoke-Mimico Watersheds Coalition to communicate the progress that has been made implementing the Watersheds Revitalization Strategy. Using a suite of 25 indicators, it updates the current state of the watersheds, reports on major accomplishments and identifies the key actions that are needed to meet the targets for each indicator. The indicators are organized to reflect the components identified in *Greening Our Watersheds*. These components, which are crucial to the health of the watersheds, are:

Natural Heritage System
Terrestrial Natural Heritage
Aquatic Systems
Water Quality
Water Quantity

Human Influences
Urban Growth and Sustainability
Recreation
Heritage

Working Together
Outreach
Funding
Stewardship

Measures, Targets and Ratings

While *Turning over a new leaf* builds on the extensive body of work contained in *Greening Our Watersheds*, many of the measures and targets contained in the latter document have been refined since 2002. This reflects the fact that we have better data and information than four years ago. It should be noted that many of

the indicators for 2006 are not directly comparable with those used in 2002, so caution should be used in trying to make comparisons between the results reported in *Turning over a new leaf* and those reported in *Greening Our Watersheds*.

Using the most recent data and information, TRCA technical staff rated most of the indicators of watershed health using an “excellent/good/fair/poor/fail” system that is specific to each indicator. In three cases, indicators were not rated because the indicator is still under development.

The Rating System*

Excellent	>80%
Good	70-79%
Fair	60-60%
Poor	50-59%
Fail	<50%

* in comparison to targets

Where information is available and it is useful to look at each watershed separately, we have rated the Etobicoke and Mimico creeks separately. In other cases, the watersheds are rated together. More detailed information on the indicators, measures and targets is contained in TRCA’s Background Technical Documents for Report Card Indicators.

Key future actions

For each indicator, key future actions have been identified to help achieve the desired targets. Some of these actions are aimed at the Coalition itself, others at the municipalities in the watersheds, or at “watershed partners” who include the Coalition, TRCA, the cities of Toronto, Mississauga and Brampton, the Town of Caledon, the Region of Peel, provincial and federal agencies, businesses and community groups. A few actions are aimed at the provincial and federal governments. In all cases, the Coalition has tried to ensure that Key Future Actions will help meet the Toronto and Region Remedial Action Plan (RAP) objectives set out in the 1994 strategy document, *Clean Waters, Clear Choices*. As one of the next steps in this process, the Coalition will be identifying the highest priority actions from among the over 100 contained in the report card, to focus its future activities.

Development and review process

This report card has been developed over the course of a year with extensive involvement of TRCA staff and the Coalition report card subcommittee. Drafts have been reviewed by TRCA staff, Coalition members and municipal staff. As much as possible, their comments have been incorporated so that the report card is technically sound and supported broadly.

Why Turning over a new leaf?

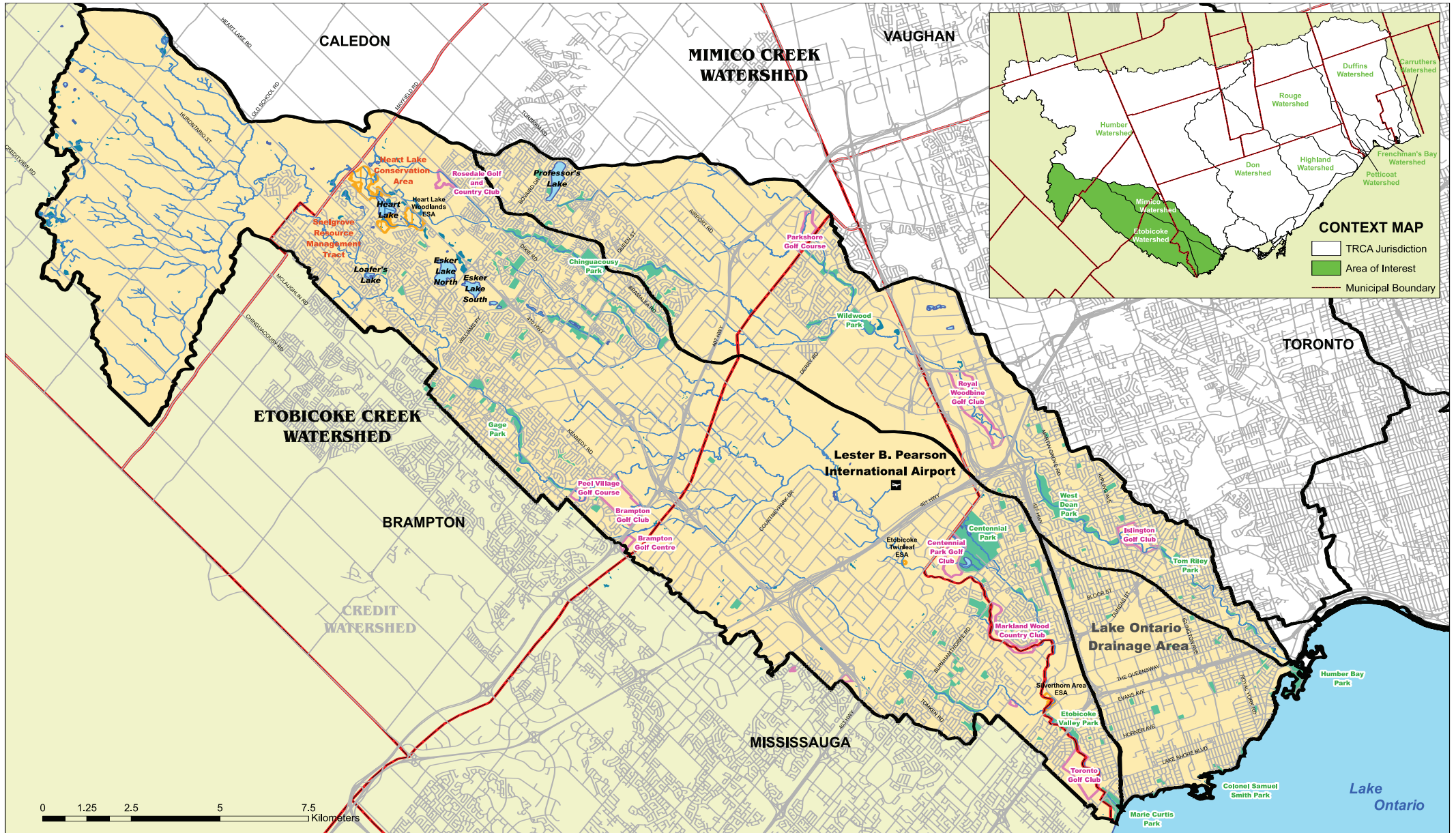
Why *Turning over a new leaf*? We have used this title to express an important idea. The Coalition believes that we have begun to reverse the trend of degradation of our watersheds. An immense amount of work has been done since 2002 by the Coalition, TRCA, our municipal partners, agencies, non-governmental organizations, businesses, community groups and committed individuals. Some of this work, such as stream restoration, naturalization and stewardship activities, is “hands-on” action that has already begun to heal the scars of 200 years of neglect and abuse. Other work, such as the development of strategies, plans and programs, provides the framework, commitment and funding for actions that are just beginning. As yet, there are few signs of environmental improvement resulting from these activities. But this will come.

Our task is no small one. We aim to take the unhealthy creeks and disconnected landscapes of the Etobicoke and Mimico creeks watersheds and make them healthy, vital, connected and sustainable. Our watersheds are a rich part of our heritage, the place we live today and a vital part of our future. The Etobicoke-Mimico Watersheds Coalition invites you to join with us in the important work of bringing the Etobicoke and Mimico creeks back to health.



figure 01: where do we want to be?

components	objective
natural heritage system	
terrestrial natural heritage	Forest and wetland habitats are preserved, regenerated and created, ensuring the healthiest possible conditions and the greatest possible representation of native plant and animal communities, and species.
aquatic systems	Aquatic ecosystems are diverse, balanced and self-sustaining.
water quality	Water in the creeks is safe for people, fish and wildlife.
water quantity	The creeks are restored to a more natural flow pattern.
human influences	
urban growth and sustainability	Adaptive and sustainable land management tools are used in the planning of urban growth and development, and rural land uses. Watershed residents, businesses, developers, farmers and governments acknowledge the need to act in a more sustainable way and adopt sustainable practices.
recreation	Outdoor recreational facilities are planned and managed in a manner that integrates ecological health with social benefits.
heritage	Community connections to the watersheds are improved through the recognition, preservation and celebration of heritage features and resources.
working together	
outreach and education	Enhanced hands-on public learning opportunities are offered within and about the Etobicoke and Mimico creeks watersheds.
funding	Funds are raised for environmental regeneration, protection, education and awareness initiatives in the watersheds.
stewardship	People choose lifestyles that are sustainable and ecologically sound.














Date: May 2006
**Created By: Information Systems/
 Information Technology**

TORONTO AND REGION
Conservation
for The Living City

Legend

 E.S.A.	 Park	 Road
 Wetland	 Waterbody	 Watercourse
 Watershed Boundary	 Golf Course	 Municipal Boundary

**Etobicoke & Mimico Creeks
 Watersheds
 Toronto and Region
 Conservation Authority**

About our watersheds

Etobicoke and Mimico creeks watersheds are situated side by side in the western part of TRCA's jurisdiction. Both creeks originate on the south slope of the Oak Ridges Moraine and travel south to Lake Ontario (a source of drinking water for most communities within the Greater Toronto Area). The watersheds are often referenced and managed together because of their proximity to each other and their many similarities. The watersheds total 28,860 hectares in size and support a population of over 400,000 people, and substantial numbers of businesses and industries.

Two hundred years of Euro-American settlement have dramatically changed the landscape through which the creeks flow, as well as the creeks themselves. Urbanization of the watersheds has led to the channelization of streams, the draining of wetlands, the installation of flood control structures, the removal of extensive areas of forest and riparian vegetation, and the loss of many species of wildlife. The Etobicoke and Mimico creeks watersheds of today contain only remnants of what was once an ecologically complex network of upland and valleyland forests, meadows and wetlands.

Natural Heritage System

Terrestrial Natural Heritage

Objective: Forest and wetland habitats are preserved, regenerated and created, ensuring the healthiest possible conditions, and the greatest possible representation of native plant and animal communities and species.

Terrestrial natural heritage refers to the land-based natural systems in the Etobicoke and Mimico creeks watersheds. This includes forests, wetlands, meadows and beaches, and the plant and animal species, and communities that are found within them. These important natural systems provide us with many benefits—they help clean our water and air, provide oxygen, retain stormwater, recharge groundwater and provide habitat for many species of wildlife. In doing these things, they contribute greatly to quality of life and the sustainability of our communities. The management strategy for terrestrial natural heritage in the Etobicoke and Mimico creeks watersheds focuses on two important components—forests and wetlands.

Indicators: Three indicators are used to measure the health of terrestrial natural heritage—**quantity**, **quality** and **distribution**. Distribution of natural features across the landscape is an indicator of the health of terrestrial natural heritage systems, but it has not been rated for the 2006 report card, because the quantity of natural cover is very low.

rating:
fail

Quantity

The aim of Toronto and Region Conservation's (TRCA's) draft Terrestrial Natural Heritage System Strategy (TNHSS) is to develop a regional natural heritage system that is better able to support healthy communities and economic activity over time. In the TNHSS, preliminary minimum targets for natural cover (forest and wetland) have been set at 11 per cent for Etobicoke Creek and eight per cent for Mimico Creek. These targets will be refined soon to reflect both what is desirable and what is achievable in our heavily urbanized watersheds. The natural cover in both watersheds currently falls significantly short of these targets. Aerial photos taken in 2002 show a total of only 5.47 per cent natural cover in the Etobicoke Creek watershed and 2.36 per cent in the Mimico Creek watershed. This is considered a failing grade. To reach the targets, we need to create 1,230 hectares of natural cover in the Etobicoke Creek watershed and 443 hectares of natural cover in the Mimico Creek watershed.

figure 02: quantity of natural cover in 2002

watershed	type of cover	number of hectares	percentage of watershed area
Etobicoke	forest	1,030.94	4.87
	wetland	129.63	0.6
Mimico	forest	166.84	2.16
	wetland	13.83	0.2

The amount of natural cover remained essentially the same in the Etobicoke watershed between 1999 and 2002, but there was a decrease in the amount of natural cover in the Mimico watershed over the same period. This was partly due to the loss to development in 2001 of the eight-hectare Mimico Marsh at Bramalea Road and Bovaird Drive in Brampton. The loss of this marsh has led to the likely loss of seven wetland-dependent animal species in the Mimico watershed including the common moorhen and the green heron.



Targets • By 2025, 11 per cent of the Etobicoke Creek watershed should be natural cover • By 2025, 8 per cent of the Mimico Creek watershed should be natural cover

Threats to achieving targets:

- Additional losses of natural cover in the Etobicoke watershed are expected to occur as urbanization continues in the headwater areas of Etobicoke Creek north of Mayfield Road and east of Heart Lake Road.
- Only 40 per cent of the Targeted Natural Heritage System (TNHS) proposed for the Etobicoke and Mimico creeks watersheds is currently protected as open space within municipal official plans. Furthermore, “open space” does not necessarily mean “natural cover.” It can mean golf courses or manicured parkland that have little biodiversity and limited natural heritage value.

Key accomplishments and current actions:

- Over 21,000 trees and shrubs have been planted in the watersheds since 2002.
- TRCA has developed the draft TNHSS that sets priorities for natural heritage protection and sets targets for a healthy and functional natural heritage system for watersheds within the Greater Toronto Area.
- TRCA’s Greenland Acquisition Project for 2006–2010 provides a foundation and mechanism for acquiring greenlands within the Toronto region.
- Over 40 “high priority” sites have been identified for restoration of natural cover (of which 10 sites are on TRCA land) representing 46 hectares of forest and 23 hectares of wetland enhancement.
- The City of Toronto’s Ravine By-law provides further protection to natural areas within the valley corridors.
- The City of Toronto’s Official Plan Environmental Policies were approved by the Ontario Municipal Board in April 2006. These embrace a “systems” approach for terrestrial natural heritage and identify the city’s natural heritage system.
- Little Etobicoke Creek is now part of the greenland system within the Region of Peel.
- The City of Brampton’s Valleyland Re-naturalization Program provides additional opportunities for valley land restoration and providing linkages to the TNHSS within the City of Brampton.
- The City of Mississauga’s Natural Area Survey provides guidelines and strategies for the preservation, enhancement and restoration of Mississauga’s natural areas.

Key future actions:

- TRCA should refine the draft terrestrial quantity targets contained in the TNHSS for the Etobicoke and Mimico creeks watersheds.
- The Etobicoke-Mimico Watersheds Coalition should work with municipal partners to develop a terrestrial natural heritage implementation plan to identify priority protection, enhancement and securement areas based on TRCA’s TNHSS targeted system mapping, the Etobicoke-Mimico Land Use Study and TRCA’s Greenlands Acquisition Project.

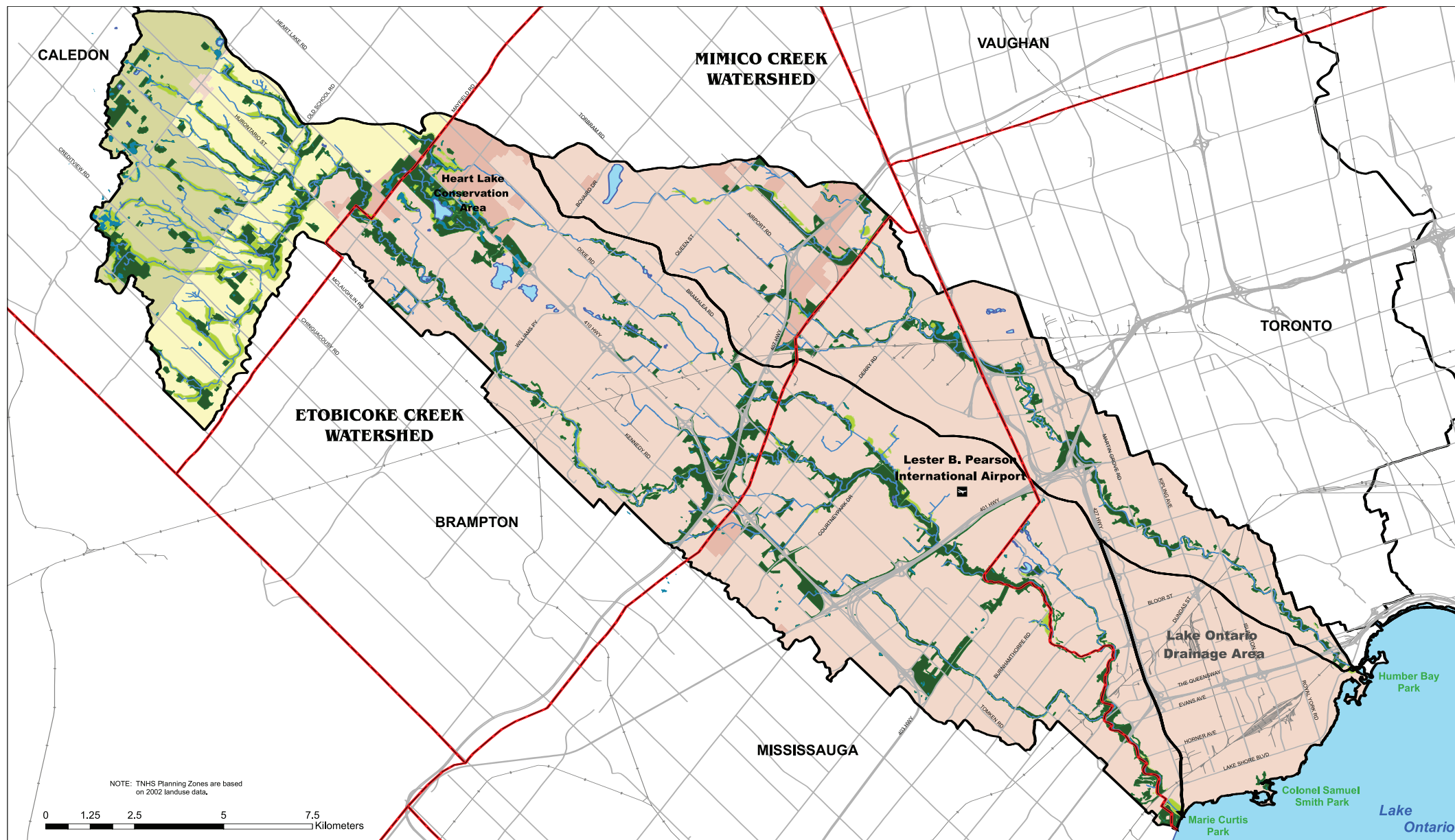
- The watershed partners should work together to prevent additional losses of natural cover in the Etobicoke and Mimico creeks watersheds, especially in the upper parts of the watersheds.
- The watershed partners should work together to increase natural cover in both watersheds through development (including infill, intensification and redevelopment), restoration and land securement.
- Watershed partners should ensure that the TNHS is in public ownership or is legally protected in some other manner.
- TRCA should identify areas that have been lost due to development (such as Mimico Marsh) or are at risk of being lost, and ensure that compensation strategies are developed to ensure net gain.

Toronto and Region Conservation greenlands acquisition priorities for 2006–2010:

- Acquire lands to extend and connect the TNHS’s along river valleys and the Lake Ontario shoreline.
- Secure continuous corridors for regional trail systems.
- Acquire greenlands around existing TRCA properties, to protect larger areas and to better buffer existing ecologically sensitive zones.



American woodcock



<p>Date: May 2006 Created By: Information Systems/ Information Technology</p>  	<p align="center">Legend</p> <p>Terrestrial Natural Heritage Target System</p> <ul style="list-style-type: none">  Existing Natural Cover  Potential Natural Cover  Wetland <p>TNHS Planning Zones</p> <ul style="list-style-type: none">  Agricultural & Rural Area  Built-up Area  Designated Greenfield Area  Greenbelt Area 	<p align="center">Terrestrial Natural Heritage Targeted System Etobicoke & Mimico Creeks Watersheds</p>
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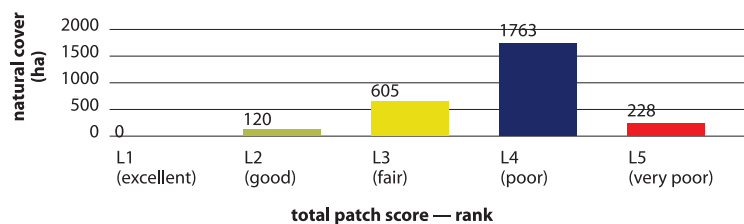
rating:
poor

Quality

The indicator of quality for terrestrial natural heritage incorporates three important factors—the **size of natural areas**, their **shape** and the **matrix influence**, which measures the likely effect of surrounding land uses on natural areas. Scores are assigned to each of these factors. Bigger natural areas score better than smaller ones because they are able to support animal species that need interior forest conditions. Round or square patches of natural habitat score better than long, linear ones of the same size because they have less edge relative to size. Natural areas that are surrounded by fields score better than those that are surrounded by urbanized areas, because there is less influence from humans, pets and other predators. The quality indicator serves as a surrogate for a more detailed and labour-intensive assessment of the biodiversity in the watersheds.

To measure the quality of terrestrial natural heritage, a combined quality score or “total patch score” was generated. This ranks natural areas from L1 to L5, where L1 equals a grade of “excellent” and L5 equals a grade of “very poor”. The distribution of the total patch scores is presented below. As the figure shows, most of the natural areas in the Etobicoke and Mimico creeks watersheds are ranked as L4, which gives an overall grade of “poor.” The target is to increase the quality of natural areas (e.g., achieve more L2 and L3 areas, and fewer L4 and L5). This will improve the opportunities for native plant and animal species to flourish, and will consequently improve biodiversity.

figure 3: natural cover by total patch score



Target • By 2025, there should be an increase in the quality of natural areas in the watersheds as measured by the proportion of “good” (L2) and “fair” (L3) total patch scores

Threats to achieving targets:

- Continued development adjacent to natural areas, including that around Heart Lake Conservation Area, will isolate natural areas from each other and increase the negative matrix influence of the surrounding areas.
- Invasive species that out-compete native species and lead to their disappearance.

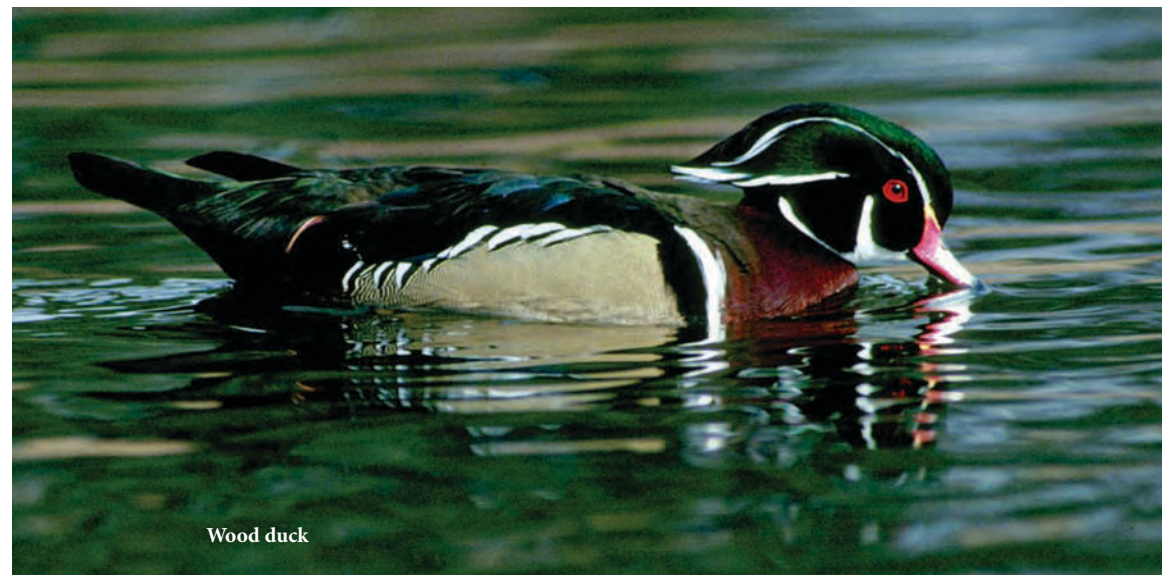
Key accomplishments and current actions:

- The province’s Greenbelt Plan has identified areas of protected countryside in the Upper Etobicoke watershed. This legislation will protect agricultural lands and their neutral matrix influence, and will thus help to protect the quality of existing natural cover, and the associated plant and animal communities in the area.

- A management plan has been developed for the Heart Lake Conservation Area. This will increase the size of forested areas in the park and will attempt to protect natural areas and the species they support (such as the existing heronry) from the matrix influence of the surrounding urban and urbanizing areas.
- The Habitat Implementation Plan has identified the potential to restore natural cover in the vicinity of Lester B. Pearson International Airport, primarily through forest plantings. This will improve the size of natural areas at several sites.
- A project to monitor red-backed salamander was established at Heart Lake in 2005 as part of a regional project to better understand the condition of salamander populations across TRCA’s jurisdiction. Red-backed salamanders need a relatively high-quality, mature forest to survive, and their presence in an area is indicative of a fairly healthy forest ecosystem.

Key future actions:

- Watershed partners should work together to increase the size of existing natural areas throughout the Etobicoke and Mimico creeks watersheds and improve the connections between areas.
- Given the highly urbanized nature of the watersheds, watershed partners should increase efforts to mitigate the negative matrix influence from urbanization. Mitigation can include public education, backyard naturalization, controlling pets, increasing awareness of the natural heritage of the watersheds and more ecologically sensitive trail design in natural areas.
- TRCA should complete the terrestrial natural heritage inventory for all natural cover within both watersheds so that a better understanding of the condition of the existing natural system can be gained.
- TRCA should complete the inventory of plant and animal indicator species (see following page) and monitor over time.
- The Coalition should work with landowners to improve the quality of terrestrial habitats.



Wood duck

Biodiversity

To monitor biodiversity, TRCA staff has developed a list of indicator species that help to track ecosystem changes that are taking place in TRCA's jurisdiction. This includes 25 animal species (birds, amphibians and mammals) and 25 plant species that represent different vegetation communities (deciduous forests, mixed coniferous forests, swamp thickets, marshes, meadows and successional communities). Many of these species are ranked as species of concern within the region.

The assessment of the status of these indicator species is an ongoing, long-term monitoring program that should produce results on a regular basis, beginning in 2008. In the meantime, the table below lists the baseline occurrence of the 50 indicator species within the Etobicoke and Mimico creeks watersheds (records included up to 2005).

figure 04: occurrence of animal and plant indicator species

animal indicator species	plant indicator species
birds	deciduous forest
American woodcock E, M	Jack-in-the-pulpit E, M
bobolink E	narrow-leaved spring beauty E
eastern meadowlark E	riverbank wild rye E
eastern screech-owl E	white trillium E
eastern wood peewee E, M	zig-zag goldenrod E, M
green heron E, (M)	mixed coniferous forest
ovenbird E	Christmas fern E
pileated woodpecker E	eastern hemlock E, M
ruffed grouse NR	foam flower E
savannah sparrow E, M	star flower E
scarlet tanager E	white pine E
swamp sparrow E, (M)	swamp thicket/forested wetland
Virginia rail E, M	marsh marigold E
wood duck E, (M)	Michigan lily E
frogs and toads	turtlehead E
American toad E	white cedar E, M
bullfrog NR	winterberry E
chorus frog E, M	marsh
green frog E, M	barber pole bulrush E, M
grey tree frog E	common arrowhead E
northern leopard frog E	greater bur-reed E
spring peeper E, M	spotted Joe Pye weed E, M
wood frog E, M	swamp milkweed E
mammals	meadow/successional
eastern chipmunk E, M	big bluestem NR
mink E, M	black-eyed Susan E
porcupine NR	fireweed NR
	spreading dogbane E
	white oak NR

E = occurs in the Etobicoke watershed
 M = occurs in the Mimico watershed
 (M) = likely extirpated from the watershed following the destruction of Mimico Marsh
 NR = no record

Aquatic Systems

Objective: Aquatic ecosystems are diverse, balanced and self-sustaining.

Aquatic ecosystems typically contain a wide variety of organisms including fish and benthic invertebrates (the molluscs, insects, worms and other organisms that live in the bottom sediments of rivers, streams and lakes). The health of aquatic ecosystems and the species that live within them is directly affected by human activities such as urbanization, stormwater management and the physical alterations of creeks and streams. These activities lead to changes in water quality, flows, water levels, temperature and habitat that, in turn, affect the ability of fish and benthic organisms to survive and reproduce.

Indicators: Three indicators are used to measure the health of aquatic ecosystems. These are **fish communities**, **benthic invertebrates** and the **riparian zone**.

rating:
poor

Fish Communities

Species richness: Species richness is the total number of fish species present in a sampling area. Fourteen monitoring stations have been set up on Etobicoke Creek and five on Mimico Creek, and monitoring is done annually. Some 24 native species have been found in the Etobicoke Creek watershed and 15 in the Mimico.

figure 05: number of native fish species captured in recent monitoring

watershed	number of native species found in watersheds	total number of native species found
Etobicoke	23 (2001) 17 (2004)	24
Mimico	10 (2002) 11 (2005)	15

Generally, the more degraded a watercourse, the fewer the number of species present. As well, the smaller a watercourse, the fewer species one expects to find. For this reason, the observed numbers (the number of fish species present) are measured against the expected species richness that has been calculated for native fish species in various sizes of southern Ontario streams.

figure 06: average and expected native species richness at monitoring stations

watershed	average species richness	expected average species richness
Etobicoke	6.8 (2001) 6.4 (2004)	13
Mimico	3.2 (2002) 1.2 (2005)	12

The average species richness is considerably lower than expected for both watersheds, and is worse for the Mimico Creek than for the Etobicoke Creek. Species richness is higher at the mouth of the creeks and in the upper reaches of Etobicoke Creek. It is lower in the upper reaches of Mimico Creek and in the middle reaches of both the Etobicoke and Mimico creeks.

Target fish species: The species selected represent native fish that are either at the top of the food web (such as smallmouth bass or northern pike) or are ecologically sensitive (such as some species of darter). The target species are also selected to reflect the physical characteristics found at various parts of the watersheds. The physical characteristics at the mouths of the creeks, for example, are different than those in the middle reaches of the watersheds or in the headwaters.

In 2004, target fish species were found at eight of 14 monitoring stations on the Etobicoke Creek and at none of the five monitoring stations on the Mimico Creek. (No fish at all were found at three of the five Mimico Creek monitoring stations.) There may be reasons other than habitat suitability for these findings, such as the presence of downstream barriers that prevent the movement of fish.

figure 07: presence of target fish species in 2004

watershed	number of monitoring stations	number of stations where target species found
Etobicoke	14	8
Mimico	5	0

Index of Biological Integrity: The Index of Biological Integrity (IBI) is a powerful indicator of the health of aquatic ecosystems. It assesses the health of fish communities using nine different measures that include the number of species found, the composition of the fish community, the presence of local indicator species and the abundance of fish. The IBI is calculated on a sliding scale from nine (poor) to 45 (very good).

IBI Scale

Score	Rating
9-20	Poor
21-27	Fair
28-37	Good
38-45	Very Good

figure 08: IBI scores

watershed	range of IBI scores	median IBI scores
Etobicoke	14 to 34	18 (2001) 20 (2004)
Mimico	14 to 32	14 (2002) (2005*)

* Median not calculated as no fish were found at three sites.

In Etobicoke Creek, two of the monitoring sites that had been rated as “good” in 2001 had declined to “poor” or “fair” in 2005. On the positive side, two sites that had been rated as poor in 2001 were found to be fair in 2004 monitoring. For Mimico Creek, all of the stations except one showed a decline in IBI score and rating between 2002 and 2005. In 2005, in Mimico Creek there were no fish found at three monitoring stations.



Targets • By 2025, the IBI rating at three sites in Etobicoke Creek should be improved to fair from poor • There will be no further degradation of the aquatic community • By 2025, fish will be found at all sites sampled in Mimico Creek

Threats to achieving targets:

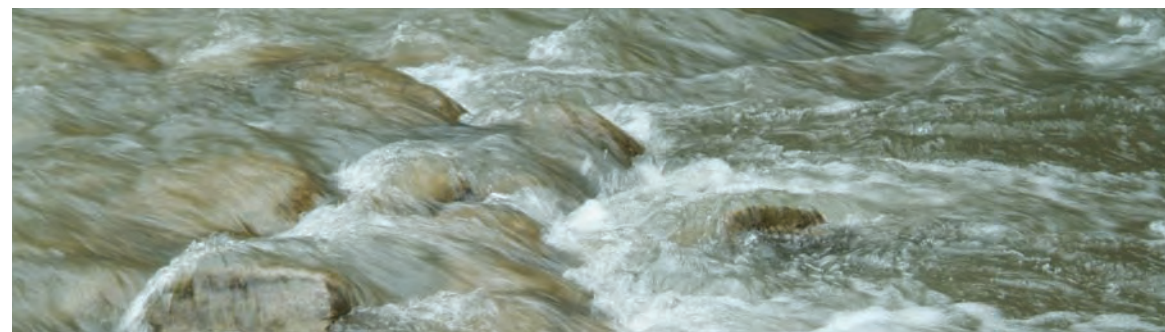
- Lack of adequate funding to continue comprehensive monitoring of fish communities will undermine protection and restoration efforts.
- Loss of riparian cover.
- In-stream barriers, alterations of streams, spills to watercourses and urban stormwater runoff.

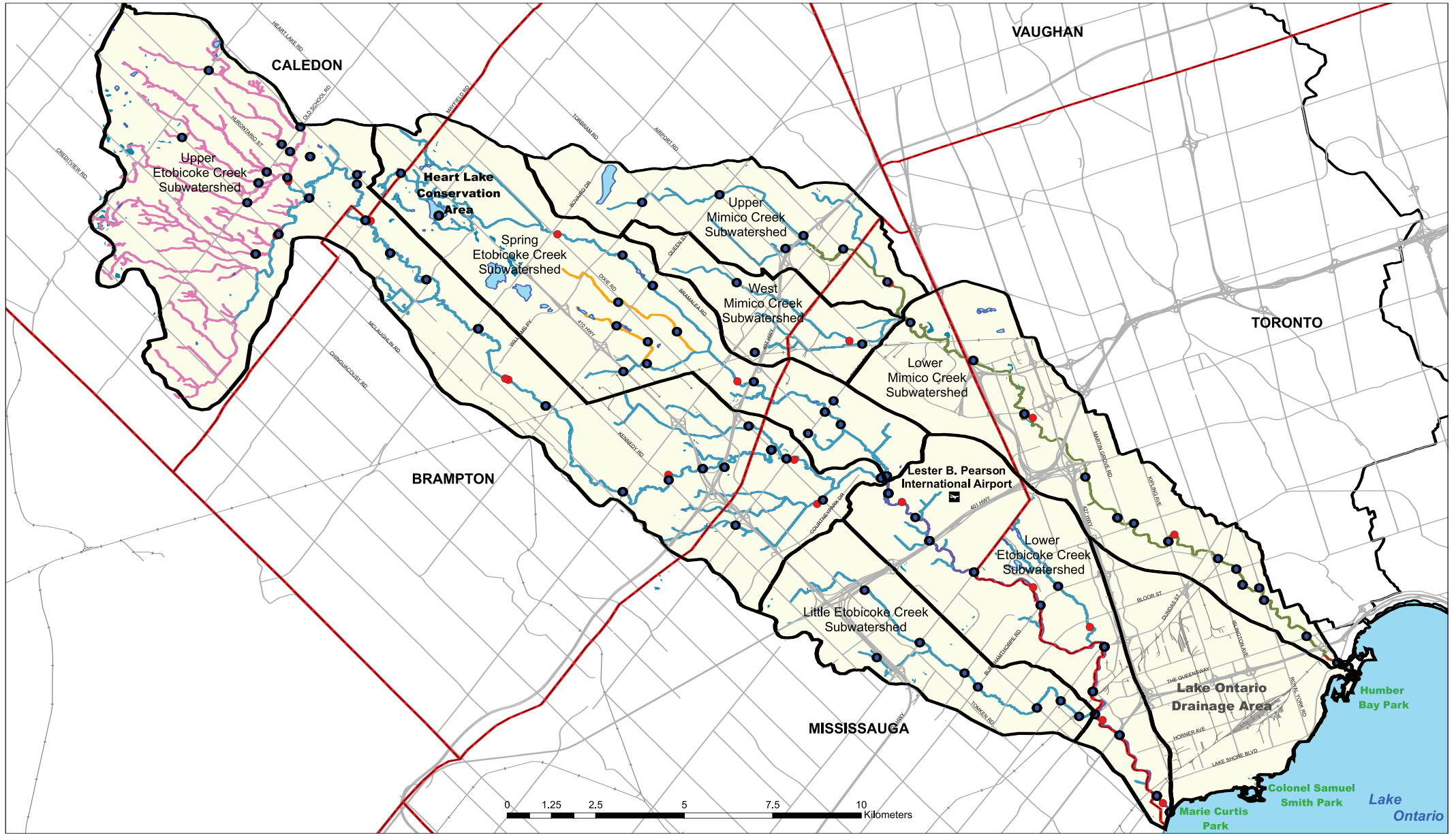
Key accomplishments and current actions:

- The implementation of Toronto and Region Conservation’s (TRCA’s) Regional Watershed Monitoring Program gives high quality data for assessing fish community health. The data is collected at specified locations and frequencies using standardized methodologies.
- TRCA has completed fish management plans for the Etobicoke and Mimico creeks.
- TRCA staff and volunteers are conducting field investigations to verify the presence of almost 800 potential in-stream barriers to fish movement that were identified through aerial photography.
- TRCA has initiated a project to mitigate the first two barriers to fish passage in Mimico Creek.

Key future actions:

- TRCA and watershed partners should work together to implement the recommendations contained in the fish management plan.
- Restoration and protection activities should be targeted at the headwater areas where recent (2001) IBI scores were good and the reaches where IBI scores are just marginally below the fair rating.
- TRCA should continue to work with the Ministry of Natural Resources and other partners to develop better assessment tools to relate impacts on aquatic communities to changes in the landscape.
- TRCA staff should mitigate in-stream barriers in the watersheds based on the priorities identified in the fish management plan.
- Watershed partners should work together to improve the amount and quality of riparian cover in the watersheds.





Date: May 2006
 Created By: Information Systems/
 Information Technology

TORONTO AND REGION
Conservation
for The Living City

Legend		Management Zones	
● Fish Collection Stations	Wetland	— Darter spp.	— Slimy Sculpin
● Aquatic Monitoring Sites	Ponds/Lakes	— Darter spp. and Smallmouth Bass	— Smallmouth Bass
— Railways	Subwatershed Boundary	— Northern Pike, Smallmouth Bass and Largemouth Bass	— Blacknose Shiner, Blackchin Shiner and Central Mudminnow
— Major Roads	Municipal Boundary		

Fish Management Zones Etobicoke & Mimico Creeks Watersheds

rating: fair
Benthic Invertebrates

Benthic invertebrates are organisms without backbones that live on the bottom of streams or lakes. They include worms, leeches, molluscs, snails, crayfish and the larvae of many insects. These organisms form a vital part of the aquatic food web. They are also very useful indicators of water quality and aquatic habitat conditions because they are sensitive to changes in their environment, are generally sedentary, and are relatively easy and inexpensive to collect. Despite this, it is challenging to interpret benthic invertebrate data, as there are no universal standards for correlating their presence to ecosystem health.

The benthic invertebrate monitoring carried out in 2004 shows that 14 of 19 monitoring stations (or 74 per cent) showed evidence of a healthy invertebrate community (e.g., were rated as “fair” or “better”). The ratings were higher for Etobicoke Creek than Mimico. Comparison with Toronto and Region Conservation (TRCA) 1997 data suggests that there has been no change in the benthic community between 1997 and 2004.

figure 09: ratings for benthic invertebrate survey in 2004

watershed	poor (number of stations)	fair (number of stations)	good (number of stations)	total (number of stations)
Etobicoke	3	5	6	14
Mimico	2	2	1	5
Total	5	7	7	19

- Targets**
- By 2012, all benthic invertebrate sampling stations should have an invertebrate community that is rated as fair or better
 - By 2025, at least 40 per cent of benthic invertebrate stations should have an invertebrate community that is rated as good

Threats to achieving targets:

- Increased sedimentation because of ineffective stormwater management and erosion of stream banks.
- Increased imperviousness in the watershed.
- Loss of riparian habitat (either quantity or quality).

Key accomplishments and current actions:

- TRCA’s Regional Watershed Monitoring Program gives high-quality data for assessing benthic invertebrate community health. The data is collected at specified locations and frequencies using standardized methodologies.
- Partnerships with other agencies and academic institutions are improving the tools for measuring the health of benthic invertebrate systems.

Key future actions:

- TRCA should continue to work with partners to develop better assessment tools to relate impacts on aquatic communities to changes in the landscape.
- Watershed partners should work together to increase the amount and quality of riparian cover in the watersheds.
- TRCA should refine the landscape targets for percentage forest cover and percentage imperviousness.
- Watershed partners should work together to restore altered and channelized sections of the creeks.

rating: poor
Riparian Cover

Riparian cover is the vegetation along the banks of a river or stream that is within the riparian zone. For this report, the riparian zone is defined as 30 metres in each direction from the centreline of a stream plus the average stream width. Riparian cover—whether it be forest, successional plant communities, meadow or wetlands—plays an important role in the health of creeks, streams and rivers. Vegetation along a streambank helps improve water quality, retain stormwater and protect against erosion. It also provides shade, which helps keep stream temperatures low, and provides shelter and food for aquatic and terrestrial wildlife. Woody vegetation (trees and shrubs) is especially important for preserving the shape of stream channels.

Two targets have been set for riparian cover in the watersheds. By 2025, 75 per cent of the riparian zone should contain natural cover. Beyond 2025, the long-term target is that 75 per cent of the riparian zone should be made up of forest cover, as forests provide more benefits than successional plant communities or meadows.

- Targets**
- By 2025, 75 per cent of the riparian zone should contain natural cover
 - The long-term target is that 75 per cent of the riparian zone should be made up of forest cover

The current condition in the watersheds is illustrated by the following charts.

figure 10: Etobicoke watershed riparian zone

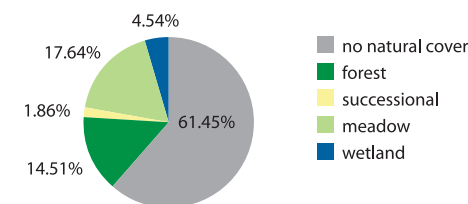
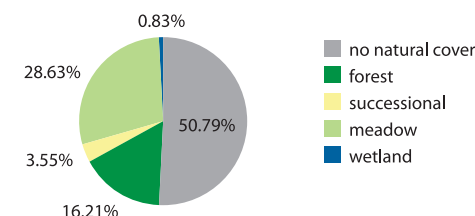


figure 11: Mimico watershed riparian zone



Currently, only 39 per cent of the riparian zone in the Etobicoke Creek and 49 per cent of the riparian zone in the Mimico Creek has natural cover. This is considered to be “poor” to “fair”. Only 15 per cent of the natural cover in the Etobicoke Creek riparian zone is made up of forest, and only 16 per cent of the Mimico Creek riparian zone is made up of forest. This is considered to be a “fail” rating. Overall rating for the riparian cover is poor.

Threats to achieving targets:

- It is difficult under existing policies to achieve a 30-metre buffer for the riparian zone in the Upper and Middle Etobicoke watersheds.
- There is a potential for small headwater streams to be altered in future development areas.
- Refuse dumping and trail use in the floodplain pose potential threats to the ecological integrity of the riparian zone.

Key accomplishments and current actions:

- TRCA's Terrestrial Natural Heritage System Strategy (TNHSS) for the Etobicoke and Mimico creeks watersheds and fish management plans establish priorities for restoration.
- The use of natural channel design principles and the restoration of riparian vegetation are encouraged through the development review process and stream rehabilitation projects.
- Several stream rehabilitation projects are underway within the Etobicoke, Mimico and Spring creeks reaches. These involve extensive plantings of riparian vegetation.
- The province's Greenbelt Plan has identified areas of protected countryside in the Upper Etobicoke watershed. Development will be limited in these areas and there will be opportunities to increase riparian cover.
- The City of Brampton is initiating valleyland restoration projects throughout their jurisdiction.
- The City of Toronto is implementing its Wet Weather Flow Management Master Plan that includes riparian restoration initiatives.

Key future actions:

- As a high priority, the Coalition should work with TRCA and watershed partners to develop a riparian zone strategy to achieve the targets for this indicator. The strategy should focus on increasing riparian cover in the upper watersheds and investigate the potential for re-naturalization in the middle and lower reaches. The riparian zone strategy should integrate riparian restoration initiatives with the recommendations from the TNHSS and the fish management plan.
- TRCA should seek funding to restore the riparian zone in the Upper Etobicoke valleylands that will be conveyed into public ownership through the Mayfield West development.



Healthy riparian zone—Etobicoke Creek



Concrete-lined channel with no riparian zone—Mimico Creek

Water Quality

Objective: Water in the creeks is safe for people, fish and wildlife.

The quality of the water in the Etobicoke and Mimico creeks is directly related to the land uses and activities carried out in the watersheds. There has been some improvement of water quality over the last 30 years with respect to levels of phosphorus and suspended sediment. Generally, however, water quality is poor, and samples meet Provincial Water Quality Objectives (PWQO) about half the time. Poor water quality affects aesthetics, the ability to use the creeks for swimming and other body contact recreation, and the health of fish communities.

Indicators: Three indicators are used to measure water quality. These are **conventional pollutants** (such as phosphorus and suspended sediment), **heavy metals and organic contaminants** (such as copper and pesticides), and **water contact recreation** (such as swimming).

rating:
poor

Conventional Pollutants

This indicator addresses the most commonly found pollutants—phosphorus, suspended sediments, chlorides, ammonia and nitrates. The target for 2006 was that there should be no increase over the levels found in 1990–1995. Sampling of conventional pollutants was carried out between 2002 and 2004 at five sites (four on Etobicoke Creek and one on Mimico Creek).

figure 12: monitoring results for conventional pollutant parameters (2002–2004)

parameter	PWQO	percentage of samples that meet PWQO				
		Etobicoke Creek				Mimico Creek
		Sherway Drive	QEW	Derry Road	Mayfield	Queensway
Phosphorus	0.03mg/L	24	55	43	12	14
TSS	30mg/L	90	95	100	100	90
Chloride	250mg/L	29	35	86	100	29
Unionized Ammonia	0.02mg/L	100	100	100	100	100
Nitrates	0.3mg/L	24	10	43	44	10

TSS = Total Suspended Sediment
PWQO= Provincial Water Quality Objective

It can be seen that phosphorus is a concern across the watersheds, chloride is a concern in three out of five sites and nitrates are a concern in three out of five sites. Unionized ammonia is not a concern at any of the stations monitored. These results (as measured by the percentage of samples that meet the PWQO) are considered poor. Nevertheless, there has been a slight improvement over the levels reported in 2002 in *Greening Our Watersheds*. However, it is cautioned that this improvement may be in part a result of changes to the objectives for TSS and nitrates.



Targets • By 2025, samples should meet water quality objectives at least 75 per cent of the time

Threats to achieving targets:

- Climate change may result in poorer water quality over time because of warmer temperatures, changes in precipitation patterns, increased demand for water and reduced flows.



Stormwater outlet

- Continued development in the watersheds will increase pollutant loadings to the creeks.
- Construction activities are significant sources of sediments and other pollutants.

Key accomplishments and current actions:

- The City of Toronto is implementing its Wet Weather Flow Management Master Plan that will improve water quality in the city's streams, creeks and rivers.
- Many municipalities are developing salt management plans to reduce loadings of road salt.
- Mississauga is planning to retrofit the Derry East ponds numbers 3 and 4.
- Toronto and Region Conservation's (TRCA's) Rural Clean Water Program is working with farmers to reduce sediment and nutrient loading from farms.
- TRCA is updating its Sediment and Erosion Control guidelines.
- The province's *Nutrient Management Act*, passed in 2002, will require farmers to improve their nutrient management practices.

Key future actions:

- Municipal partners should monitor the effectiveness of salt management plans.
- Watershed partners should work together to increase the amount and improve the quality of riparian vegetation buffers.
- Municipalities should improve stormwater management through source control, retrofitting of facilities in developed areas and more innovative water budget controls in new developments.
- Watershed partners and the development industry should work together to improve sediment and erosion control at development sites, and municipalities should strictly enforce new Erosion and Sediment Control guidelines at construction sites.

rating:
poor

Heavy Metals and Organic Contaminants

Heavy metals such as copper, aluminum and lead occur naturally in the environment at very low levels. Organic contaminants such as PCBs, pesticides and polynuclear aromatic hydrocarbons (PAHs) are synthetic substances that are not naturally occurring. Heavy metals and organic contaminants are released into water bodies through industrial discharges, spills, illegal dumping, stormwater runoff, discharges from municipal wastewater treatment plants and other activities. (Some 453 spills were recorded in the watershed between 1988 and 2000, according to data from the Ontario Spills Action Centre, and 42 per cent of these spills involved discharges to water.) Heavy metals and organic contaminants are a concern in the aquatic environment because of their effects both on aquatic organisms and humans. The main route of human exposure is the consumption of sport fish.

COA Tier 1 Contaminants

Aldrin/Dieldrin
Alkyl-Lead
Benzo (a) Pyrene
Chlordane
DDT
Dioxins
Furans
HCB
Mercury
Mirex
Octochlorostyrene
PCBs
Toxaphene

One target for this indicator is that the persistent contaminants of most concern in the Great Lakes (the Canada-Ontario Agreement Tier 1 Contaminants) meet the Provincial Water Quality Objectives (PWQO) 75 per cent of the time. The most recent data (from 2003 to 2004) were collected by the Ministry of Environment as part of its Priority Pollutants Monitoring Data. Unfortunately, this data could not be used for this report card because of concerns over the reliability of lab analysis for some of the contaminants. The results of the 1991–1992 monitoring used in the 2002 report card were rated as “poor.”

A second target is that levels of the seven metals of most concern should meet the PWQO 75 per cent of the time. The seven metals were selected based on the frequency of exceedances of the PWQO. In 2003, this target was met for five of seven metals in the Etobicoke Creek, but only three of seven metals in Mimico Creek. This is considered poor and is an improvement over the rating for 1991–1992.

figure 13: monitoring results for heavy metals (1991/92 and 2003)

metal	PWQO	percentage of samples that meet PWQO			
		Etobicoke Creek		Mimico Creek	
		1991–1992	2003	1991–1992	2003
aluminum	75 ug/L	19	40	14	331
copper	5 ug/L	13	100	15	86
lead	5 ug/L	10	100	15	54
iron	300 ug/L	39	87	34	46
cadmium	0.5 ug/L	29	100	36	92
chromium	100 ug/L	100	100	100	100
zinc	20 ug/L	54	40	40	50

A third 2006 target is that there should be no restrictions on eating sport fish because of the presence of contaminants. The most recent data show that there are no restrictions on eating four of six species of sport fish from Professor’s Lake, and two of three species from Heart Lake. (There is currently no sampling of fish for contaminants in the creeks themselves.) This is considered poor. The overall rating for heavy metals and organic contaminants is poor, which is the same rating given in the 2002 report card.



Targets • By 2025, priority compounds (the COA Tier 1 list) have been virtually eliminated (e.g., are detected in less than 10 per cent of samples) • By 2025, levels of seven metals of concern meet the Provincial Water Quality Objectives at least 75 per cent of the time • By 2025, there are no restrictions on eating sport fish due to contaminants

Threats to achieving targets:

- Industrial spills can have a profound effect on water quality and aquatic communities.
- Climate change may result in poorer water quality over time.
- Continued development in the watersheds will increase pollutant loadings to the creeks.
- Population growth and increasing numbers of vehicles will contribute to an increase in the amount of organic contaminants entering the creeks.



Key accomplishments and current actions:

- Toronto Remedial Action Plan (RAP) and TRCA hosted a spills workshop to identify spills management issues within the Toronto RAP area.
- Province of Ontario passed Bill-133 (*The Spills Bill*) in June 2005, targeted towards large industrial facilities.
- The City of Toronto and the Town of Caledon have recently passed by-laws to restrict the use of non-essential pesticides. When implemented, this is expected to reduce pesticide loadings to water bodies.
- In 2000, the federal Pest Management Regulatory Agency restricted the domestic use of diazinon and phased out the use of diazinon on residential lawns.

Key future actions:

- The City of Toronto should continue to implement the Wet Weather Flow Management Master Plan in the watersheds.
- TRCA should expand the Regional Watershed Monitoring Program to include monitoring during wet weather at five-year intervals.
- Watershed partners should continue to support education programs such as the Yellow Fish Storm Drain Program and Riversides’ Take Me Out to the Car Wash Program that help reduce the loadings of pollutants to storm sewers.
- The Coalition should promote ISO 14000 and 14001 environmental management standards for local businesses and industries.
- TRCA and watershed partners should encourage watershed businesses and industries to have detailed spill prevention plans in place.
- Ministry of Environment (MOE) and TRCA should continue to support Toronto RAP spills initiative to develop better tools and resources for spills prevention and community education.

rating:
poor

Water Contact Recreation

The ability to safely use streams, rivers and lakes for swimming, windsurfing and other water contact recreation depends on water quality, especially the levels of micro-organisms present. Exposure to high levels of some micro-organisms, including E. coli bacteria, can cause gastroenteritis, infections of the ear, eye, nose and throat, and other illnesses. When municipalities sample water at public beaches and find levels of E. coli in excess of the Provincial Water Quality Objective (PWQO) of 100 counts per millilitre, they post signs to alert users to the risks associated with water contact.

In the Etobicoke and Mimico creeks watersheds, public beaches are located at Heart Lake, Professor’s Lake and Marie Curtis Park. The number of beach postings as a percentage of the swimming season is shown in the following table. These results are rated as “excellent” for the lakes and “fail” for Marie Curtis Park.

figure 14: beach postings as percentage of season (2001–2004)

Beach	2001	2002	2003	2004
Heart Lake	0	0	0	12
Professor’s Lake	0	0	0	0
Marie Curtis Park	70	35	56	75

The level of bacteria in the creeks themselves is also an important indication of environmental health. Bacteria come from sewage, septic systems, stormwater and animal faeces. Sampling data show that the mean (average) levels of bacteria in the creeks were slightly lower from 2003 to 2005, earning a “poor” rating as compared to 1990–1995 when they were rated as fail. This is a positive sign for the creeks, however it is cautioned that seasonal variations and wet weather sampling can have significant impacts on concentrations of bacteria. Mean levels from 2003 to 2005 range from 70 E. coli/100 millilitres in the Upper Etobicoke Creek to 397 in the Lower Etobicoke Creek.



Target • By 2025, E. coli levels meet the PWQO at least 95 per cent of the swimming season

Threats to achieving targets:

- It is expected that climate change will result in poorer water quality over time.
- Continued development in the watersheds will increase pollutant loadings to creeks and lakes.

Key accomplishments and current actions:

- Municipal pet control by-laws and awareness programs (e.g., Stoop and Scoop and Don’t Feed the Geese) will continue to help reduce bacterial loadings from animal faeces in urban areas.
- TRCA’s Rural Clean Water Program is working with farmers to reduce bacterial loading by controlling soil erosion, managing manure better and restricting livestock access to streams.
- The province’s *Nutrient Management Act*, passed in 2002, will require farmers to improve their nutrient management practices.

Key future actions:

- Municipal partners should aggressively enforce pet control and sewer use by-laws.
- TRCA and municipal partners should develop and implement source protection plans.
- Watershed partners should support research that helps identify sources of bacteria at beaches.



Water Quantity

Objective: The creeks are restored to a more natural flow pattern.

Land use changes, especially urbanization, can profoundly affect the hydrologic cycle (how water moves in a watershed). Our modern cities have vast expanses of impervious surfaces including roofs, roads and parking lots. Because of these impervious surfaces, less water infiltrates into the ground than would do so in a more natural landscape, and more water runs off overland, requiring treatment as stormwater. These changes in how water moves in urbanized watersheds can have dramatic effects on rivers and streams. Typical urban streams are “flashy,” which means they have too little water (or baseflow) in dry weather and too much water (or peak flow) when it rains. Both of these extremes are problematic: too little baseflow affects fish communities and habitat, and high peak flows increase erosion, destroy fish habitat, and increase risk to people and structures.

Indicators: Two indicators are used to measure water quantity in the Etobicoke and Mimico creeks watersheds—**streamflow** and **stormwater**.

not
rated

Streamflow

Streamflow is impacted by these important factors: **baseflow**, **peak flow**, **flooding** and **surface water withdrawals**.

Baseflow

Baseflow is the sustained flow in a stream that comes from groundwater seeping into it. Adequate baseflow is necessary for maintaining the ecological functioning of streams. The current target for the watersheds is to maintain current baseflow as a minimum and, in the future, to increase it. Although baseline data have been collected, there is insufficient data at this time to understand trends for baseflow. Several years of data will be needed before we are able to understand seasonal fluctuations and draw conclusions about trends.

Peak flows

Peak flows are the flows that take place during rainstorms. The current target for peak flows is that there should be no increase in peak flow rates over time. Over a 25-year period (from 1975 to 2001), total yearly flows have increased 19 per cent in Etobicoke Creek and 22 per cent in Mimico Creek. Maintaining current peak flow rates will require improvements in stormwater management. In particular, this means using a broad spectrum of source controls, conveyance controls and end-of-pipe controls to reduce the amount of stormwater entering the creeks and control the rate of its entry. Updated peak flow rates for the creeks will be available in 2006 through hydrology updates for the Etobicoke and Mimico creeks watersheds.

Flooding

One measure of the risk of flooding is the number of flood vulnerable areas (FVAs) and flood vulnerable roads (FVRs) in the watersheds. There are currently 23 FVAs and 41 FVRs in the Etobicoke and Mimico creeks watersheds. The target is that there should be no increase in the number of these over time. There may also be opportunities to reduce the number of FVAs and FVRs, for example, as road works and bridge replacements are carried out. If this can be done, it would reduce the risks to people and structures of flooding.

Surface water withdrawals

Depending on timing and the amount taken, the withdrawal of water from Etobicoke and Mimico creeks can have a substantial impact on baseflow. The demand for water, from golf courses for example, is usually at its peak in the summer when temperatures are highest and water levels are lowest. Impacts on baseflow can be minimized by altering how the water is withdrawn, for example, by withdrawing at times other than the late-July/August low-flow period and storing the water in ponds until needed.

The target for surface water withdrawals is to establish appropriate withdrawal amounts for each user and institute changes to how water is withdrawn to protect baseflow in the creeks. Toronto and Region Conservation (TRCA) staff identified all the surface water users in the watersheds and then classified them into low, medium and high potential impacts. Only seven of the 46 individual water users within the Etobicoke and Mimico creeks watersheds are currently using surface water sources (the rest use groundwater). The impact assessment showed that only one of the seven surface water users is showing a potential high impact, while six show little or no potential impact on the surface water system.



Targets • Increase baseflow from current volume • No increase in peak flow rates • No increase in the number of flood vulnerable areas and flood vulnerable roads • Establish appropriate surface water withdrawal amounts for all users in the watershed

Threats to achieving targets:

- Climate change will likely affect precipitation patterns and may increase the frequency of drought, affecting baseflow and surface water withdrawals.
- Continued development in the watersheds will reduce infiltration into the groundwater system and potentially reduce baseflow to the creeks.
- Increased water use due to continued development can reduce levels of groundwater and reduce baseflow to the creeks.
- Despite incidents of recent flooding in the Toronto area, flood protection is not a major concern or priority for many people.

Key accomplishments and current actions:

- Three new stream gauges have been added to the watersheds.
- Conservation Ontario and the Ministry of Environment have completed the first phase of a pilot study of environmental flow requirements. This study will help to develop targets for baseflow.
- Hydrology and hydraulic updates for the Etobicoke and Mimico creeks watersheds will be completed in 2006. These will provide updated flow rates and floodplain mapping.
- The City of Brampton is undertaking a drainage study for the downtown area that will investigate ways of limiting flooding impacts in the downtown core.
- TRCA's Flood Vulnerable database is being updated to allow hydraulic updates to be linked in real-time to the database.

- The province's new Permit to Take Water regulations include municipalities and conservation authorities in the review of applications to take water, and are improving methods to assess the sustainability of water withdrawals.
- TRCA is developing a water-taking protocol that is aimed specifically at golf courses. In the future, it will be extended to all water-takings.

Key future actions:

- TRCA should continue baseflow studies and track changes in baseflow over time.
- Municipal partners and TRCA should ensure infiltration rates are maintained in new developments to maintain groundwater recharge.
- TRCA and municipal partners need to consistently enforce policies to protect flood vulnerable areas.
- TRCA should continue to promote the long-term benefits of proactively implementing flood mitigation measures, rather than dealing with the storm-related damage after the fact.
- TRCA and watershed partners should develop and implement source protection plans for the Etobicoke Creek watershed.
- When developed, TRCA and municipalities should integrate environmental flow requirements into the development review process and use them to develop minimum flow thresholds for the watersheds.
- TRCA should work with the major surface water users to remove weirs and dam structures used for water taking, and replace them with technologies that have less impact on the baseflow system and on fish movement.

not
rated

Stormwater

Stormwater is rain that falls in our cities and which does not infiltrate into the ground or evaporate. Stormwater travels over the ground, picking up pollutants (such as oils, greases, animal faeces and pesticides) before entering the stormwater management system. In the stormwater management system, stormwater is collected and transported in some cases to stormwater management facilities and ultimately to our streams, rivers and lakefront.

The goal of current stormwater management techniques is to remove pollutants from stormwater before it is discharged into waterbodies, and to control the amount and rate at which it is returned to streams and rivers in order to protect their integrity, reduce erosion and flooding, and protect fish habitat. Many municipalities, including the City of Toronto, have adopted a hierarchical approach to stormwater management in which the emphasis is first on treating the problem at source, then treating it in the conveyance system, and finally treating it at the end-of-pipe. This indicator has not been rated, as a number of targets have yet to be set.



Targets

- By 2012, set targets for: acceptable increase in annual stream volume; increases in the area where stormwater is treated in stormwater management facilities; acceptable number of exceedances of the erosion threshold, and desired level of source controls
- By 2025, complete all identified end-of-pipe stormwater retrofits to control quality and quantity of stormwater released
- By 2025, complete all identified lot-level and source controls to reduce stormwater at source
- By 2025, have five additional green roofs in each watershed

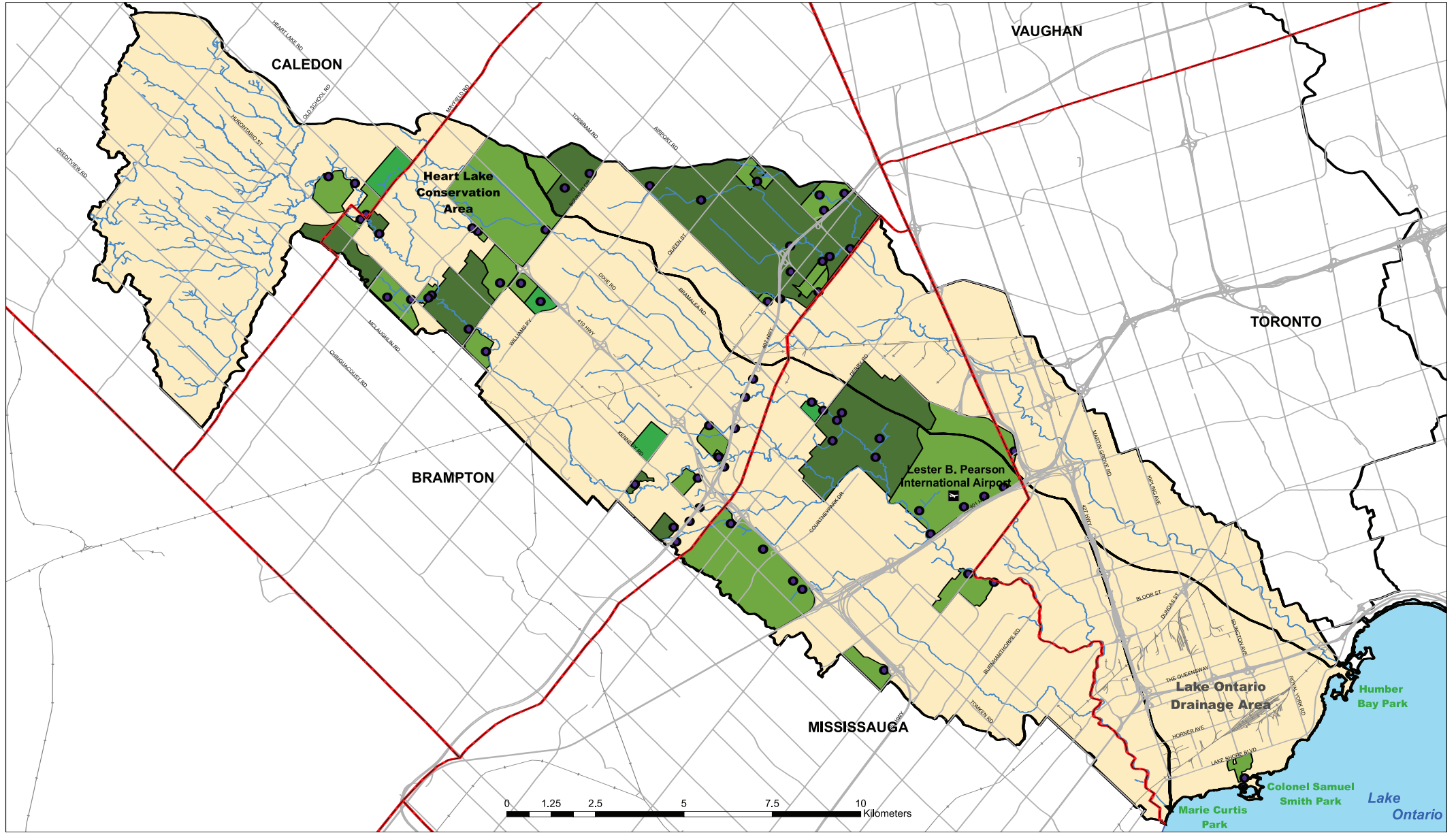
Threats to achieving targets:

- A lack of understanding of some treatment techniques may mean that opportunities will be lost. For example, there is a general belief that the soils within the Etobicoke and Mimico creeks watersheds are unsuitable for infiltration and, therefore, the usefulness of third-pipe ("leaky pipe") systems may be overlooked. However, there is evidence to support the use of these systems in some areas.
- The uncertain effects of climate change on precipitation patterns in the watersheds.
- While stormwater management ponds have become generally accepted by government and developers, source controls are not implemented as readily. A lack of policy and enforcement means that source controls (e.g., downspout disconnection) are often neglected.
- Many municipal and privately-owned stormwater management ponds do not have plans or funding for monitoring and maintenance plans.



Key accomplishments and current actions:

- The City of Toronto has completed the Wet Weather Flow Management Master Plan that has identified new watershed-based targets for stormwater management.
- The watershed municipalities have all undertaken stormwater management pond retrofit studies. The City of Mississauga has already completed the implementation of their plan and are planning to update their water quality control strategy in 2007. The City of Brampton has initiated plans to retrofit Upper 9 Pond, one of three potential retrofits within this municipality.





Date: May 2006
 Created By: Information Systems/
 Information Technology

Legend

- Major Roads
- Railways
- Watercourses
- Municipal Boundary
- Watershed Boundary
- Stormwater Management Pond

Stormwater Management Areas

- Quantity Control
- Quantity and Quality Control
- Quantity and Quality Control (RURAL)

**Stormwater Management
 Etobicoke & Mimico Creeks
 Watersheds**



Human Influences

- The Town of Caledon is working on a master environmental servicing plan for the Mayfield West development that will include a water budget component.
- The City of Brampton is currently undertaking a drainage study for the downtown Brampton core that will examine opportunities for stormwater management in this area.
- All new developments in the watersheds now include stormwater management measures. If these are not done on site, then cash-in-lieu is provided to the municipality.
- In 2006, TRCA completed a model catchment study (catchment 219 located within a commercial/residential area of Brampton and Mississauga). This study directly addresses stormwater management measures within Etobicoke Creek and provides valuable information on various stormwater management techniques, and direction for future actions to protect the watersheds.

Key future actions:

- TRCA should set targets for 2012 as noted above.
- The City of Toronto should continue to implement the Wet Weather Flow Management Master Plan in the Etobicoke and Mimico creeks watersheds.
- The cities of Mississauga and Brampton should continue working on implementing stormwater pond retrofits.
- Watershed partners should work together to achieve water balance by promoting infiltration measures including source controls and conveyance controls.
- TRCA and watershed partners should continue to require stormwater management treatment on site whenever possible.
- Watershed municipalities should continue to collect cash-in-lieu to be put toward constructing new “area-based” facilities if on-site treatment is not possible.
- TRCA and watershed partners should continue to include an erosion component in stormwater management facilities for the attenuation of peak flows through the detention of stormwater for a minimum of 24 hours.
- TRCA and the Coalition should continue to work with municipalities and developers to promote the benefits of including source controls in their development plans.
- The Coalition should undertake and promote naturalization projects that reduce stormwater at source.

Urban Growth and Sustainability

Objective: Adaptive and sustainable land management tools are used in the planning of urban growth and development, and rural land uses. Watershed residents, businesses, developers, farmers and governments acknowledge the need to act in a more sustainable way and adopt sustainable practices.

Our impacts on the natural environment are greatly influenced by land use, transportation, air quality and resources use. This section of the report card addresses these factors.

Land use refers to how we plan, regulate and manage the uses of land in the watersheds. Future growth in the watershed should be based on sustainable community design principles that will ensure that communities are liveable, while the natural heritage system is protected, enhanced and restored to ensure watershed health. The development of new transportation infrastructure can lead to habitat loss and fragmentation, and can contribute to the degradation of water resources. Transportation directly affects local air quality and transportation modes that burn fossil fuels are also a significant source of greenhouse gases, which contribute to climate change. Air quality can affect vegetation, buildings and human health. Resource use, such as the amount of water or energy we use, or the amount of waste we generate, is related to the health of natural systems and the long-term sustainability of our society.

Indicators: Four indicators are used to assess urban growth and sustainability. These include: **land use, transportation, air quality and resource use.**

rating:
poor

Land Use

The Etobicoke and Mimico creeks watersheds are already largely developed, with approximately 66 per cent of the total area urbanized. This is an increase from 1998 when 59 per cent of the watersheds were urbanized. Some limited additional greenfield development is planned to occur on lands currently used for agriculture. These areas are found in the north-eastern portion of the City of Brampton (443.8 hectares) and the Mayfield West Community (432.3 hectares) in the Town of Caledon. The greenfield development areas represent three per cent of the watersheds. The provincial Growth Plan suggests that most future development should occur not through greenfield development, but through intensification (e.g., through redevelopment and infill in existing urban areas). Accordingly, it is anticipated that most future development in the watersheds will occur primarily in or near existing designated Centres and Nodes, in existing Employment Areas, along major transit or other transportation corridors, and in the relatively few “brownfield” areas.

As illustrated in Map 05, about 30 per cent of the watersheds is used for employment (industrial, commercial and institutional), while residential uses occupy 25 per cent. The largest single land use is Lester B. Pearson International Airport, which occupies approximately 1,800 hectares or six per cent of the watersheds. About 10 per cent of the watersheds are zoned as open space.

The Town of Caledon is the only municipality in the watersheds with a significant amount of agricultural land remaining. In 2005, this comprised about 25 per cent of the Etobicoke Creek watershed. The town's Official Plan directs that most of these agricultural lands should remain undeveloped.

This policy direction has been strengthened by the inclusion in the provincial Greenbelt Plan of 2,345 hectares of land in the Town of Caledon. A portion of the remaining agricultural land has long been planned to form part of the Mayfield West Community.

figure 15: land use zoning in the watersheds

land use	individual watersheds		Total
	Etobicoke	Mimico	
agricultural	25%	0%	19%
commercial	3%	4%	4%
federal lands	7%	6%	6%
highway	4%	6%	4%
industrial	22%	31%	24%
institutional	2%	3%	3%
open space	11%	8%	10%
parkway belt	2%	2%	2%
recreational*	0%	4%	1%
residential–low	18%	27%	20%
residential–medium	3%	4%	3%
residential–high	2%	1%	2%
railway lands	0%	2%	1%
utilities	1%	2%	1%
total	100%	100%	100%
	21,292 ha	7,568 ha	28,860 ha

* This refers to land that is zoned only for commercial recreation (such as the Woodbine Race Track). Most land zoned “open space” allows for active and passive recreation.

Through the draft Terrestrial Natural Heritage System Strategy (TNHSS), Toronto and Region Conservation (TRCA) has identified the Terrestrial Natural Heritage System (TNHS) that needs to be achieved to ensure watershed health and biodiversity. The strategy identifies existing areas of natural cover, as well as targeted areas that should be protected and enhanced to augment the existing natural heritage system. The key issue relating to land use is not the definition of development limits, but rather the reverse—the determination of the extent of land needed to ensure a sustainable natural heritage system in the watersheds and the development of a strategy to ensure its protection. For maximum protection, the TNHS should be in public ownership or legally protected in some other manner. At a minimum, municipal official plans and zoning by-laws should recognize the Etobicoke and Mimico TNHS.

The map shows the targeted TNHS for the watersheds overlaid on the existing land use map for the watersheds.



Currently, only 40 per cent of the targeted TNHS is zoned as open space or is in public ownership. An additional 25 per cent is zoned agriculture. About five per cent of the system is zoned for low intensity uses such as Parkway Belt, cemeteries and recreational use, and six per cent is federal lands (mostly valley lands). The rest of the targeted system (almost 16 per cent) needs to be restored and protected through zoning and other means to meet minimum targets for natural heritage in the watersheds.



Targets

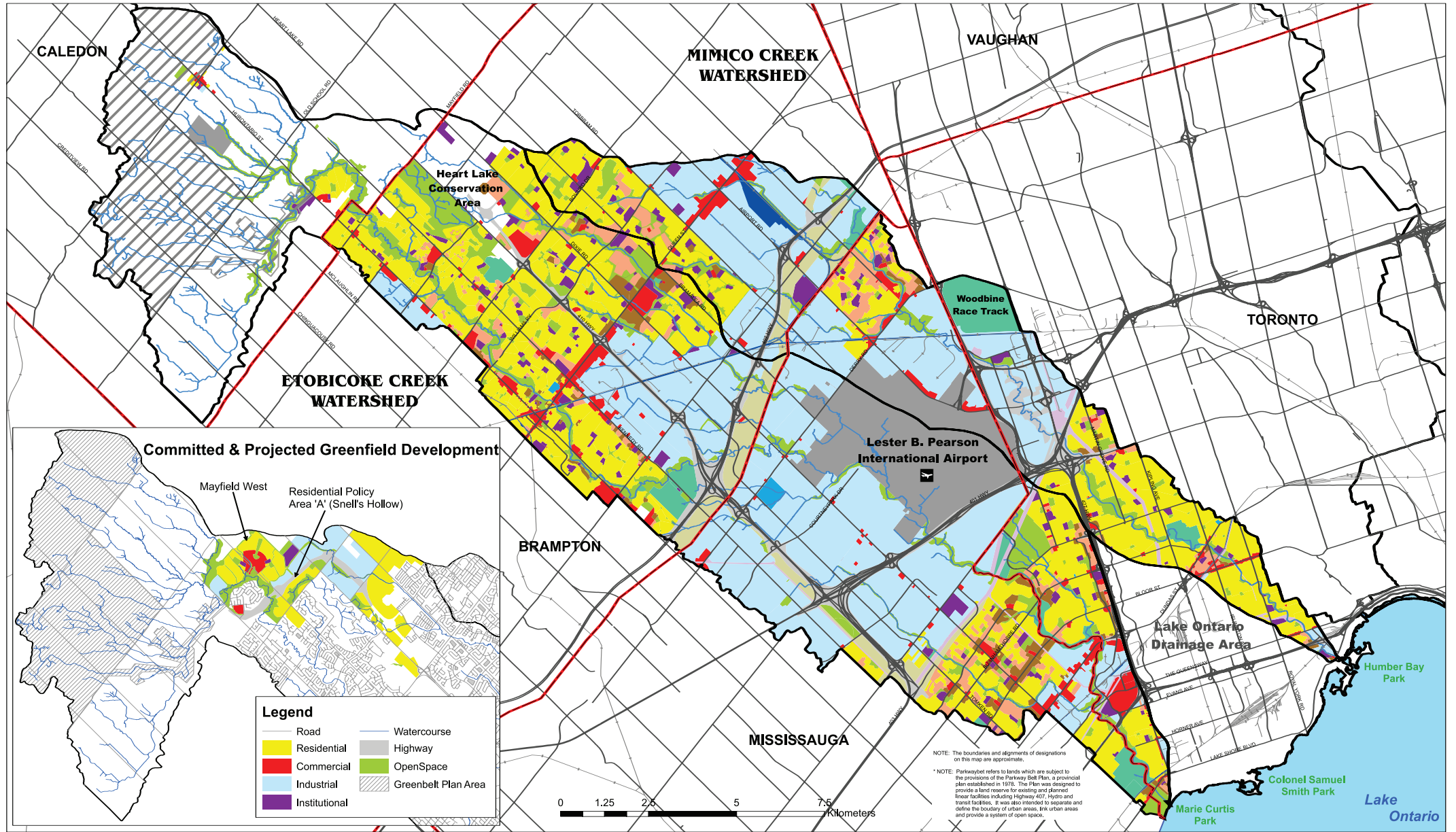
- By 2025, 100 per cent of the TNHS (as identified in the refined Etobicoke and Mimico TNHSS) is protected through the development process and zoning
- Long term, any future development beyond the 2021 urban boundary will be based on intensification, infill and compact urban form, and will occur in designated Rural Service Centres, to encourage the retention of existing agricultural and countryside uses to the greatest extent possible
- New development follows sustainable community design principles where feasible and appropriate

Threats to achieving targets:

- Sixteen per cent of the TNHS is currently not protected through zoning.
- Based on current Official Plans, 22 per cent of the watersheds will remain in agricultural use within the near term. However, only a third of this (eight per cent of the watersheds) is protected under the provincial Greenbelt Plan and the remainder of these lands are subject to land speculation and future development pressures.
- Development charges have limited applicability with respect to funding projects with environmental benefits.
- There are many barriers to the use of green technologies in buildings and infrastructure.
- There is a lack of consistent planning and building codes across watershed municipalities.
- Development professionals, the government and consumers have limited knowledge and finances to innovate with respect to sustainable planning and building.
- There may be continued pressure to allow less intensive development to take place.

Key accomplishments and current actions:

- The provincial government has recently released three significant policy initiatives: a new Provincial Policy Statement (PPS), the Greenbelt Plan and the Greater Golden Horseshoe Growth Plan (*Places to Grow*). These set the stage for a fundamental change in the direction of planning in Ontario, by emphasizing the need for protection of natural areas and agricultural land, compact growth, mixed-use development and development patterns that support public transit.
- Through its work on the TNHSS, TRCA can provide direction in the implementation of sections of the PPS that relate to natural heritage systems.
- In April 2005, TRCA, as part of the York, Peel, Durham, Toronto Groundwater Study, released a draft document entitled *Watershed*



NOTE: The boundaries and alignments of designations on this map are approximate.

* NOTE: Parkwaybelt refers to lands which are subject to the provisions of the Parkway Belt Plan, a provincial plan established in 1978. The Plan was designed to provide a land reserve for existing and planned linear facilities including Highway 407, Hydro and transit facilities. It was also intended to separate and define the boundary of urban areas, link urban areas and provide a system of open space.

Date: May 2006
**Created By: Information Systems/
 Information Technology**

TORONTO AND REGION
Conservation
for The Living City

Legend

Watercourse	Agricultural	Industrial	Greenbelt Plan Area
Major Roads	Residential-Low Density	Institutional	Parkway Belt *
Municipal Boundary	Residential-Medium Density	Federal Government Lands	Recreational
Watershed Boundary	Residential-High Density	Cemetery Lands	OpenSpace
	Commercial	Highway	Hydro Corridor
	Roads	Railway Lands	

Etobicoke & Mimico Creeks Watersheds Zoned Land Use

Planning—From Recommendations to Municipal Policies: A Guidance Document. The report includes policies for the management and protection of groundwater resources and other aspects of watershed plans including surface water, terrestrial and aquatic resources, landforms and infrastructure. It also translates directions commonly found in watershed plans into policies that can be incorporated into official plans, secondary and block plans, as well as regulations in zoning by-laws.

- The Province of Ontario adopted a brownfields incentive program in October 2004 that allows municipalities to cancel or reduce property taxes on eligible brownfield properties that are being redeveloped.
- The City of Toronto’s Environmental Plan, Region of Peel’s Strategic Plan and the Town of Caledon’s Environmental Progress Action Plan serve as good models of comprehensive environmental management at the municipal level.
- Eight per cent of the Etobicoke Creek watershed is currently protected by the province’s Greenbelt Plan as protected countryside.
- In partnership with the Region of Peel, Town of Caledon and the City of Brampton, TRCA has initiated the Etobicoke Creek Headwaters Subwatershed Study to provide detailed environmental information and management direction regarding the last remaining greenfield portion of the watershed.
- The Town of Caledon is applying sustainable design principles in the secondary plan for Mayfield West.
- The City of Brampton is working toward a transit-oriented, sustainable design for the new Springdale North Community.

Key future actions:

- TRCA should complete the Etobicoke Headwaters Subwatershed Study and finalize recommendations regarding future urban growth management, natural heritage system and a monitoring program to evaluate the effectiveness of management approaches being implemented in the Mayfield West Community, to mitigate negative impacts on watershed health.
- TRCA should refine the targets for terrestrial natural heritage in the watersheds.
- When the heritage targets are refined, the Coalition should work with municipal partners to develop a terrestrial natural heritage implementation plan to achieve the desired system.
- TRCA and watershed municipalities should work together to ensure that the TNHS is enhanced through all forms of development, including infill, redevelopment and intensification.
- Municipal Official Plans should reference the goals and objectives of *Greening Our Watersheds* and this report card.
- Municipal partners should ensure that there is no further re-zoning of land for less-intensive development in the Etobicoke and Mimico creeks watersheds.
- Watershed partners should ensure that new and in-fill development occurs in a sustainable manner. At a minimum, municipal official plans

and zoning by-laws should recognize the importance of sustainable community design and natural heritage system.

- TRCA should work with the cities of Mississauga and Brampton to develop comprehensive environmental plans.
- The Coalition should advocate for changes to current development legislation to include services and projects that support environmental, natural heritage benefits and conservation of resources.
- The Coalition should advocate for standard planning and building codes that support sustainable community design.
- The province should assist municipalities with tools and resources to help achieve the growth plan objectives of intensification, infill and compact urban form.
- Watershed municipalities should work together to ensure that agricultural and countryside uses are retained to the greatest extent possible in the watersheds.
- Municipalities should ensure that new development and intensification follows sustainable community design principles where feasible and appropriate.

rating: poor **Transportation**

In the most recent data (from 2001), 84 per cent of trips made by residents of wards in the Etobicoke and Mimico creeks watersheds were made by automobile, eight per cent of trips were made using local transit and five per cent were made on foot or bicycle. The percentage of residents using alternate forms of transportation varies throughout the watersheds, with wards in the cities of Toronto and Mississauga generally having higher transit use than in the City of Brampton and the Town of Caledon. The lack of transit use in the Town of Caledon reflects the absence of mass transit in this more rural area. The rating for alternate (e.g., non-automobile) forms of transportation is “poor.”

Almost 70 kilometres of roads within the watersheds are designated as major transit routes, with additional roads being used for local services. There are an estimated 17.2 kilometres of bike lanes on these major transit routes. An additional 45.6 kilometres of bike lanes is planned for the future. The rating for bike lanes is a failing grade.



Targets • By 2025, the modal split for watershed residents should match the 2001 split for the City of Toronto (e.g., 54 per cent of trips made by automobile drivers, 14 per cent made by automobile passengers, 22 per cent by transit and eight per cent by cycling and walking) • By 2025, complete the planned 45.6 kilometres of additional bicycle paths



figure 16: modal split of trips made by residents of wards in Etobicoke and Mimico creeks watersheds during a 24-hour period (2001)

area of trip	number	auto driver	auto passenger	local transit	GO train	walk/cycle	other
Caledon Ward 2	15,100.00	76%	16%	*	1%	1%	6%
Brampton Ward 1	76,900.00	70%	19%	4%	1%	6%	1%
Brampton Ward 2	79,000.00	71%	17%	3%	1%	5%	3%
Brampton Ward 3	62,400.00	67%	20%	4%	1%	5%	2%
Brampton Ward 6	23,200.00	74%	15%	2%	1%	1%	7%
Brampton Ward 9	29,800.00	70%	16%	5%	1%	7%	1%
Brampton Ward 10	71,600.00	72%	16%	4%	2%	3%	3%
Mississauga Ward 3	118,700.00	66%	16%	10%	1%	6%	2%
Mississauga Ward 5	149,300.00	65%	17%	7%	1%	7%	2%
Toronto Ward 2	100,000.00	64%	17%	13%	0%	4%	1%
Toronto Ward 3	108,000.00	67%	16%	11%	0%	5%	1%
Toronto Ward 4	115,000.00	65%	16%	13%	0%	4%	1%
Toronto Ward 5	122,800.00	61%	14%	17%	0%	5%	2%
Toronto Ward 6	118,900.00	62%	14%	15%	2%	5%	2%
Etobicoke and Mimico creeks watersheds	1,190,700.00	68%	16%	8%	0%	5%	2%
City of Toronto	4,763,900.00	54%	14%	22%	0%	8%	1%
Region of Peel	2,045,800.00	69%	16%	5%	2%	5%	3%

* Category with less than four observations or survey records.
Source: Transportation Tomorrow Survey, 2001

Threats to achieving targets:

- Many residents perceive driving to be more convenient and efficient than other forms of transit.
- Land use planning in the watersheds has generally not been conducive to implementing or supporting fast and efficient public transit. For example, services are not placed within convenient walking or cycling distances and many people live a long distance from their workplaces.
- The lack of integration between transit systems means commuters must pay additional fares when connecting between transit systems.
- Even with proposed transit improvements in the watersheds, desired levels of transit use may not be reached unless population densities increase enough to support transit.
- Municipal plans for creating bike lanes are not always implemented on schedule due to financial constraints and other priorities. For instance, the City of Toronto's proposed 1,000-kilometre Bikeway Network may take longer than the 10 years originally envisioned in the bike plan.

Key accomplishments:

- Municipalities in the watersheds are making efforts to improve public transit and facilities for cyclists and pedestrians.
- Major transit facilities are found on most arterial roads and there are also significant transit facilities on collector roads, with the exception of the Town of Caledon, which, as a rural area, does not have good transit service. Seventy kilometres of roads are designated as major transit routes, with additional roads being used for local service.
- Watershed municipalities have proposed land use intensification along major transit corridors.
- The City of Toronto has created a Cycling Master Plan, with cycling routes and guiding principles, and has established the Toronto Cycling Committee.
- The implementation of Brampton's Pathways Master Plan for Cycling is a key initiative to improve cycling access. Pedestrian access is also to be improved, to enhance access to and along transit routes.
- The City of Mississauga has plans to expand its current 100-kilometre cycling network of bike lanes and paths to 500 kilometres.

Key future actions:

- The Coalition should advocate for the establishment of a convenient, efficient and integrated public transit system across the Greater Toronto Area.
- The federal and provincial government should sustain and enhance their investment in public transit and infrastructure to support cycling and accessible pedestrian modes of transportation.
- The Coalition should advocate for transit-supportive development.
- Watershed partners should develop programs to educate residents and create awareness about the benefits of car-pooling, public transit, cycling and walking.
- TRCA and the Coalition should advocate for and help plan cycling infrastructure, including continuous bike lanes and pathways, and parking throughout the watersheds.
- TRCA and the Coalition should advocate for and help plan accessible pedestrian infrastructure, including sidewalk networks, protected road crossings and bus shelters.
- The Coalition should advocate for the integration of enhanced transit and bicycle services as existing roads are repaired.

rating:
fair

Air Quality

The Air Quality Index (AQI) is a composite index that was developed by the Ministry of Environment in 1988 to measure a number of common air pollutants and provide “real-time” information to the public. The AQI is an indicator of air quality and is based on measurements of some or all of the six most common pollutants—sulphur dioxide, ground-level ozone, nitrogen dioxide, total reduced sulphur compounds, carbon monoxide and fine particulate matter (particles that are less than 2.5 microns in size, also known as PM2.5). To generate the AQI, provincial staff measure the concentrations of these pollutants every hour at the province’s network of 38 continuous air monitoring stations. At the end of each hour, the concentration of each pollutant measured at a particular site is converted into a number ranging from one upwards using a common scale or index. During any given hour, the pollutant with the highest value becomes the AQI reading. (That is, if the value for ozone is the highest at 65, then the AQI becomes 65.) The AQI is divided into categories from “good” to “very poor” (see table 17). The lower the AQI, the cleaner the air.

figure 17: air quality index (AQI) categories and health implications

AQI value	category	health implications
1 to 15	very good	no known health effects
16 to 31	good	no known health effects, some damage to vegetation
32 to 49	moderate	may be some adverse effects on very sensitive people, some damage to vegetation
50 to 99	poor	may have some short-term adverse effects on human or animal populations, or may cause significant damage to vegetation and property
100 or more	very poor	may cause adverse effects on a large proportion of those exposed

Figure 18 shows the AQI ratings for 2003, as a percentage of hours measured, for the three monitoring stations that are closest to the Etobicoke and Mimico creeks watersheds. On average, 43 per cent of the time the AQI was very good and 90 per cent of the time the AQI was good or very good. The AQI was poor for one per cent of the time on average. This occurred for at least one hour on 13 days for the cities of Brampton and Mississauga monitoring stations and on 15 days for the Toronto West station. Ozone and fine particulate matter were the pollutants responsible for the poor AQI ratings.

figure 18: AQI distribution for the three monitoring stations closest to the Etobicoke and Mimico creeks watersheds (2003)*

station ID	station name	percentage of valid hours AQI in range					valid hours	number of days AQI > 49 for at least one hour
		very good (0-15)	good (16-31)	moderate (32-49)	poor (50-99)	very poor (100+)		
35125	Toronto West	51	40	8.4	0.8	0	8,700	15
46089	Brampton	36	54	9.2	1	0	8,716	13
46110	Mississauga	43	48	8.4	0.9	0	8,667	13

* Data available at the time of developing the report card.

This indicator has been rated as fair and should not be interpreted to mean “acceptable.” High levels of ozone and fine particulate matter are linked to a number of serious health consequences, including heart and respiratory conditions such as asthma and bronchitis, and increased mortality. Average annual concentrations of ground-level ozone are increasing across North America. We are starting to see poor AQI readings in the winter, when previously they had been associated with hot summer days. Public concern about the health implications of air pollution is increasing. These trends reinforce the need for concerted action to reduce the emissions of key air pollutants, including volatile organic compounds and hydrocarbons, which are the building blocks of ground-level ozone.



Targets • The air quality as measured by the AQI should be very good (e.g., an AQI of zero to 15) for 100 per cent of the annual sampled hours

Threats to achieving targets:

- Air pollution is regional in nature and does not respect political or watershed boundaries. About half of the smog we experience comes from the United States. This means we have a limited ability to unilaterally address the problem.
- Climate change and consequent warming temperatures will likely exacerbate air quality and increase risks to human health.

Key accomplishments and current actions:

- The Clean Air Partnership has produced *A Model Clean Air Plan for The Living City*, with support from TRCA and the federal government. The report includes a broad spectrum of possible municipal clean air actions to help municipalities develop clean air plans.
- The GTA Clean Air Council was formed in 2001 to work on air quality issues. Once a year, the council holds a Smog Summit to review progress on efforts to reduce air pollution. During the 2005 summit, the municipalities of Caledon, Toronto, Mississauga and Brampton, and the Region of Peel were among those who signed the 2005 Intergovernmental Declaration on Clean Air.

Key future actions:

- Federal and provincial governments should invest in local conservation initiatives related to energy conservation and air quality improvement.
- The Coalition should take part in and endorse public education campaigns on air quality and climate change.
- The Coalition should advocate for the use of renewable energy and alternate modes of transportation.
- The Coalition should promote TRCA’s Living City programs that relate to energy conservation and air quality improvements.

Climate change: impacts and actions

Human activities are changing the chemical composition of the atmosphere through the build-up of greenhouse gases that trap heat and reflect it back to the earth's surface. This is resulting in changes to our climate, including a rise in global temperatures and more frequent extreme weather events.

Global warming over the next century could be as great as the change in temperature between the peak of the last Ice Age—some 25,000 years ago—and today. On average, every Canadian produces over five tonnes of greenhouse gas emissions (GHG) each year.

The potential impacts of climate change in the Etobicoke and Mimico creeks watersheds include:

- The number of heat-related deaths could rise because of higher summer temperatures.
- Changes in temperature and precipitation may help the survival of insect-(vector) borne diseases, causing increases or invasions into Canada of diseases.
- An increase in mid-winter melts could lead to more flooding and more freeze/thaw erosion of stream banks.
- More frequent and longer dry periods could lead to water supply problems, lower base flows in the rivers and streams, and adverse impacts on aquatic life.
- Increased intensity of storms could lead to flash flooding and sewer surcharging.
- Increased evaporation rates could lead to lower lake and pond levels, impacts on intake pipes and effluent discharge.
- Increased water temperatures might present problems for fish and other aquatic species, and transform the existing cold-water fishery into either a cool- or warm-water fishery.
- Generally, there may be poorer water quality over time.



rating:
poor

Resource Use

Resource use looks at three measures to evaluate impacts of our day-to-day actions on our environment—**water efficiency, solid waste diversion and energy efficiency.**

Water efficiency

Water efficiency is good for the environment because it reduces the impacts on groundwater and surface water resources, and reduces the energy required to treat and transport water to the end user. It is also good for the economy because it is cheaper to conserve water than it is to build a new treatment capacity. Even the Great Lakes are not infinite—the Commissioner of the Environment and Sustainable Development found in 2001 that, “At the current rates of use, the strain on the available supply of fresh water in the [Great Lakes] basin may contribute to decreased water levels, which could cause significant environmental damage and substantial social costs.” Climate change will likely exacerbate the situation due to increased frequency of droughts and changes in precipitation patterns.

In the cities of Toronto, Brampton and Mississauga, water is drawn from Lake Ontario, treated and tested before being distributed to consumers. Municipal groundwater wells serve the smaller communities in the Town of Caledon and many Caledon residents are on private wells.

Statistics from 1999 show that Canada is the second largest (residential) water user in the world, second only to the United States.

figure 19: residential water use in litres per day, per capita (1999)

Country	Water Use
United States	382
Canada	343
Italy	250
Sweden	200
France	150
Israel	135

Water use in the municipalities of the Etobicoke and Mimico creeks watersheds is presented in Table 20. Although average daily per capita use is less than the 1999 Canadian average, there is still room for improvement. A potentially achievable target is to match the lowest municipal consumption in Canada, which is Charlottetown at 156 litres per day. The City of Toronto has a goal of 15 percent reduction of water use by 2011. Water efficiency is rated as “fair.”

figure 20: average number of litres of residential water use per day, per capita

municipality	2003	2004
Toronto	251	253
Mississauga	236	248
Brampton	232	215
Caledon	204	213

Source: Toronto Vital Signs Report 2004 and personal communications with Region of Peel staff.



Composters



Wind turbines

Solid waste diversion

Diverting solid waste from disposal by reducing, reusing or recycling is beneficial to the environment in many ways. Waste diversion allows materials such as glass, steel, paper and plastic to be recycled into useful consumer items, rather than being thrown away. Waste diversion also reduces the amount of energy needed to collect and transport waste for disposal, and extends the life of landfill sites. The removal of household and yard organic waste from the waste stream for composting also reduces problems at landfill sites.

The provincial government has set a waste diversion goal of 60 per cent of residential waste by the end of 2008. Current waste generation and diversion rates are shown in figures 21 and 22. The current waste diversion rate of 40 to 45 per cent is rated as “fair”. The Region of Peel has a goal of 70 per cent diversion rate of residential solid waste by 2016. The City of Toronto’s goal for diversion of residential solid waste is 60 per cent by 2006, 80 per cent by 2009 and 100 per cent by 2010.

figure 21: residential waste generation per capita (2002–04)

municipality	2002	2003	2004
City of Toronto	256 kg	247 kg	228 kg
Region of Peel	396 kg	390 kg	not available

figure 22: residential waste diversion (2003–2005)

municipality	2003	2004	2005
City of Toronto	32%	36%	40%
Region of Peel	45.22%	45.2%	not available

Energy efficiency

The efficiency with which we use energy affects many aspects of the Etobicoke and Mimico creeks watersheds. The burning of fossil fuels has a direct impact on our air quality and contributes to global warming.

One useful measure of energy efficiency is the extent to which building initiatives are incorporating energy efficiency and renewable energy technologies. The number of building and infrastructure initiatives that incorporate energy-efficiency technologies in the watersheds is small but growing. The City of Toronto is carrying out a number of projects to increase energy efficiency including installation of a solar-wall at the Central Garage and the adoption of the Green Fleet Transition Plan, which would lead to the city’s vehicle fleet using biodiesel fuel.

As of March 2006, there were 52 projects in Ontario that are registered with Leadership in Energy and Environmental Design (LEED). There are two LEED-registered projects close to the Etobicoke and Mimico creeks watersheds—a 29-story, high-rise residential building being developed by Tridel and a Canpar Distribution Facility, which includes a parcel sorting and distribution facility with adjoining offices. The Greater Toronto Airports Authority has registered their Fire Training Area Expansion LEED compliance through the Canada Green Building Council. If the design development continues in its current direction, the project can attain a “gold” status.

While the above projects are notable and, with luck, a signal of things to come, the vast majority of the buildings in the Etobicoke and Mimico creeks watersheds are anything but energy efficient. In terms of energy efficiency, the current rating is “fail.”

The overall rating for resource use is “poor”, as measured by how well we conserve water, divert solid waste and use energy efficiently.



- Targets**
- By 2025, the watershed municipalities should have reduced average per capita water use to 156 litres per day
 - By 2008, the watershed municipalities should have achieved the province's residential waste diversion target of 60 per cent
 - By 2012, watershed communities should cut their energy consumption by six per cent, as required by the Federation of Canadian Municipalities Partners for Climate Protection Program

Threats to achieving targets:

- The low cost of municipal water and sewer services relative to other utilities, and the lack of universal water metering are barriers to improved efficiency of water use.
- There is a lack of public awareness about our limited fresh water resources and the benefits (economic and environmental) of conserving water.
- Recycling in multi-family dwellings is more difficult than in single family dwellings. The current diversion rate for this sector in the City of Toronto is 12 per cent.
- New materials added to the diversion stream, such as organics, tend to have higher processing costs and lower market values. As new material types are added, the average net cost per tonne to process materials will increase.

Key accomplishments and current actions:

- The Coalition takes part in the annual Peel Children’s Water Festival, where information about water efficiency is distributed.
- TRCA’s Healthy Yards program and the City of Toronto’s Summer WaterSaver Program provides residents with information on water-efficient gardens.
- The City of Toronto has developed a Water Efficiency Plan and has an idling control by-law.
- In December 2002, the government of Ontario passed the *Sustainable Water and Sewage Systems Act* that requires municipalities to recover the full cost of providing water and sewage services. Although this *Act* has not yet come into force, it is additional impetus for municipalities to promote water conservation.
- The City of Toronto’s city-wide Green Bin program, in which organic food wastes are collected, is now available to approximately 510,000 single-family households.
- The Region of Peel’s Three-Bag Standard program requires a \$1 garbage tag on any garbage bags, containers or bundled wood more than the allowed three.
- The Region of Peel’s composting program involves the curbside collection and processing of food and yard waste. The material is collected from over 9,000 households within the Town of Caledon and the City of Brampton north-west and north-east.
- TRCA has taken on the role of public education with respect to small renewable energy systems at the Kortright Centre for Conservation.
- TRCA is working closely with the Toronto chapter of the Canada Green Building Council to advocate for green building technologies and practices.
- TRCA has initiated a number of programs with a focus on energy efficiency, including the Mayors’ Megawatt Challenge (in which the cities of Toronto, Mississauga and Brampton are all participants), Greening Health Care, Sustainable Schools and Greening Retail.

Key future actions:

- Watershed municipalities should promote and implement water efficiency programs.
- The Coalition should promote the use of innovative wastewater technologies to reduce the generation of wastewater and reduce demand for potable water.
- The Coalition should advocate for water pricing and rate structures that better reflect the “true” cost of water.
- The Coalition should promote the reuse of and recycling of buildings, construction and renovation materials.
- The Coalition should advocate for extended producer responsibility (EPR) programs for products in which a producer’s responsibility is extended to the post-consumer state of a product.
- The Coalition should encourage development and use of renewable energy technologies including solar, wind, geothermal, biomass and certified low-impact hydro sources.

- The Coalition should advocate for the application of green building standards to all municipal buildings in the watersheds.
- The Coalition should advocate for the use of hybrid and fuel-efficient vehicles and “no-idling” policies for watershed municipalities that do not currently have such policies.
- The Coalition should encourage consumers to purchase energy-efficient appliances.

Ecological footprint

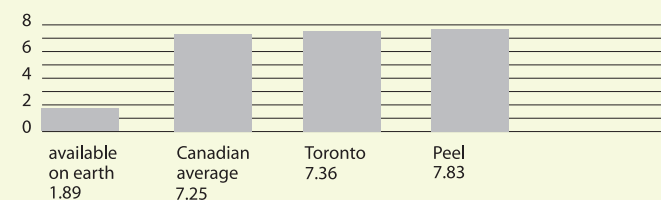
The “ecological footprint” is a measure that gives a global perspective on the sustainability of resource use and waste generation. An ecological footprint is the biologically productive area required to produce all the products a person or group consumes and to absorb all their waste. A footprint that exceeds the earth’s carrying capacity indicates an unsustainable rate of consumption.

The Federation of Canadian Municipalities (FCM) produced a report in 2003 called *Ecological Footprints of Canadian Municipalities and Regions*. They found that the municipalities have a wide range of footprints—from a low of 6.87 hectares per capita in greater Sudbury, to a high of 9.86 hectares for Calgary, Alberta.

The Region of Peel’s ecological footprint is 7.83 hectares per capita, while the City of Toronto’s was measured at 7.36 hectares. These are slightly higher than the average Canadian footprint of 7.25 hectares. That means that the average Canadian uses 7.25 hectares of land to sustain their current life needs and wants. When the total amount of ecologically productive land area on earth is divided by the human population, there are about 1.89 hectares available for each person.

The ecological footprint is often used as an educational tool. The Region of Peel produced a bulletin about the region’s footprint, which gives suggestions on how residents can reduce their ecological footprint. The City of Toronto has also devoted a web page to the same topic. Ecological footprint calculators for individuals are also available, including one that is found at the web-site of Redefining Progress at www.rprogress.org

figure 23: ecological footprint — hectares/capita



Recreation

Objective: Outdoor recreational facilities are planned and managed in a manner that integrates ecological health with social benefits.

The natural areas in the Etobicoke and Mimico creeks watersheds provide opportunities for residents to take part in a range of recreation activities including walking, cycling, picnicking, birdwatching and fishing. Such activities are important for our physical and spiritual well-being. Outdoor recreation is one of the primary ways in which the residents of the watersheds can interact with the natural environment.

Indicators: Three indicators have been selected to measure the recreational resources of the Etobicoke and Mimico creeks watersheds. These are **publicly accessible open space, trails and golf courses.**

rating:
good

Publicly Accessible Open Space

For this report card, “publicly accessible open space” was defined as all publicly owned land that is open to the public for passive recreation. This includes municipally-owned parks, conservation lands and cemetery lands. It does not include golf courses, commercial lands such as the Woodbine Race Track, or federal lands that are managed by the Greater Toronto Airports Authority (GTAA).

figure 24: amount of publicly accessible open space in the watersheds

watershed	number of hectares	percentage of total watershed
Etobicoke	2,047.5	9.6%
Mimico	495.0	6.6%
total	2,542.5	8.8%

The target for this indicator is to increase the amount of publicly accessible open space over time. Currently, 8.8 per cent of the watersheds is publicly accessible open space. This compares to the much larger Humber and Don watersheds, where 10 per cent and 15 per cent of the watersheds respectively are publicly accessible open space. Publicly accessible open space is typically owned by a variety of public sector bodies. Toronto and Region Conservation (TRCA) owns 375 hectares of land in the Etobicoke Creek watershed and 43 hectares in the Mimico. It is worth noting that this is a much smaller amount than in the Don and Humber watersheds where TRCA owns 1,005 and 6,844 hectares respectively.

Waterfront parks

Toronto and Region Conservation also owns three waterfront parks on the Etobicoke and Mimico waterfronts. These are Humber Bay Park (45 hectares), Marie Curtis Park (25 hectares) and the Arsenal Lands (16 hectares). These major parks are not included in this indicator because they are technically not part of either the Etobicoke or Mimico creeks watersheds.

Most of the open space in the Etobicoke and Mimico creeks watersheds lies within the valley corridors, is primarily owned by golf courses, and is therefore not publicly accessible. Because of this, there will be few opportunities in the future to increase the amount of publicly accessible open space in the valley corridors. Additional open space for recreation may come through future development (either parkland designation or cash-in-lieu), small parkettes and rooftop facilities.

Future report cards will try to assess whether publicly accessible open space in the watersheds is being managed in an environmentally responsible manner.



Targets • Increase the amount of publicly accessible open space over time

Threats to achieving targets:

- There are relatively few options for increasing the amount of publicly accessible open space in the watersheds.

Key accomplishments and current actions:

- TRCA has recently updated its Greenlands Acquisition Strategy.
- TRCA has acquired 4.5 hectares of land in the watersheds since 2000.
- The provincial Greenbelt Plan will protect eight per cent of the Etobicoke Creek watershed from development as protected countryside.
- TRCA's Terrestrial Natural Heritage System Strategy (TNHSS) has identified key lands in the watershed to meet the natural heritage targets.
- The Town of Caledon is amending a by-law that will allow it to acquire parkland based on the number of residential units rather than five per cent of the area developed.
- Current provincial and municipal Hydro Corridor plans identify linear recreation uses as a priority within utility corridors.
- The GTAA is initiating work on the Etobicoke Trail that will provide a link and access through their property.

Key future actions:

- TRCA should use the Greenlands Acquisitions Strategy to acquire priority lands for public use.
- TRCA and watershed municipalities should continue to acquire open space through the development process.
- Watershed municipalities should consider acquiring parkland based on the number of residential units (rather than five per cent of the developed area) as was done in the Town of Caledon.
- TRCA should work with its municipal partners to promote the naturalization of open space lands and management using an “environment first” philosophy.
- The Coalition should develop an inventory of privately owned open space, and work with owners to develop stewardship easements and the securement of land through donations and bequests.

- The Coalition should identify areas where encroachment on public lands is an issue and should work with municipalities and TRCA to address it.
- Watershed partners should ensure that all publicly accessible open space is managed in an environmentally responsible manner.

rating:
good

Trails

A network of well-designed and maintained trails is important for many reasons—accessing and connecting open spaces, protecting natural areas from the impacts of ad hoc and inappropriate paths, and ensuring public safety. Trails can also help to increase public awareness of the value of natural areas and healthy creeks. As shown in the table below, significant progress has been made in developing a network of trails in the Etobicoke and Mimico creeks watersheds, with two-thirds of the desired trail network now in place.

figure 25: length of existing and proposed trails

watershed	existing trails	proposed additional trails	percentage of desired trail network in place
Etobicoke	127 km	65 km	66% (approx.)
Mimico	64 km	37 km	66% (approx.)



Targets • Complete trail network as defined in Watershed Trails Plan

Threats to achieving targets:

- Funding priorities and capital and operating costs of trail construction in existing urban areas.
- Inappropriate use (e.g., by people using motorcycles and snowmobiles) and trails located in sensitive areas.
- Lack of incorporation of municipal trail plans into municipal design guidelines and major infrastructure projects.

Key accomplishments and current actions:

- The Coalition is developing the Etobicoke and Mimico Creeks Watershed Trails Plan.
- The City of Mississauga is constructing a section of the Etobicoke Creek Trail in conjunction with the Region of Peel's Sewer Twinning Project.
- As part of the West Etobicoke Creek Restoration Project, TRCA has developed the trail alignment for the west Etobicoke Creek Trail, connecting the cities of Mississauga and Brampton.
- The Greater Toronto Airports Authority (GTAA) is carrying out a feasibility study to provide public access through GTAA property along the Etobicoke Creek Trail.
- The City of Brampton has completed its PathWays Master Plan.
- As part of the Heart Lake Master Plan process, a comprehensive trail plan has been developed for Heart Lake Conservation Area.

- As part of the Mayfield West development in the Town of Caledon, the Valleywood trail segment, which will connect the City of Brampton and the Town of Caledon, is planned.
- A south Mimico Creek Trail alignment is being undertaken to connect the Waterfront Trail to Mimico Creek.
- The Mimico Waterfront Linear Park Trail is being developed.
- A pedestrian bridge has been built to link the Etobicoke Creek Trail between the cities of Toronto and Mississauga.
- The City of Mississauga's Fence By-law has closed access to many footpaths through environmentally sensitive areas.

Key future actions:

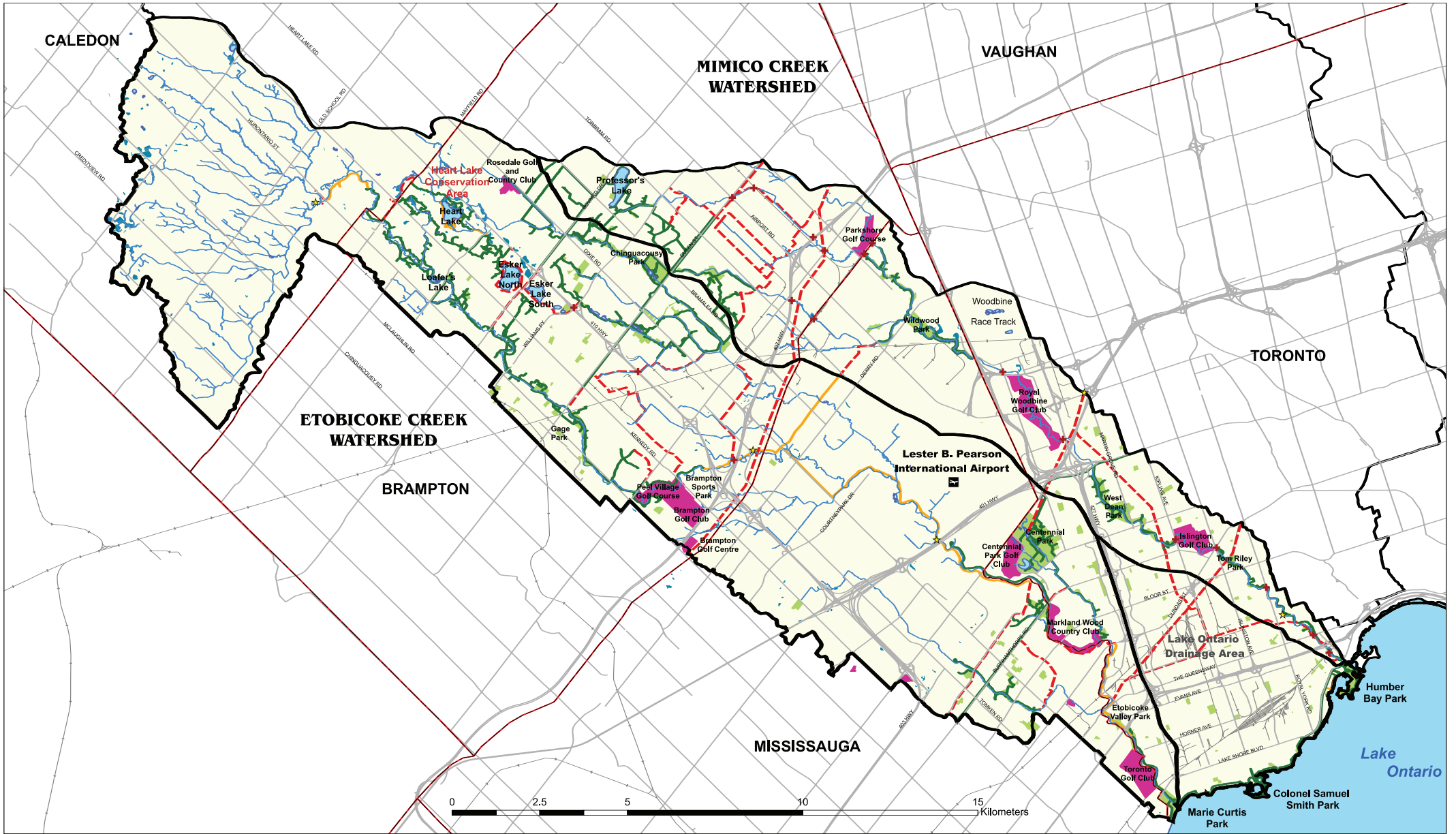
- The Coalition should complete the Etobicoke and Mimico Creeks Watersheds Trails Plan with input from TRCA and municipal partners.
- Watershed partners should continue to work together to secure funding and build additional trails.
- Partner municipalities should implement municipal trails master plans.
- TRCA staff should review and update the 1992 Trail guidelines for trails on TRCA property.
- The Coalition should advocate for the incorporation of trails plans into municipal design guidelines and major infrastructure projects.
- TRCA and watershed municipalities should ensure that opportunities to construct trails are realized in the development process.

rating:
fair



Golf Courses

In urban landscapes, golf courses can become important links in an open space system by providing recreational opportunities for people and habitat for wildlife. However, golf courses can also have major adverse impacts on the natural environment. Typically, they have large amounts of manicured turf grass, little natural cover, and little or no riparian vegetation. They can also use large amounts of water, insecticides and herbicides. But golf courses can reduce their impacts on the natural environment by completing environmental management programs, such as the Audubon Cooperative Sanctuary Program. Through the program, golf club managers are helped to develop natural resource management plans that deal with integrated pest management, water quality and conservation, wildlife habitat, energy efficiency and waste management. With input from local golf courses, the Town of Uxbridge has recently developed a Golf Course Policy based on the Audubon International and Integrated Pest Management Guidelines. The policy, one of the first in Ontario, establishes standards for water use, conservation of environmental features and protection of wildlife.

Of the eight golf courses in the watersheds, only one (the Peel Village Golf Club) has become fully certified under the Audubon program. This is given a "fair" rating. Other clubs have shown interest in the past by registering with the program, but have not moved on to become fully certified. The Markland Wood Golf and Country Club registered with the program in 2004 and is actively pursuing certification. Since then, Markland Wood has carried out a substantial number of environmental improvements to their property and operations.

















Date: May 2006
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 Information Technology

TORONTO AND REGION
Conservation
 for The Living City

Legend

 Wetland	 Municipal Park	 Railways	 Existing Trails
 Ponds/Lakes	 Major Roads	 Trail Barrier	 Short Term Proposed Trails (within 5 years)
 Watershed Boundary	 Watercourses	 Trail Connection	 Long Term Proposed Trails
 Golf Course	 Municipal Boundary		

Recreation
Etobicoke & Mimico Creeks
Watersheds



Targets • All golf courses in the watersheds have completed an environmental management program or become certified through the Audubon Cooperative Sanctuary Program

- Provisions have been made for trail linkages on golf course properties where they can be safely accommodated

Threats to achieving targets:

- Insufficient priority is placed on environmental protection and enhancement.
- Limited interest, understanding and stewardship from the golfing community.
- Lack of municipal policies that set environmental standards for golf courses.

Key accomplishments and current actions:

- Markland Wood Golf and Country Club has registered in the Audubon Cooperative Sanctuary Program and is actively pursuing certification.
- There was 100 per cent participation by watershed golf course representatives in the Golf Course Stewardship Conservation Seminar hosted by TRCA in 2004.

Key future actions:

- Toronto and Region Conservation (TRCA) should continue to encourage golf courses to participate in environmental management programs by offering conservation seminars and providing information to help golf club managers achieve some level of certification.
- The Coalition should recognize the efforts of Peel Village and Markland Wood Golf and Country Club and others that pursue beneficial environmental actions.
- The Coalition should advocate for trail access through golf clubs where they can be safely accommodated.
- Municipalities, in partnership with TRCA, should develop policies that set standards for water use, pesticide applications and general conservation practices at golf clubs.



Heart Lake dragon boat race

Heritage

Objective: Community connections to the watersheds are improved through the recognition, preservation and celebration of heritage features and resources

Human heritage provides a context and background for our presence in the Etobicoke and Mimico creeks watersheds. Cultural heritage resources can include buildings, structures, landscapes, vistas, objects and stories. They reveal the picture of human history in the watersheds and our interactions with them. Preserving these resources helps to enrich our watersheds and our communities.

Indicators: There are two indicators for the heritage management strategy—**human heritage features and resources** and **sense of identity**.

rating:
fair

Human Heritage Features and Resources

The Coalition's goal for this indicator is to develop a comprehensive inventory of all human heritage features and resources in the watersheds. This is an important step in protecting these resources from development and re-development.

Two measures have been used for this indicator—the number of registered archaeological sites in the watersheds and the number of heritage properties in the watersheds on municipal inventories. Targets have been set for 2012 and 2025.

figure 26: measures of human heritage features and resources in the watersheds

measures	results	
	Etobicoke	Mimico
number of registered archaeological sites	1997: 44	2002: 68
	2005: 71	1997: 12
	2002: 19	2005: 19
number of built heritage properties on municipal inventories	1997: 337	1997: 47
	2004: 352	2004: 47

This indicator has been given a "fair" rating, reflecting the slight but not substantial increases since 2002.



Targets • By 2025, leading-edge technologies are used to identify heritage features • By 2025, Best Management Practice guidelines are used to protect heritage sites

Threats to achieving targets:

- Archaeological resources that are not identified before urban expansion takes place are more likely to be destroyed rather than preserved.
- Municipalities may not have the resources to expand their inventories of heritage properties before the resources are threatened with demolition. At this point it is often too late to preserve resources or save them by relocation.
- The lack of Best Management Practices guidelines for heritage resources and a standardized system of municipal heritage inventories increases the risk that heritage resources will be unknown, unappreciated and threatened.
- Heritage preservation at the municipal level is too dependent on volunteers and staffing resources are shrinking.

Key accomplishments and current actions:

- Toronto and Region Conservation (TRCA) has developed and updated a database of heritage resources in the watersheds. This contains information from the Ministry of Culture and municipalities.
- Amendments to the *Ontario Heritage Act*, which came into effect in April 2005, provide increased protection for heritage resources across the province.
- The Etobicoke-York Community Preservation Panel of the Toronto Preservation Board has increased their involvement in developing the City of Toronto’s inventory of heritage properties. TRCA staff will be sharing inventory data with them.
- The Etobicoke-York Community Preservation Panel of the Toronto Preservation Board is working to ensure that new street names reflect the heritage of the watersheds.
- There have been some additions to municipal heritage inventories, the level of protection for some has been upgraded, and some information has been updated and improved.
- The Region of Peel is funding the investigation for new archaeological sites on the Oak Ridges Moraine. This may set the stage for similar investigations on the South Slope in Caledon.
- The City of Toronto has increased the grant money available for its Heritage Grant program.

Key future actions:

- The Coalition should encourage local community groups to be proactive in researching heritage properties and advocating for their inclusion in municipal inventories.
- The Coalition should approach Toronto Preservation Services to partner in the development of a heritage conservation seminar aimed at municipal planning staff in the watersheds.

rating:
fair

Sense of Identity

The Etobicoke and Mimico creeks watersheds are much more than a collection of natural resources. They are part of our history—they reveal our past, define our present and inspire our future. The sense of identity indicator is aimed at understanding how we feel about the watersheds in which we live. Do we understand their history? Do we comprehend their boundaries? Do we relate to them? And if so, how?

The goal for the Coalition’s efforts in this indicator is that individuals and communities take pride in and celebrate the heritage of the watersheds. Three measures have been used for this indicator:

- 1 The number of oral and written stories collected by the Coalition and its partners.
- 2 The number of heritage interpretation opportunities provided by TRCA, the Coalition and its partners.
- 3 The number of heritage-related articles in the watershed newsletter, *CreekTime*.

figure 27: sense of identity measures

measure	results	comments
number of oral histories collected	none	first oral history workshop conducted in Feb. 2005
number of heritage interpretation opportunities provided	2	2003: new archaeological site found at Heart Lake; information incorporated into 2003 Peel Children's Water Festival 2005: south Mimico Discovery Walk being developed
number of heritage articles in <i>CreekTime</i>	4	2003: 3 2005: 1

The rating for this indicator is “fair”, as a number of actions that contribute to meeting the targets have been completed or are underway.



Targets • By 2008, all Community Action Sites integrate identity as a component of its features and activities • By 2008, all issues of *CreekTime* include a heritage-related article • By 2025, all watershed community events and conservation seminars incorporate a human heritage dimension • By 2025, all naturalization projects include a connection with the past

Threats to achieving targets:

- Lack of staff time, support and community volunteers.
- Heavy reliance on volunteers.
- Lack of coordination on heritage matters among agencies/municipalities in the watersheds.

Key accomplishments and current actions:

- The Etobicoke and Mimico Oral Stories project is well underway, with the first round of training complete. The Coalition and partners are compiling a list of people to be interviewed, and will start collecting oral stories in 2006.
- The Coalition is developing an interpretive walk for the south Mimico area, and the City of Toronto has expressed an interest in adding this walk to the official roster of Discovery Walks.

Key future actions:

- The Coalition should continue collecting local histories of the watersheds.
- The Coalition should complete the planning and fundraising for a passenger pigeon monument at the historic Bonar Wetland site and bring the project to fruition.
- The Coalition should seek out additional partners for heritage-related research, projects and events.



Montgomery's Inn—Mimico Creek watershed



Archaeology field school

Working Together

Outreach and Education

Objective: Enhanced hands-on public learning opportunities are offered within and about the Etobicoke and Mimico creeks watersheds.

People need clear information on environmental issues, information that cuts through the mass of complex, often contradictory messages that bombard us every day through the mass media. Outreach programs can give people the knowledge, tools and encouragement they need to make positive environmental choices. Outreach programs can also help decision-makers effect positive change at the planning and policy levels.

Indicators: Three indicators are used to measure the effectiveness of outreach in the watersheds. These are **communication, awareness** and **education**.

rating:
fair

Communication

The goal of the Etobicoke-Mimico Watersheds Coalition's communication efforts in the Etobicoke and Mimico creeks watersheds is to ensure that watershed information is easily and effectively communicated to individuals, groups and stakeholders through consistent and repeated messaging.

One of the measures used to assess the indicator is the number of watershed events and activities that have been covered in the local media. Between 2003 and 2005, there were 98 watershed activities or events covered in the local media.

A second measure is the number of website hits on Toronto and Region Conservation's (TRCA) website, which received on average 62,000 unique visitors a month in 2004 and 80,000 unique visitors a month in 2005. As of 2004, the Etobicoke and Mimico creeks watersheds document was one of the least frequently accessed pages.

A third measure is the circulation of the *CreekTime* and *CreekTime-Youth Edition* newsletters. This has increased from 882 (including 131 schools and 12 libraries) in 2002 to 1,311 (including 141 schools and 12 libraries) in 2005, a 49 per cent increase in circulation.



Targets • Continue to increase the reach of communication efforts on the watersheds • By 2025, achieve a 50 per cent increase in circulation of information to residents over 2006 levels

Threats to achieving targets:

- Lack of communication plan in place for the Coalition.
- The Coalition is not effectively reaching out to the local media.

Key accomplishments and current actions:

- The watershed newsletter, *CreekTime*, has proven to be a successful and popular communication tool.
- Attendance at events has risen by 141 per cent since 2001, illustrating that communication and networking efforts in the watersheds are paying off.

- TRCA is setting up an Etobicoke-Mimico Watersheds Coalition web page that will allow more direct communication with the public on issues relating to the watersheds.

Key future actions:

- The Coalition should develop and implement a multi-year communications plan for the Coalition. This should include: tools to be used, messages, media and frequency of actions.
- The Coalition should develop communications strategies to reach and engage more audiences, including “new Canadians” and the business community.
- The Coalition should develop an interactive website to communicate information on the watersheds, promote watershed events and encourage community action.
- The Coalition should increase its efforts to trigger local media coverage on watershed events and issues.
- The Coalition should develop and update effective communication tools as needed.



rating:
fair

Awareness

The goal of the Coalition’s awareness strategy is to ensure that stakeholders are knowledgeable about environmental issues in the watersheds and the actions that can be taken to improve watershed health. The measures for the indicator include the number of participants at watershed events, the number of tools that raise awareness of heritage and environmental issues in the watersheds, and the number of partnerships in events, projects and initiatives.

figure 28: awareness measures

measure	results	comments
number of participants at watershed events	2000: 495 2001: 5,000 2002: 6,225 2003: 10,755 2004: 12,056	steady increase; 141 per cent increase between 2001 and 2004
awareness tools	number of events: 2003: 36 2004: 32	small decrease
	number of trees, shrubs and plants planted: 2003: 5,797 2004: 8,342	increase
	amount of garbage collected: 2003: over 100 bags 2004: over two tonnes	increase
	nine issues of <i>CreekTime</i> published since 2001; circulation increased 49 per cent between 2002 and 2005	increase in circulation
	300 Welcome Wagon kits delivered	new
	Healthy Yards program launched	new
	four community action areas launched	new
	annual participation in Peel Children’s Water Festival	attracts over 9,000 participants
	coalition display at eight events in 2004	new
partnerships	2003: 38 2004: 30	decrease



Targets • By 2025, there should be a 50 per cent increase in participation in watershed events over 2006 levels

Threats to achieving targets:

- Limited funding and resources to expand outreach and education initiatives.

Key accomplishments and current actions:

- Since 2002, the Coalition has engaged 29,036 people in watershed events. The number of participants in watershed events annually has climbed steadily since 2000.
- The Coalition’s clean-ups and plantings have helped improve environmental health in the watersheds, as well as increased awareness of environmental issues.
- The circulation of *CreekTime* has increased significantly since 2001.

- The Coalition has been active in raising awareness through multiple tools (Coalition events, newsletters, community action initiatives, participation in other events, etc.).

Key future actions:

- The Coalition should continue to reach out to and engage more communities in the watersheds.



South Mimico community clean-up

not rated

Education

The Coalition’s goal for education is to offer opportunities for children and youth in the watersheds to learn about its natural and human heritage, and to understand how lifestyle choices can have an impact on the health of the watersheds. The measure for this indicator is the number of schools in the watersheds participating in formal environmental education programs.

There are a number of resources for environmental education available to area schools. In 2005, Peel Public Works introduced the Peel Water Story to schools in the region. This program provides educators with locally relevant information on water, supports school action projects and facilitates the showcasing of these projects through the Peel Ecofair. The Toronto District School Board has adopted the Ontario EcoSchools Program, and it is slated to be adopted by the Toronto Catholic District School Board in 2005–2006. This program focuses both on environmental learning and sustainable school operations. Toronto and Region Conservation (TRCA) runs a number of education programs and special educational events at its field centres, Black Creek Pioneer Village and the Kortright Centre for Conservation.

figure 29: measures of education

measure	results
number of schools participating in Peel Water Story	seven of 142*
number of schools participating in Ontario EcoSchools Program	one of 142
number of students living in the watersheds who participated in TRCA residential field centre programs	2002: 307 2003: 274 2004: 274

* Program initiated at the time of report card development and doesn't reflect 2006 updates

Because the Peel Water Story and EcoSchools programs are still in their infancy, this indicator has not been rated. In the future, school participation will also be measured by participation of schools in the annual Peel Ecofair and participation of teachers in Peel Water Story in-service workshops.



Targets • Fifty per cent increase over 2006 levels in school participation in the Peel Water Story program • Fifty per cent increase over 2006 levels in schools participating and certified in the Ontario EcoSchools Program • Fifty per cent increase in participation by watershed residents in TRCA education programs

Threats to achieving targets:

- Targets are dependant on school board support.
- Inclusion of environmental education modules is often dependant on the interests of individual teachers, as it is not a high priority in the curriculum.

Key accomplishments and current actions:

- Toronto and Region Conservation was a key partner in the development of the Peel Water Story program, and its messages are integrated into the program.
- The Peel Children’s Water Festival is held annually within the Etobicoke Creek watershed at the Heart Lake Conservation Area.
- The EcoSchools program has been adopted by Toronto District School Board and it is slated to be adopted by the Toronto Catholic District School Board in 2005–2006.
- So far, 49 teachers have participated in Peel Water Story in-service workshops.

Key future actions:

- TRCA should support the development of formal environmental education programs and the reinsertion by the Ministry of Education of existing environmental education courses into the curricula.
- The Coalition should encourage and support the implementation of environmental education programs in the watersheds.



Watershed on Wheels Program



Peel Children’s Water Festival

rating:
fair

Funding

Objective: Funds are raised for environmental regeneration, protection, education and awareness initiatives in the watersheds.

Funding the protection and restoration of the natural resources of the Etobicoke and Mimico creeks watersheds is an investment in the health of human and non-human residents. The return on this investment includes improved health of people and wildlife, lower health costs, reduced municipal taxes, improved opportunities for recreation, improved property values, stronger communities and increased economic prosperity.

The funding indicator uses five measures to assess how well we are doing in funding the revitalization strategies for the watersheds. These are individual donations from watershed residents to The Conservation Foundation of Greater Toronto (CFGT), funds from corporate supporters, government grants, municipal levies for capital projects in the watersheds and money from foundations.

figure 30: funding received between 2001 and 2005

source	amount received	percentage of total
individual	none	0.0%
corporate	\$270,000	22.5%
government grants*	\$60,000	5.0%
municipal levies	\$600,000	50.0%
foundation	\$270,000	22.5%
total	\$1,200,000	100%

* Ministry of Environment and Ministry of Natural Resources

Toronto and Region Conservation (TRCA) staff and the Coalition raised \$1.2 million between 2001 and 2005 for projects in the Etobicoke and Mimico creeks watersheds. As can be seen above, half of the funding received between 2001 and 2005 was from municipal levies targeted at capital and large-scale planning projects in the watersheds. These included the Etobicoke Headwaters Subwatershed Study, the Heart Lake Master Plan, the Fisheries Management Plan and the Remedial Action Plan spills initiative, erosion control in South Mimico and the development of this report card. Significant funding was also received from The Ontario Trillium Foundation for partnership projects (\$270,000). While a similar amount was received from the corporate sector, it was from only one source (the Greater Toronto Airports Authority). Residents were not approached. This table does not include in-kind donations from corporations or volunteer time.

There are many priorities for future funding including:

- Securement and regeneration of lands to meet the natural heritage and riparian zone targets.
- Improvements to stormwater management to improve water quality and quantity.
- Implementation of the Heart Lake Conservation Area Master Plan, Fish Management Plan and Etobicoke Headwaters Subwatershed Study.
- Implementation of other key priorities identified in this report card.



Targets • Raise at least \$500,000 from the corporate sector by 2012 • Match annual capital project funding from municipal levies with funding from corporations, foundations, governments and individuals

Threats to achieving targets:

- It is often difficult to meet the specific mandates and objectives of potential donors.
- Lack of active fundraising and outreach to business and residents.

Key accomplishments and current actions:

- TRCA and the Coalition have raised \$1.2 million for watershed projects since 2001.

Key future actions:

- TRCA, CFGT and the Coalition should align fundraising efforts to support the Key Future Actions identified in this report card.
- The Coalition should target fundraising efforts to corporations and individuals in community action areas within the watersheds.
- The Coalition should identify report card actions that could provide profile and environmental benefits to local businesses.
- TRCA and the Coalition should investigate partnership opportunities for new, high profile projects identified in the report card.
- The Coalition should expand efforts to reach out to communities in the watersheds through brochures, *CreekTime*, the website and other means.



Trillium Foundation cheque presentation—Malton Stewardship project

Stewardship

Objective: People choose lifestyles that are sustainable and ecologically sound.

In this report card, stewardship means helping to take care of the Etobicoke and Mimico creeks watersheds and the natural resources found there. Everyone who lives, works and plays in the watersheds is a potential steward and has a potential role to play. It is worth noting the importance of the business sector, as the land use in one quarter of the watersheds is industrial. Through individual actions and group efforts, great strides have been made in terms of protecting, enhancing and restoring the environment. But much more needs to be done.

Indicators: Two indicators are used to measure stewardship in the watersheds. These are **backyard practices and community action** and the **effectiveness of the Coalition**.

rating:
fair

Backyard Practices and Community Action

This indicator covers activities that take place outside, on residential properties, schools, organizations and businesses within the Etobicoke and Mimico creeks watersheds. A number of measures have been used to assess this indicator and the current ratings are presented below. Targets have been set for increases in these measures in the future.

figure 31: measures of individual and community action

measure	comments
backyard practices	In 2005, 31 watershed households participated in TRCA's new Healthy Yards program and began naturalizing their yards.
participation in stewardship programs in the watersheds	About 35,000 people have participated in 90 partnership events since 2001. These were hosted by TRCA, CCFEW*, Evergreen, South Mimico Environmental Stewardship Group, Malton Environmental Stewardship Group, Rockwood Homeowners Group, Friends of Heart Lake, Friends of Mimico Creek and the Region of Peel.
participation by youth in stewardship programs	Only 14 of 142 schools in the watersheds are actively involved in stewardship programs. However, Brampton Scouts have shown strong stewardship of Heart Lake and Snelgrove areas. Most Region of Peel schools participated in the Peel Children's Water Festival. The Peel Environmental Youth Alliance (PEYA), a youth branch of the Peel Environmental Network, has been very effective with an annual youth conference; their 2005 conference was held in the Mimico Creek watershed.
number of businesses in the watersheds engaged in on-site sustainable practices	TRCA is involved with eight businesses in the watersheds, but the number of others involved in on-site sustainable practices is unknown.

*CCFEW: Citizens Concerned about the Future of the Etobicoke Waterfront



Targets • Approximately 50 households take part in Healthy Yards workshops each year • Fifty per cent of schools by 2012 and 100 per cent by 2025 take action at school or participate in watershed-wide events • Overall increase (compared with 2006 levels) in participation by watershed residents in watershed events • By 2025, there will be a significant increase in the number of businesses actively involved in some kind of actions to protect and restore the watersheds

Threats to achieving targets:

- Apathy of many residents.
- Lack of awareness of the importance of individual and collective efforts to protect the environment.

Key accomplishments and current actions:

- The City of Toronto and Town of Caledon have passed by-laws restricting the non-essential use of pesticides.
- TRCA has launched a Healthy Yards program, a web-based tool that provides information on local resources and policies on lawns and gardens.
- A major retailer—Loblaws—no longer sells chemical pesticides in its garden centres and participates in the City of Toronto's Tree Advocacy Planting Program.
- The Coalition's local stewardship groups—South Mimico, Malton, Rockwood, Heart Lake and other community-based environmental groups—have been working hard to reach out to the local communities and businesses.
- Some businesses in the watersheds such as Pratt and Whitney Canada, Greater Toronto Airports Authority, Nortel, Canada Colours and Daimler Chrysler, have initiated stewardship projects within their properties and on valley lands.

Key future actions:

- TRCA should feature a community group, school or business that is engaged in sustainable backyard practices in every issue of *CreekTime* and on the Coalition website.
- TRCA should implement more conservation seminars to provide residents and businesses of the watersheds with increased opportunities to learn about stewardship issues.
- The Coalition should involve more youth organizations in watershed activities and support youth networks such as PEYA that focus on environmental stewardship.
- TRCA should make the Healthy Yards program and workshops available watershed-wide.
- TRCA and the Coalition should increase outreach to industry and businesses in the watersheds.

rating:
good

Watersheds Coalition

The Etobicoke-Mimico Watersheds Coalition has worked hard since its formation to achieve the vision of healthier and more sustainable watersheds that is

contained in **Greening Our Watersheds**, the 2002 Watershed Revitalization Strategy. To assess its effectiveness, the Coalition looked at three measures:

- 1 Progress on achieving the targets and actions contained in Greening Our Watersheds.
- 2 Volunteer commitment of the Coalition itself.
- 3 Coalition effectiveness (measured through advocacy, outreach/partnerships and on-the-ground accomplishments).

Through an intensive self-assessment process, current progress on this indicator was rated as “good”. This reflects the fact that the Coalition started from scratch and has completed more than 60 per cent of the work it set out for itself at the beginning of its mandate.



Targets • By 2025, carry out all of the priority actions contained in the 2006 and 2012 report cards • By 2012, build the capacity of at least three existing community stewardship groups and help form at least two new groups • At least 50 per cent of existing Coalition members have committed to return for a second or third term

Threats to achieving targets:

- Adequacy of resources to develop more targeted, strategic education and outreach.
- Ability to engage municipal decision-makers.
- Adequacy of resources for community action projects.

Key accomplishments and current actions:

In their first term, the Coalition accomplished a great many things. These include:

- Secured commitment and funding to advance the construction of a pedestrian bridge linking the trail network between the cities of Toronto and Mississauga.
- Launched the Malton Community Action Area stewardship project with a generous grant of \$253,700 from The Ontario Trillium Foundation in partnership with the City of Mississauga, Mississauga Airport Rotary Club and Malton Residents Association.
- Initiated the South Mimico Green Neighbourhoods Project in partnership with Friends of Mimico Creek, with \$25,000 in funding from the City of Toronto’s Wet Weather Flow Community Funding Program.
- Initiated a Toronto Remedial Action Plan Spills Management Workshop at which 90 representatives from four levels of government, environmental non-government organizations (ENGOS) and watershed groups learned about current methods of managing spills, and recommended actions for spills prevention and management.
- Launched the Healthy Yards Connection—a new web tool developed by TRCA’s stewardship group that provides information on local resources and policies dealing with lawns and gardens.
- Contributed to Peel Children’s Water Festival at Heart Lake Conservation Area for the past three years. The festival attracts over 9,000 participants including students, teachers, chaperones and members of the public every year.

- Continued community outreach and restoration work within the two watersheds, yielding about 90 partnership events and participation from 35,000 people over the course of three years.
- Collected over five tonnes of garbage from ravines at various events including the Rockwood clean-up in Mississauga, Tom Riley Park clean-up in South Mimico, Malton and other sites.
- Implemented various restoration projects with support from watershed municipalities and community groups. Over 900 metres of riparian zone was established and more than 21,000 native trees and shrubs were planted at various restoration project sites including Snelgrove, Heart Lake Conservation Area, south Mimico and Malton.
- Initiated development of an integrated (watershed-wide) trails map in partnership with the City of Mississauga. This will result in recommendations for, and the eventual implementation of, a watersheds-based regional trail system.
- Outreach to watershed golf courses to promote golf course stewardship through a workshop.
- Provided leadership on many policy-related issues that affect watersheds including: the Provincial Policy Statement, Greenbelt Plan, Growth Management Plan, Bill 133 (*Spills Bill*), *Ontario Heritage Act*, Municipal Official Plan Review, TRCA’s Terrestrial Natural Heritage System Strategy, etc.
- Participated in and provided input to the Etobicoke Headwaters Subwatershed Study, Fisheries Management Plan and Heart Lake Conservation Area Master Plan.
- Established partnerships with various government, ENGOS and businesses in the watersheds.
- Re-discovered a nationally rare wildflower (twinleaf) in the watersheds.
- Initiated an oral history project in the two watersheds in partnership with local heritage groups and municipal partners.
- Developed and produced the Etobicoke and Mimico Creeks Watersheds Report Card 2006.
- Initiated several new large-scale restoration projects with partners. These include the Bonar Stormwater Facility, west Etobicoke Creek Regeneration and upper Mimico Creek Rehabilitation.

Key future actions:

- The Coalition should develop a workplan based on the key priorities identified in this report card and begin work to implement it.
- The Coalition should raise funds and develop new partnerships to build the capacity of existing community stewardship groups and establish new ones.
- The Coalition should increase its effectiveness and profile as “watershed champions” by building on the strength of existing members and attracting new members with a variety of expertise.
- The Coalition should report on watershed health and accomplishments with a report card in 2012.

Summing Up

Reporting on Progress

The aim of *Turning over a new leaf* is to communicate the progress that has been made since 2002 in implementing *Greening our Watersheds: Revitalization Strategies for Etobicoke and Mimico Creeks*. One tool for measuring this progress is the ratings that have been developed for the 25 indicators of watershed health. A second, although less scientific measure, is the key accomplishments and current actions that have been identified in this document. These need to be read together to really understand where we stand.

Indicators

A compilation of the ratings for the 25 indicators is presented in Figure 32. One of the first things to note about the table is the diversity of results. Three of the indicators (Publicly Accessible Open Space, Trails and the Etobicoke-Mimico Watersheds Coalition) are rated as “good”. Nine indicators (Benthic Invertebrates, Air Quality, Golf Courses, Human Heritage Features and Resources, Sense of Identity, Communication, Awareness, Funding and Backyard Practices/Community Action) are rated as fair. Nine indicators are rated as “poor”, and one—the Quantity of Terrestrial Natural Heritage—is rated with a failing grade. Three of the indicators could not be rated yet because of lack of information.

While the overall ratings are a strong indication that the Etobicoke and Mimico creeks can still be characterized as the most highly developed and degraded watersheds in the Toronto area, there are signs of improvement.

Other progress

As well, significant progress has been made in developing strategies, plans and programs that provide the framework, commitment and funding for actions to restore the watersheds. These include Toronto and Region Conservation’s (TRCA’s) Terrestrial Natural Heritage Systems Strategy and Greenlands Acquisition Project, fish management plans for Etobicoke and Mimico creeks, the City of Toronto’s Wet Weather Flow Management Master Plan, municipal salt management plans and stormwater retrofit studies, TRCA’s Regional Watershed Monitoring Program and others. Implementation of many of these is only just starting.

Since the formation of the Coalition in 2002, there has also been significant effort in on-the-ground measures that contribute to healthier watersheds. This includes substantial re-vegetation work (21,000 native trees and shrubs planted, and 900 metres of riparian zone vegetation established), many community clean-up efforts in ravines, a number of stream rehabilitation projects and significant improvements to the trail system. These activities have been supported by improvements in data gathering (such as the installation of new streamflow gauges in the creeks) and many education and outreach forums and initiatives.

Looking Forward

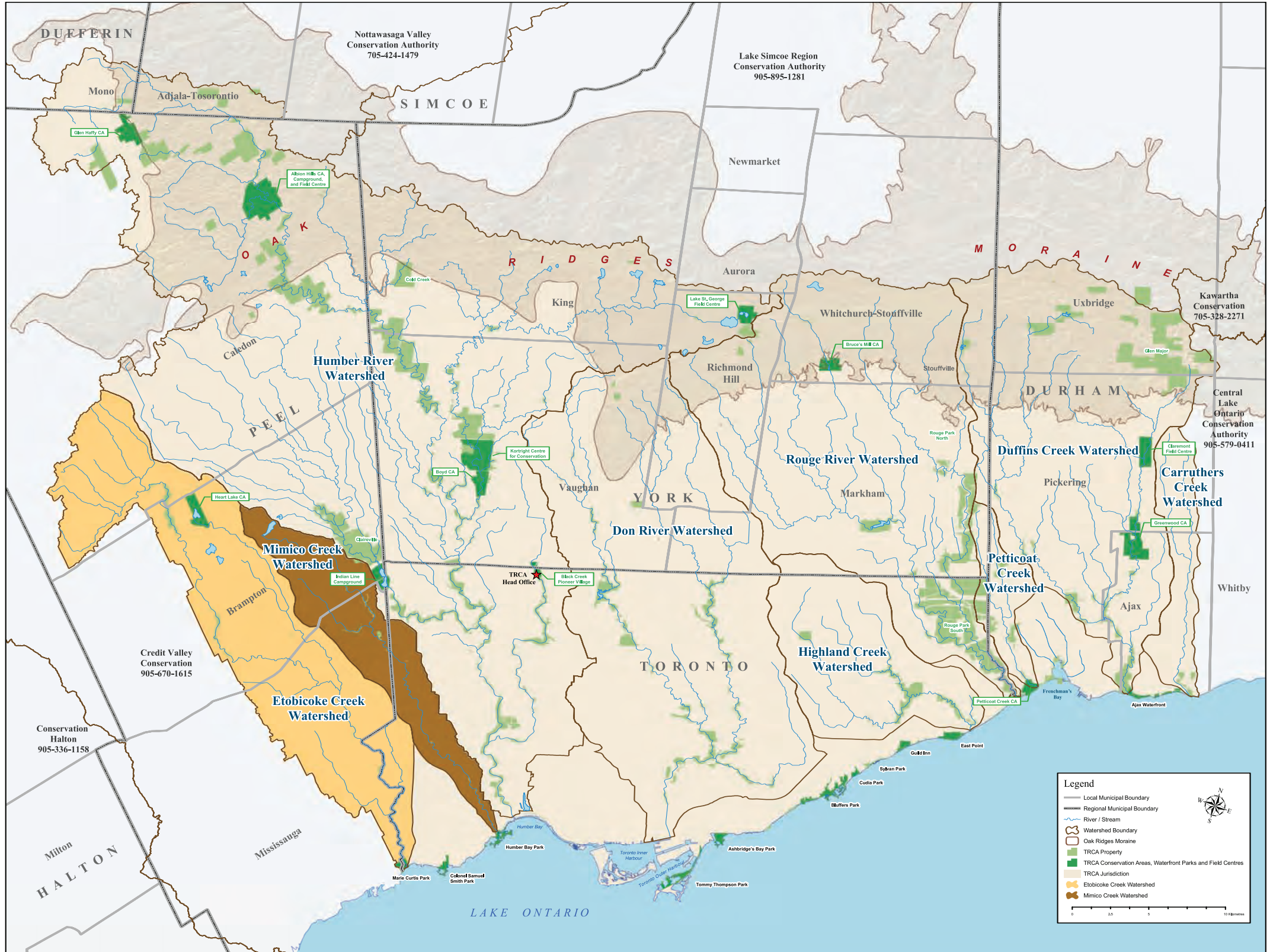
While *Turning over a new leaf* rates the indicators of watershed health as they are today, the document looks to the future. It sets what in many cases are new, tough targets for 2012 or 2025, and it identifies the key future actions that are needed to meet these targets. These actions are aimed at many different players, including the Coalition itself, TRCA, watershed municipalities and others. The Coalition will be going through a process to identify which

of these are the highest priority, to provide focus for its work over the next five years. A key thrust of the Coalition’s work will be to ensure that future growth in the watersheds is based on sustainable community design that respects, protects and enhances the natural heritage system.

The Coalition’s next report card for the Etobicoke and Mimico creeks watersheds is due in 2012. By that time, the Watershed Revitalization Strategy will have been in place for 10 years. Watershed residents should expect a lot of action to have taken place and should expect measurable improvements in environmental conditions as a result. With wise counsel from the Coalition, commitment and support from watershed partners, and the involvement of watershed residents and businesses, the name for that report card should be *On the Mend*.

figure 32: ratings for all indicators in Etobicoke and Mimico creeks watersheds

component	number	indicator	rating
natural heritage system			
terrestrial natural heritage	1	quantity	fail
	2	quality	poor
aquatic systems	3	fish communities	poor
	4	benthic invertebrates	fair
	5	riparian zone	poor
water quality	6	conventional pollutants	poor
	7	heavy metals and organic contaminants	poor
	8	water contact recreation	poor
water quantity	9	streamflow	not rated
	10	stormwater	not rated
human influences			
urban growth and sustainability	11	land use	poor
	12	transportation	poor
	13	air quality	fair
	14	resource use	poor
recreation	15	publicly accessible open space	good
	16	trails	fair
heritage	17	golf courses	fair
	18	human heritage features and resources	fair
	19	sense of identity	fair
working together			
outreach	20	communication	fair
	21	awareness	good
	22	education	not rated
funding	23	funding	fair
stewardship	24	backyard practices/ community action	fair
	25	watersheds coalition	good



Appendix A

Etobicoke-Mimico Watersheds Coalition membership

Averill, Roy/ Gomez, Adriana	City of Toronto
Baird, Brian	Town of Caledon
Banz, Simone (interim)	Region of Peel
Barnett, Chris	Toronto resident
Barrett, Suzanne	Toronto resident (co-chair)
Battick, Cleve	Lincoln Alexander Secondary School
Cooke, Bob	Toronto resident
Dobbin, Bruce	Credit River Anglers Association
Dunker, Marjut	South Etobicoke Regeneration Project
Etter, Janice	Friends of Mimico Creek
Furgiuele, Eugene	City of Mississauga
Goldstein, Bette-Ann	Brampton resident
Gorman, Gerry	Toronto resident
Gough, Pamela	Toronto resident
Gusche, Michael	City of Mississauga
Hagerman, Marilyn	Toronto resident
Head, Mark	Region of Peel
Jamieson, Robert	Brampton Environmental Community Advisory Panel
Jones, Irene	Toronto resident (co-chair)
Anderson-Brown, Kathleen/Joyce, Dan	Ministry of Environment
Korniluk, Alina	Region of Peel
Lyons, David	Town of Caledon
McGill, Randy	Greater Toronto Airports Authority
McGlynn, Chris	Brampton resident
McMahon, John	City of Brampton (moved/ pending replacement)
McRonney, Doug	Toronto resident
Miladinovic, Vojka	City of Toronto
Milczyn, Peter	City of Toronto
Miller, Glenn	Peel Federation of Agriculture
Nelson, Chris	Markland Wood Golf and Country Club
Noble, Bob	Brampton resident
O'Brien, Dick	Toronto and Region Conservation
Pisapio, John	Ministry of Natural Resources
Rossi, Mathew	Mississauga resident
Running-Horan, Paddy	Caledon Countryside Alliance
Rutherford, Steve	Lincoln Alexander Secondary School
Salter, Todd	Town of Caledon
Stuart, Sean	Brampton resident
Swedak, Boris	Mississauga resident
Switzer, David	Toronto resident
Trivedi, Tanya/ Mallett, LeeAnn	EcoSource Mississauga
Volpe, Robert	Brampton resident
Wagdin, Debbie	Citizens Concerned About the Future of the Etobicoke Waterfront

Appendix B

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Appendix C

Glossary of Terms and Acronyms

Air Quality Index (AQI): Real-time information system that provides the public with an indication of air quality in rural and urban areas across Ontario.

Baseflow: This is the lowest flow that occurs in a river during the year and usually occurs during the summer time. Baseflow consists mainly of groundwater but can also contain interflow and surface runoff.

Benthic invertebrates: Benthic invertebrates are organisms that inhabit the bottom substrates (sediments, debris, logs, microphytes, filamentous algae, etc.) of aquatic environments for at least part of their life cycle. These organisms include such things as crayfish, leeches, clams, snails and the larval stages of insects such as midges, blackflies, stoneflies, caddis flies and mayflies. Benthic invertebrates are an important part of the food chain, supporting many higher organisms.

Biodiversity: The variety of life in all its forms, levels and combinations. Includes ecosystem diversity, species diversity and genetic diversity (IUCN, UNEP and WWF, 1991).

Brownfields: Abandoned, idled, or under-used industrial and commercial facilities where expansion, redevelopment or reuse is complicated by real or perceived environmental contamination.

Conventional pollutants: A term to measure water quality as related to contaminants that affect aquatic health. Contaminants include substances which decompose using oxygen in the process, materials which produce any oily sludge deposit, chlorides, grease, oil, nitrogen, phosphorus and suspended solids.

Creek mouth: The point at which the creek connects to a larger body of water such as a lake or ocean.

E. coli (Escherichia coli): A type of coliform bacteria when present indicates potential contamination with human or animal faeces.

Ecosystem: The interdependence of species both with one another and with their physical environment.

Effluent discharge: The outflowing of water from a body of water or man-made structure.

Erosion: The displacement of material—such as soil—by wind, water and ice.

Fossil fuels: Carbon-based materials used for the creation of heat. For example, natural gas, petroleum and coal.

Fragmentation: Relates to the breaking up of a habitat, ecosystem or land-use type into smaller isolated parcels (Forman, 1995).

Greenfield: On vacant land; also referred to as urban sprawl.

Greenhouse gases: Gases that readily absorb and re-radiate long-wave radiation in the atmosphere.

Greenlands: Interconnected system of natural areas, which may include forested areas, wetlands, streams or lakes.

Groundwater: Water that enters the soil, moves downwards and then collects in aquifers.

Habitat: The place in which an animal or plant lives. The sum of environmental circumstances in the place inhabited by an organism, population or community (Ministry of Natural Resources, 1998).

Headwaters: The upper parts of a river drainage system or source of a river.

Hydrologic cycle: The circulation of water from the atmosphere to the earth and back through precipitation, runoff, infiltration, groundwater flow and evapotranspiration.

Index of Biotic Integrity (IBI) scores: An index based on fish community composition originally developed in the US and adapted for southern Ontario (Steedman, 1988) for assessing the health of a watercourse. The index includes measures of fish community composition, local indicator species, trophic composition and fish abundance.

Imperviousness: Function by which water and other liquids can not pass through soil or other surface material.

Indicator species: Animals or plants that infer the condition of the environment such as the level of pollution, habitat type and quality, and the size and degree of disturbance.

In-fill development: Sites occupied by no-longer-feasible uses and buildings.

Infiltrates: The process by which water enters into the soil or other porous material in a downward direction through pores or other small openings from the surface.

Instream barriers: A structure in a river or stream that hinders or prevents the movement of fish and other aquatic organisms.

Matrix influence: The impact of the surrounding landscape on each habitat patch. Measured by calculating the relative per cent cover of urban, agricultural and natural land use within a two-kilometre radius of the outside edge of the patch.

Non-essential pesticides: Pesticides that are used for aesthetic or cosmetic purposes.

Potable water: Water that is safe for human and animal consumption.

Reaches: The widening of a stream, usually as a result of the stream being dammed.

Refuse: Waste, garbage or other unwanted materials.

Restoration: The return of an ecosystem or natural area to a more natural state.

Riparian: Relating to, living on or located on the bank of a watercourse or a body of water.

Sedentary: Term to describe something that does not routinely move or remains in a particular location, for example, organisms such as mussels or barnacles.

Sedimentation: The filling in of lakes, reservoirs and stream channels with soil particles from erosion.

Species richness: A measure of species diversity by counting the number of different species in a given area.

Stormwater: Rain and snowmelt that runs off urban and rural areas into ditches and municipal storm drain systems, and empties into lakes and streams.

Stream gauges: Sites located along a stream to measure volume discharge (flow).

Volatile organic compounds: Organic gases and vapours that come from a variety of sources (paints, solvents, aerosol sprays, dry cleaning and the burning of fossil fuels).

Wastewater: Water that has been affected by human activity, such as water discharged from residential, industrial and commercial locations/sources.

Water budget: Watershed systems function on a balance between precipitation, runoff to lakes, rivers, wetlands and infiltration to the groundwater system. It is necessary to understand this “balance” or “water budget” in order to sustain the resource and its environmental and human connections in the watershed.

Watersheds: The entire area of land whose runoff water, sediments and dissolved materials (nutrients and contaminants) drains into a lake, river, creek or estuary. It is not man-made, and it does not respect political boundaries.

Weirs: A dam across a stream over which water flows and is used to measure the flow of the stream, and control the depth.

Wetlands: Land that is seasonally or permanently flooded by shallow water. Examples include a bog, fen, marsh and swamp.

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Etobicoke-Mimico Watersheds Coalition

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