



THE TORONTO AND REGION CONSERVATION AUTHORITY

Watershed Management Advisory Board Meeting #4/05

Chair:	Dave Ryan
Vice Chair:	Nancy Stewart
Members:	Gay Cowbourne
	Frank Dale
	Pamela Gough
	David Gurin
	Shelley Petrie
	Michael Thompson
	Dick O'Brien - Chair, Authority

September 23, 2005

10:30 A.M.

SOUTH THEATRE, BLACK CREEK PIONEER VILLAGE

AGENDA

- | | <u>Pages</u> |
|--|--------------|
| 1. MINUTES OF MEETING #3/05, HELD ON JULY 15, 2005
(Enclosed herewith on Blue) | |
| 2. BUSINESS ARISING FROM THE MINUTES | |
| 3. DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF | |
| 4. DELEGATIONS | |
| 5. PRESENTATIONS | |
| 5.1 A presentation by Robert Messier, Regional Representative, Wetland Habitat Fund, in regards to Toronto and Region Conservation Authority's (TRCA's) partnership with the Wetland Habitat Fund. | |
| 5.2 A presentation by Glenn Farmer, Supervisor, Water Management, TRCA and Don Haley, Water Management Technical Advisor, TRCA, in regards to item 7.1 - Preliminary Report on Storm and Flooding, August 19, 2005. | |
| 6. CORRESPONDENCE | |

7.	SECTION I - ITEMS FOR AUTHORITY ACTION	
7.1	PRELIMINARY REPORT ON STORM AND FLOODING August 19, 2005	3-6
7.2	GREAT LAKES CHARTER ANNEX 2001 Implementing Agreements (June 2005) on Water Taking and Diversions	7-13
7.3	TORONTO WATER 2005 MULTI-YEAR BUSINESS PLAN	14-28
7.4	HIGHLAND CREEK ENVIRONMENTAL STEWARDSHIP PROGRAM UPDATE	29-32
8.	SECTION IV - ITEMS FOR THE INFORMATION OF THE BOARD	
8.1	2005/2006 CAPITAL PROGRAM FOR CONSERVATION AUTHORITY DAM REPAIRS AND STUDIES	33-35
8.2	THE CITY OF TORONTO VALLEY AND SHORELINE REGENERATION PROJECT, 2002 - 2006	36-38
8.3	DUFFINS CARRUTHERS WATERSHED RESOURCE GROUP Minutes of Meeting #3/05, June 22, 2005	39
8.4	ETOBICOKE-MIMICO WATERSHEDS COALITION Minutes of Meeting #3/05, June 16, 2005.	40
8.5	HUMBER WATERSHED ALLIANCE Minutes of Meeting #3/05, July 19, 2005	41

9. NEW BUSINESS

NEXT MEETING OF THE WATERSHED MANAGEMENT ADVISORY COMMITTEE #5/05
OCTOBER 21, 2005, IN THE SOUTH THEATRE, BLACK CREEK PIONEER VILLAGE

Brian Denney
Chief Administrative Officer

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TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Deborah Martin-Downs, Director, Ecology

RE: **PRELIMINARY REPORT ON STORM AND FLOODING**
August 19, 2005

KEY ISSUE

Documentation of storm and flood of August 19, 2005.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT staff be directed to continue to work towards preparation of a final report documenting the storm and flooding impacts which occurred on August 19, 2005;

AND FURTHER THAT staff report back to the Watershed Management Advisory Board upon completion.

BACKGROUND

On August 19, 2005, a series of extremely severe thunderstorms moved through Toronto and Region Conservation Authority (TRCA) watersheds resulting in significant rainfalls and flooding. TRCA staff continue to collect data related to the storm and subsequent flooding and are in the process of preparing a formal report which will document the event from a rainfall, flow and damages perspective. This report represents data collected to-date and is considered preliminary as more information from our field work and from other sources continues to be collected.

As part of the Flood Forecasting and Warning system operated by TRCA, staff undertake what is called a Daily Planning Cycle, whereby staff review forecast weather, including precipitation forecasts and determine the flood potential. On Friday morning, August 19, 2005, two storm systems were forecast to affect our region. The first storm system which entered our region just after 7 a.m. did not pose any threat to flooding given the relatively small rainfall depths. Based on morning discussions with the Ontario Weather Office, the second storm system which was expected to enter our region around 3 p.m. had a much higher potential to produce severe weather. However, the Ontario Weather Office forecast of precipitation ranges did not suggest any significant threat to flooding at that time. Notwithstanding, TRCA staff issued a Flood Safety Bulletin at 10:30 a.m. which warned of generally higher flows and potentially unsafe conditions around rivers and streams. Staff continued to monitor the weather and contacted the Weather Office around mid-day for an update and again just after 2 p.m. as the weather radar had revealed major storm cells developing in Southwestern Ontario. The weather system was moving quickly in the 70 kilometres per hour (kph) range. Even though the storms were showing on radar as intense, the Ontario Weather Office was forecasting only moderate rainfall totals in the range 20-30 millimetres (mm) due to the speed at which the system would pass through our area. In light of the forecasted rainfall totals and severity of the approaching storms, TRCA staff issued a Flood Advisory at 3:15 p.m., which advised municipalities of the potential for higher rainfall amounts based upon the most recent weather forecasts. Staff continued to monitor the weather system as well as water levels at critical stream gauge

locations within our jurisdiction in order assess watercourse response to the storm event. Based upon the rate of rise within the G. Ross Lord Reservoir as well as several of the smaller urban streams, the City of Toronto Transportation Services was contacted just after 4 p.m. to inform them that based on current flooding conditions, they should be prepared to close the Bayview Extension. At 7 p.m. the City of Toronto Transportation Services was contacted again and directed to close both the Don Valley Parkway and Bayview Extension. Immediately following this, a Flood Warning was prepared by TRCA staff and issued at 8:30 p.m. indicating that a number of our watercourses were currently experiencing flooding, including the lower Don River, and that other watercourses and low lying areas were expected to flood as a result of the significant rainfall amounts generated from the storm system.

Staff continued to monitor the watersheds conditions and stayed in contact with both municipal staff and operational and emergency services throughout the night. Staff initiated dam operations at both the G. Ross Lord and Claireville reservoirs and continued operation throughout Friday night and well into Saturday afternoon in order to minimize flooding downstream on the Don and Humber rivers. As a consequence of the dam operations, there were no reports of residential structures being flooded from the rivers.

By mid-morning on Saturday, August 20th, the urban rivers and streams had peaked and were no longer at flood levels. Flood levels in the larger river systems such as the Humber and Rouge rivers were also receding and did not pose any further flood threat. The Flood Warning was therefore canceled at 10 a.m. with dam operations continued for several additional days in order to lower reservoir depths to normal operating levels.

Based upon post-event discussions with Weather Office officials to determine what changed in the weather systems to result in the very high rainfall amounts, it was determined that the storm system did not appreciably slow as it moved over our region. The overall rainfall intensities within the storms increased substantively, as the system entered our region. The highest quantities of rain were experienced through the central portions of TRCA's watersheds, generally in a band from Sheppard Avenue in the south to Highway 7 in the north (a colour map detailing rain quantity will be provided to members at the meeting). Many of the gauges in the central watershed recorded total rainfall depths in excess of 100 mm, with some unconfirmed amounts from rainfall observers in the Yonge and Steeles area well over 150 mm.

The second, more intense storm system passed through our area over the course of approximately two hours. Initial rainfall analysis completed by TRCA's consultant indicates that rainfall intensities over the course of this event exceeded current one in one hundred year design storm information at a number of gauge locations. The intense rainfalls resulted in flash floods along our urban watercourses, including Black Creek and the Highland Creek. Along the lower reaches of the Don River, flows exceeded those recorded in both September of 1986 and May of 2000, making this flood one of the highest recorded in TRCA's jurisdiction since Hurricane Hazel. Additional analysis is currently being undertaken to define the return periods of flows experienced along all our river systems.

Documentation of the flooding event actually began during the event, with field investigations and photographs. Immediately following the event, TRCA staff met to discuss roles and responsibilities to coordinate the formal documentation activities. High water marks were identified and photographed, and are currently being surveyed to define geodetic elevations to assist in documenting flows and water levels along the impacted watercourses. Precipitation data from TRCA gauges were collected and data continues to be collected from outside sources. Photographs of the flooding have, and continue to be, collected and integrated into a database for future use.

As part of the documentation process, information on flood damages is also being collected by all impacted agencies. A number of municipalities experienced erosion damage to park areas and transportation and sewer infrastructure at many locations adjacent to local watercourses. Each affected municipal department is currently categorizing and assessing damages. TRCA also experienced damage to several of its older concrete flood control channels as well as to several erosion control facilities. Development of damage estimates and capital works requirements to fix these sites is currently underway. Information regarding damages and actions required will form a component of the complete documentation of this event. TRCA staff will also be utilizing this information to re-assess the proposed 2006 capital budget submissions.

In addition to the flooding along the Humber River, Don River and Highland Creek, a great deal of flooding not related to the river systems also occurred. Street flooding and basement flooding due to sewer back-up was experienced in many of the urban areas receiving the highest rainfall amounts. Initial insurance industry estimates of flooding related claims have been set at approximately \$190 million dollars and the industry expects this to double over the next few months as more claims are made.

In addition to the collection of data, TRCA staff teams were developed to assist municipalities with defining and processing the needs for emergency works. Discussions with other regulatory agencies to define a process which recognized the need for these works took place which allowed for emergency works to begin as soon as possible. The teams met with municipal officials at these sites and where the need for works met the criteria to minimize the threat to life, or immediate social need, works were authorized in the field.

In addition to the activities identified above, a number of additional TRCA actions are also on-going. The following list identifies the key activities;

- Staff have and continue to undertake a post event review to define systems, programs and activities which worked well and those that require a revised or new approach.
- Staff have met with officials from Meteorological Services of Canada to gain access to data and initiate discussions on a joint formal review of the storm, to identify opportunities to learn from this storm and look to increasing capabilities to forecast these types of events in the future.
- Staff have initiated contact with representatives from the insurance industry to discuss documentation, and define areas for future risk reduction opportunities.
- TRCA had recently initiated studies on reviewing operational procedures at G. Ross Lord Dam and emergency procedures for both G. Ross Lord and Claireville dams for which the August 19th storm will be used as key input data to achieving the goals for these studies.

- TRCA had also recently initiated a study to enhance our maintenance review and operations needs at all TRCA flood control structures. Information resulting from this flood will also be integrated into this study.
- The province has been made aware of impacts to TRCA's erosion and flood control infrastructure both in terms of impacts to on-going maintenance projects and future funding needs.

Key among the deliverables from the formal review and documentation of both the storm and the impacts from the flooding will be a description of lessons learned and a clear direction on changes both minor and major required to enhance TRCA's Flood Control Program.

Report prepared by: Don Haley, extension 5226

For Information contact: Don Haley, extension 5226

Date: September 12, 2005

Attachments: Map - August 19, 2005 Total Storm Volume (will be provided at the meeting)

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Adele Freeman, Director, Watershed Management

RE: **GREAT LAKES CHARTER ANNEX 2001**
Implementing Agreements (June 2005) on Water Taking and Diversions

KEY ISSUE

To endorse Conservation Ontario Council's comments and recommendations (August 29, 2005) on the June 2005 drafts of the Great Lakes Basin Sustainable Water Resources Agreement and Great Lakes Water Resources Compact released for a 60 day public comment period ending August 29, 2005.

RECOMMENDATION

WHEREAS the revised draft Great Lakes Basin Sustainable Water Resources Agreement and Great Lakes Basin Water Resources Compact dated June 30, 2005 were released in a form suitable for the 60 day public comment period ending August 29, 2005 but without consensus among the two Great Lakes provinces and eight Great Lakes states;

WHEREAS Conservation Ontario along with other partners/stakeholders (50) is participating on the "Great Lakes Charter Annex Advisory Panel" created by Ontario's Minister of Natural Resources since its inaugural meeting of December 15, 2004;

AND WHEREAS Conservation Ontario through its 36 members, including Toronto and Region Conservation Authority (TRCA), formulated their position and recommendations based on review by Upper Thames River Conservation Authority, Credit Valley Conservation, Sault Ste. Marie Conservation Authority, Kettle Creek Conservation Authority and TRCA;

THEREFORE THE BOARD RECOMMENDS TO THE AUTHORITY THAT TRCA endorse Conservation Ontario's position of "strongly supporting the Province of Ontario being a signatory to the Great Lakes Basin Sustainable Water Resources Agreement based on the June 30, 2005 draft being the minimal acceptable package" and other recommendations as adopted at their August 29, 2005 meeting;

THAT TRCA support the position of being advised of the progress of the negotiations and circulation of the final form and wording of the agreement prior to signing by the two Great Lakes provinces and eight Great Lakes states;

AND FURTHER THAT the Minister of Natural Resources, the Council of Great Lakes Governors, Environment Canada, the International Joint Commission and Conservation Ontario be so advised.

RATIONALE

Compared to the agreements released in 2004, the revised Great Lakes Charter Annex Agreements provide strong new protections for the Great Lakes Basin waters. With the 60 day public comment period ending as of August 29, 2005, the two Great Lakes provinces and eight Great Lakes states will consider the comments received and strive to reach consensus on the final documents. If consensus is reached, the finalized agreements will be considered for possible signing later in 2005. The opportunity exists to accept the agreements as a building step towards the protection and enhancement of the Great Lakes waters and ecosystem.

BACKGROUND

The Great Lakes Charter was signed in 1985 by Great Lakes governors and premiers (Ontario and Quebec) as a good-faith agreement to guide the regional management of the Great Lakes Basin. The principles set forth in the 1985 agreement included:

- integrity of the Great Lakes Basin;
- cooperation among jurisdictions;
- protection of the water resources of the Great Lakes;
- prior notice and consultation; and,
- cooperative programs and practices.

In 2001, the Great Lakes Charter Annex, a supplementary agreement to the Great Lakes Charter, was signed to reaffirm the commitment to the five broad principles set forth in the 1985 agreement. Annex 2001 put forth directives to further the principles of the charter. These directives included the:

- development of a new set of binding agreements;
- development of a broad-based public participation program;
- establishment of a new decision making standard;
- project review under the Water Resources Development Act of 1986 (US);
- development of a decision support system that ensures the best available information; and,
- further commitments including the implementation of legislation as well as undertaking a planning process for protecting, conserving, restoring and improving the Great Lakes Basin.

On July 19, 2004, the Province of Ontario posted on the Environmental Bill of Rights Registry (EBR# PB04E6018 – comment period ending October 18, 2004) drafts of the Great Lakes Basin Sustainable Water Resources Agreement and Great Lakes Basin Water Resources Compact. Both documents are part of the draft proposal to implement the directives outlined in Annex 2001. The agreement is a good-faith agreement among the two Great Lakes provinces and eight Great Lakes states while the Great Lakes Basin Water Resources Compact is an agreement among the eight Great Lakes states to join together in an interstate compact to enhance joint decision making about the use of Great Lakes water.

At Authority Meeting #8/04, held on September 24, 2004, Resolution #A256/04 was approved as follows:

THAT the position adopted by Conservation Ontario on the draft Great Lakes Basin Sustainable Water Resources Agreement, implementing the commitments within the Great Lakes Charter Annex 2001, be endorsed;

THAT the Toronto and Region Conservation Authority (TRCA) indicate its support for integrated watershed management as it contributes to the sustainability of the Great Lakes Basin;

THAT the TRCA support the integration of other Great Lakes initiatives (i.e. LAMP's under the Great Lakes Water Quality Agreement) with this Agreement to support the restoration and protection of the Great Lakes ecosystem;

THAT the Minister of Natural Resources, the Council of Great Lakes Governors, Environment Canada and the International Joint Commission be requested to ensure that prior to finalizing this agreement the weaknesses of the agreement be addressed fully and further extensive agency, public and legal review of the draft agreement take place;

AND FURTHER THAT the recommendations and comments be forwarded to the Minister of Natural Resources, Conservation Ontario, Environment Canada, the Council of Great Lakes Governors and the International Joint Commission.

Current Status

In November 2004, the Ministry of Natural Resources announced that the province would not sign the current drafts of the Great Lakes Charter Annex Agreements unless changes to enhance the level of protection for the waters of the Great Lakes Basin were made. The Minister of Natural Resources formed a multi-stakeholder (50 representatives) "Great Lakes Charter Annex Advisory Panel" to aid in the negotiations of the Great Lakes Annex Agreement. TRCA represents Conservation Ontario on this panel.

The revised draft Great Lakes Charter Annex Agreement and Compact were released in June 2005 for a 60 day public commenting period ending August 29, 2005. Eleven public meetings were also held across Ontario throughout July 2005. It is noted that the agreement and compact were in a form suitable for public consultation but without unanimous consensus of all Great Lakes parties.

Compared to the agreements released in 2004, the revised Charter Annex agreements provide strong new protections for Great Lakes Basin waters. The panel was able to provide valuable suggestions to assist the Ontario negotiating team to achieve the enhanced drafts. The 2005 draft agreements:

- ban diversions, with a few strictly regulated exceptions such as communities that straddle the Great Lakes Basin boundary and the boundaries between Great Lake watersheds;
- strengthen water conservation;
- establish a stronger new environmental standard for regulating water uses across all Great Lakes Basin states and provinces;
- formally recognize the authority of the federal governments and the International Joint Commission under the Boundary Waters Treaty which remain unchanged;

- provide a stronger voice for Ontario, its citizens and First Nations in the regional review of significant water use proposals by other jurisdictions;
- are founded on the principles of ecosystem protection, a precautionary approach, recognition of cumulative impacts and climate change uncertainties; and
- will build the information and science needed to support sound decision-making. (Ministry of Natural Resources, 2005)

After the 60 day public comment period ends, the two Great Lakes provinces and eight Great Lakes states will consider comments received and strive to reach consensus on the final documents. If consensus is reached, the finalized agreements will be considered for possible signing later in 2005.

If signed, the agreements would provide a framework for each of the two Great Lakes provinces and eight Great Lakes states to pass laws that put in place the new protections for Great Lakes Basin waters. Portions of the agreements would be effective immediately; others would be phased in over one year, five years or ten years. The United States Congress will also have to endorse the compact among the eight Great Lakes states.

Strengths of the June 30, 2005 Draft Agreements:

1. The last draft (July 2004) was basically a system to permit diversions, with exceptions. The 2005 draft is primarily a system to prohibit diversions, with limited exceptions.
2. The 2005 draft requires that, for the first time in many of the states, most water withdrawals within the basin be subject to a permit. The permit must be based on environmental protection, including that the water withdrawal cause no “significant adverse impact” to the environment, and the withdrawal include significant water conservation.
3. The 2005 draft Preamble and sections of both the compact and agreement reference the precautionary principle as significant guidance in decision-making.
4. The 2005 draft agreement explicitly recognizes “these waters (of the Great Lakes Basin) are interconnected and form a single hydrological system.” As Lake Michigan is entirely within the United States, and its axis does not lie along the Canada-U.S border, some had argued it does not meet the definition of a boundary water, and that it might not be governed by the diversion provisions of the 1909 Boundary Waters Treaty. This acknowledgement weakens that argument.
5. The 2005 draft has strong language, both in the Preamble and in Article 701, that the 1909 Boundary Waters Treaty continues to apply and nothing in these agreements weaken its role. On the other hand, as noted below, the appellate procedures could erode the International Joint Commission.
6. The 2005 draft agreement includes surface and groundwater. Although groundwater is referenced in other agreements, such as the Great Lakes Charter, the approval of the current draft would create a more robust legal regime governing the withdrawals of water from aquifers.
7. The voting procedure under the 2005 draft compact, permits any diversion to a community outside the basin, but found in a straddling county, requires unanimity among the states. Any one governor can veto a diversion, consistent with the Water Resources Development Act in the USA. However, Canadian provinces have only a consultative role, through the regional review process under the agreement.

8. The 2005 draft includes recognition that the Great Lakes will be facing stresses from climate change and that these factors be taken into account consistent with the precautionary principle. For the first time, a Council of Great Lakes Governors document has recognized that fact.
9. The 2005 draft does not include the resource improvement standard, thus avoiding the potential for trade disputes under NAFTA, leading to water for sale.
10. The 2005 draft requires all jurisdictions to have water conservation plans in place.
11. The 2005 draft is not based on the principle from the 2004 draft that a user outside the basin has the same rights to water as a user in the basin or in straddling counties.
12. The 2005 draft removes what was electively an exemption in the 2004 draft for diversions smaller than 1 million gallons per day.

Weaknesses of the June 30, 2005 Draft Agreements:

1. The water conservation plans do not have to come into effect until five years after the prohibitions on diversions and the standards are in full force.
2. There is no requirement for ecological restoration of hydrologic regimes damaged by consumptive, in-basin use of Great Lakes water. While ecological restoration is addressed under the Great Lakes Water Quality Agreement, many environmental groups engaged in the annex debates that the new legal framework being developed through the compact and agreement must add funds and impetus to this priority.
3. It could violate the 2001 Canadian Amendments to the Boundary Waters Treaty Act, although this is a quite unlikely eventuality.
4. The system to allow exemptions to the prohibition on diversions will potentially allow a large population base outside the basin to have access to Great Lakes water. The concept of straddling communities, those with part of their border within the basin is further enlarged with straddling counties. This is a significant concern. On the other hand, others suggest that the realities of consolidated utilities across the basin divide, and the withdrawal of Great Lakes water by over-pumping groundwater just outside the basin divide make it advisable to bring both straddling and nearby communities into the management regime. Even if the system of permitting access, by unanimous agreement of all Great Lakes Governors for communities within straddling counties was not offensive in principle, there are serious problems with this proposed approach. There is a significant risk in stating the rationale for access to water on political, rather than ecological boundaries.
5. The Chicago Diversion, constructed in 1907, is outside of this agreement. Any potential increase in the removal of water from Lake Michigan through the Chicago Diversion is governed by a ruling of the U.S. Supreme Court, and stays there. (Note: this also means that none of the straddling communities, or communities within straddling counties in Illinois can apply for water taking permits.)
6. The public trust doctrine and common law standards that limit diversions and privatization of water for sale out of watersheds and the Great Lakes basin have been ignored.
7. Bottled or containerized water in containers less than 20 litres has been exempted not only from the definition of “diversion,” but specifically made a “consumptive use”. This provision is controversial. Some believe it will accelerate the tapping of water systems for private use by water bottlers.
8. The amount of water that could be withdrawn under the various exceptions is not set to any particular time limit or volume cap.

9. The agreement and compact both contain dispute resolution procedures that could undermine the role of the International Joint Commission. From the viewpoint of Canadians, the vote at the International Joint Commission, with three members from each country, compared to procedures under the agreement with Canada's interests being in a minority position (8-2), is a concern that survived the re-negotiation process to the current draft. For both nations, the parallel and disconnected functioning of appeal procedures within the new framework at the state and province level, could weaken the role of both federal governments and of the International Joint Commission. (Sierra Club of Canada, et al., 2005)

At its August 29, 2005 meeting, Conservation Ontario Council unanimously adopted the following resolution:

WHEREAS Conservation Ontario approved comments and recommendation on August 16, 2004 related to the Environmental Bill of Rights Registry (EBR# PB041E6018) for the drafts of the Great Lakes Basin Sustainable Water Resources Agreement and Great Lakes Basin Water Resources Compact;

AND WHEREAS Conservation Ontario along with other partners/stakeholders (50) is participating on the "Great Lakes Charter Annex Advisory Panel" created by Ontario's Minister of Natural Resources since its inaugural meeting of December 15, 2004;

AND WHEREAS Revised Draft Great Lakes Basin Sustainable Water Resources Agreement and Great Lakes Basin Water Resources Compact dated June 30, 2005 were released in a form suitable for the 60-day public comment period ending August 29, 2005 but without consensus among the two (2) Provinces and eight (8) States;

Therefore be it resolved that Conservation Ontario strongly support the Province of Ontario being a signatory to the Great Lakes Basin Sustainable Water Resources Agreement based on the June 30, 2005 draft being the minimal acceptable package and the Minister of Natural Resources ensure in the subsequent negotiations that: 1) there is no erosion to the principles and provisions of the draft document dated June 30, 2005, 2) that the people of Ontario continue to be advised of the progress of these negotiations and be provided with the final form and wording of the agreement prior to signature, 3) that provisions be included in the final document to enable enhancements through the implementation 4) that early work be commenced to address water conservation through out the basin, 5) that the Province of Ontario commit together with the Province of Quebec and the States (8) the necessary resources to give effect to this agreement and to develop the further scientific understanding of the hydrologic regime and Great Lakes ecosystem necessary to effectively administer this agreement;

AND THAT the Minister of Natural Resources be commended for setting up the Great Lakes Charter Annex Advisory Panel to facilitate open dialogue and input from some 50 organizations/stakeholders;

AND THAT Conservation Ontario's additional comments on the strengthened 2005 Draft Agreement and Compact be endorsed and reiterated in a letter to the Minister of Natural Resources and copied to the Council of Great Lakes Governors, Environment Canada and the International Joint Commission;

AND THAT Conservation Ontario indicate its commitment to continued participation on the Minister of Natural Resources Great Lakes Charter Annex Advisory Panel.

Report prepared by: Larry Field, extension 5241.
For Information contact: Larry Field, extension 5241.
Date: September 9, 2005

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Adele Freeman, Director, Watershed Management

RE: TORONTO WATER 2005 MULTI-YEAR BUSINESS PLAN

KEY ISSUE

Importance of upstream source water protection for the City of Toronto's rivers, and early opportunities for watershed plan implementation.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT the report to the City of Toronto Works Committee on Toronto Water 2005 Multi-Year Business Plan be received;

THAT staff be directed to report back to the Watershed Management Advisory Board on any action resulting from the report to Works Committee;

AND FURTHER THAT staff report back formally to all regional and local municipalities following the completion of the integrated watershed management plans affecting their respective jurisdictions.

BACKGROUND

City Council at its meeting of February 1, 2 and 3, 2005 in adopting Report 2, Clause 1 from Works Committee requested, in part, the following:

the Toronto and Region Conservation Authority be requested to report to the Works Committee on a comprehensive multi-year business plan to protect the source of Toronto's river systems;

At Authority Meeting #6/05, held July 22, 2005, staff were directed to report to the City of Toronto Works Committee. The report is outlined in Attachment 1 and was endorsed by the Work Committee at their meeting held on September 14, 2005 and recommended to City Council for consideration at their meeting to be held on September 28, 2005.

Report prepared by: Adele Freeman, extension 5238
For Information contact: Adele Freeman, extension 5238
Date: September 15, 2005
Attachments: 1

Attachment 1

August 29, 2005

To: Works Committee

From: Brian Denney, Chief Administrative Officer, TRCA

Subject: Toronto Water 2005 Multi-Year Business Plan report as requested in City Council recommendation adopted on February 1, 2 and 3, 2005.

Purpose:

To respond to the recommendation approved by Toronto City Council on February 1, 2, and 3, 2005 and adopted without amendment which resolved, in part, that TRCA report on a comprehensive multi-year business plan to protect the source of Toronto's river systems.

Financial Implications and Impact Statement:

There are no financial implications resulting from the receipt of this report. However, any actions that may be required as a result of this report will require appropriate allocations of funding.

Recommendations:

It is recommended that:

- (1) the Policy and Finance Committee be forwarded the report submitted by the Toronto and Region Conservation Authority (TRCA) in response to the request by Works Committee regarding multi-year business plans; and
- (2) TRCA be requested to report on measures to protect the source of Toronto's river systems following the substantial completion of the integrated watershed management plans for the Rouge, Don and Humber rivers and the initial steps to develop the anticipated Credit Valley - Toronto and Region - Central Lake Ontario Conservation Authority (CTC) Watershed Region Source Water Protection Plan as required and funded by the province; and
- (3) the appropriate City Officials be authorized and directed to take the necessary action to give effect thereto.

Background:

City Council at its meeting of February 1, 2 and 3, 2005 in adopting Report 2, Clause 1 from Works Committee requested:

the Toronto and Region Conservation Authority be requested to report to the Works Committee on a comprehensive multi-year business plan to protect the source of Toronto's river systems;

The request from the City of Toronto for a report on TRCA's comprehensive multi-year plan to protect the source of Toronto's river system is timely in light of a number of provincial policy initiatives, TRCA program initiatives, and the adoption and initial implementation of the city's Wet Weather Flow Management Master Plan (WWFMMP).

TRCA is currently undertaking a number of key projects which will shortly lead to updates to TRCA's multi-year business plan. This work is part of the ongoing process of ensuring each of its watershed plans are kept current; that they reflect new information including recent groundwater and water budget projects; that they integrate undertakings by others e.g. WWFMMP, Oak Ridges Moraine Act, Oak Ridges Moraine Conservation Plan, Greenbelt Plan, Provincial Source Water Protection Planning, and that they build on ongoing monitoring activities by TRCA and others (**Attachment 1**). These watershed plans are built on nearly 50 years of watershed management experience and include a strong public consultation component in addition to ongoing involvement of the provincial ministries and municipal agencies.

TRCA's integrated watershed management program is premised on actions which contribute to the protection of source water through protection of landforms and features, such as the Oak Ridges Moraine, through land securement (almost 40,000 acres are currently in TRCA ownership), planning advice to upstream municipalities, reforestation and habitat enhancement, rural land owner education and stewardship management programs, and has increasingly advocated for and required stormwater management programs that address both the quantity and quality of waters entering the City of Toronto. TRCA carries out research on new initiatives in source water protection ensuring that green roofs and similar activities are constructed in a manner to deliver cost effective solutions.

The City of Toronto completed its Wet Weather Flow Management Master Plan in 2002, a landmark document that sets out a comprehensive program to address the ongoing program requirement for public education, source controls, municipal operations, conveyance controls, shoreline management, stream restoration and end-of pipe facilities, as well as a program to address basement flooding within the City of Toronto. This program clearly recognizes that management of the city's water resources requires a watershed approach as stated in the Wet Weather Flow Management Master Plan Vision and Principles (July 2003):

Vision:

Wet weather flow will be managed on a watershed basis in a manner that recognizes rainwater as a potential resource to be utilized to improve the health of Toronto's watercourses and the near shore zones of Lake Ontario and enhance the natural environment of Toronto's watersheds.

Principles:

Rainwater is a resource. As a priority, rainwater (including snowmelt) should be managed where it falls on the lots and streets of our City, particularly before it enters a sewer. Wet weather flow will be managed on a watershed basis with a natural system approach being applied to stormwater management as a priority. A hierarchy of wet weather flow solutions will be implemented – starting with “at source”, then “conveyance”, and finally “end of pipe”. Toronto’s communities need to be made aware of wet weather flow issues and involved in solutions.

The WWFMMP objectives for Water Quality, Water Quantity, Natural Areas and Wildlife, and Drainage Systems recognize the importance of meeting and exceeding water quality standards, elimination of toxic substances through pollution prevention, and preserving and re-establishing the natural hydrologic cycle by maximizing permeability and minimizing runoff at source.

TRCA was pleased to participate in the development of the WWFMMP and strongly advocates for its implementation and for additional resources to be made available to the city from federal and provincial levels of government to expedite the major capital projects.

The Wet Weather Flow Management Master Plan, in addition, will form a fundamental component of a comprehensive Source Watershed Protection Plan for the CTC Watershed Region, which is being led by the TRCA, on behalf of Ministry of Environment, in conjunction with the Credit Valley Conservation Authority and the Central Lake Ontario Conservation Authority. This plan will involve the City of Toronto and the regional municipalities of Halton, Peel, York, Durham, as well as the local municipalities and many other stakeholders.

While many initiatives are currently underway to improve plans, there are immediate opportunities to protect source water through land securement, stewardship and management activities that have been identified and have proven of value to source water protection. While the WWFMMP combined with the city’s contributions to the TRCA’s annual program of watershed management address watershed priorities within the city boundary, the majority of the water in the city’s creeks and rivers originate north and west of the City of Toronto’s boundaries. The remainder of this report outlines the importance to the City of Toronto of upstream source water protection and suggests a program of investment that will provide measurable improvements that together with actions undertaken within the city will preserve and re-establish some of the natural hydrologic processes and improve the quality of surface waters.

TRCA recognizes the timing of this report coincides with a city staff report on the initial assessment of damages resulting from the August 19, 2005 storm including information provided from TRCA staff on erosion issues. TRCA is also reporting jointly with Toronto Water to the Sept 14, 2005 Works Committee meeting on a funding from the Land Acquisition for Source Water Protection Reserve.

Comments:

The Importance of Managing Watersheds at Their Source

In order to protect public safety, municipal infrastructure and Toronto region watersheds and waterfront, there is merit in the City of Toronto supporting conservation programs in the 905 regions. Funding projects outside of municipal boundaries (*or, cost sharing projects across municipal boundaries*) in order to gain benefits in terms of flooding and erosion protection, and water quality improvements has been the cornerstone of conservation efforts in southern Ontario.

Major storms can cause massive erosion washing out streets, culverts, bridges and exposing municipal infrastructure. Repairs can cost millions of dollars and take several months, adding to existing congested traffic woes. Public use infrastructure in the valleys such as bridges, trails, parks and sport facilities can be damaged and remain out of service for lengthy periods of time. When sewers are broken, raw sewage flows into the creeks creating immediate public health concerns. All of these outcomes resulted from the August 19th storm.

The tons of sediment and debris eroded from the streams during major storms is deposited in lower gradient reaches and river mouths or discharged out into Lake Ontario. Plumes of sediment and contaminant laden water enter Lake Ontario, affecting aesthetics, beach quality, fish habitat and drinking water intakes.

Headwater areas outside of the city boundaries are important to water management efforts. This recognition is one of the key reasons for widespread interest in protecting physiographic features like the Oak Ridges Moraine. Reforestation of headwater areas has been demonstrated to be an effective water quantity and quality management practice. Long standing practices of planting trees on marginal or public lands in the headwaters has been a foundation of TRCA's water management programs, since Hurricane Hazel. In the 2003 watershed plan for Duffins Creek, integrated modelling studies demonstrated that an increase in natural cover from 37 percent (existing) to 49 percent could reduce the flooding risk by as much as 25% in the Town of Ajax for the 100 year storm event and significantly improve water quality and aquatic habitats. Similar modelling is being undertaken in the integrated watershed management plans underway for the Rouge, Don and Humber rivers and will demonstrate the value of natural cover to water management efforts.

Since the Walkerton Tragedy in 2000, attention has been paid to the protection of drinking water supplies in the province at their source. The City of Toronto shares concerns with other municipalities along the north shore of Lake Ontario about the quality of lake based water supplies. TRCA recently initiated a drinking water source protection study with funding provided by the Province of Ontario. This study is being undertaken on a watershed basis and will ultimately use a risk assessment approach to identify priority management actions. Review of source water protection plans from other jurisdictions, such as the City of New York, reveal that from a practical and economic perspective, the protection of source water supplies originating upstream of a municipality makes good business sense. Less sediments and nutrients entering the lake helps to improve drinking water plant treatment efficiencies and reduces the risk of contaminated municipal water and helps to instil public confidence in municipal supplies.

Poor water quality (nutrients) and high Lake Ontario water temperatures were a factor earlier this summer in shortages of municipal water supplies in Durham Region, when algae growth within the drinking water plants forced the treatment system to be shut down in the midst of peak consumption demands. Frequently in late summer, diatom algal blooms in the lake can cause taste and odour problems for municipal supplies, resulting in the requirement for expensive carbon filtration technologies to mitigate. High turbidity in raw water supplies can interfere with treatment processes, which could potentially result in adverse drinking water quality.

Toronto region creeks and rivers have been extensively studied over the past 30 years. Through these studies we know that runoff carries high levels of phosphorous, suspended solids, nitrates and bacteria, in addition to metals and pesticides. Pollution levels following rain storms and snowmelt exceed dry weather conditions by an order of magnitude.

A Lake Ontario pollution loading study undertaken by the Ministry of Environment in 1999 showed two of the most rural watersheds (Humber River and Rouge River) contributed the greatest concentrations of suspended solids while the most urban watersheds (Mimico Creek and Don River) contributed the least. The highly urbanized Highland Creek generated large phosphorus loads due to increased runoff volumes caused by the watershed's high imperviousness (**Figure 1**). Wet weather flow studies initiated by the city are designed to deal with urban sources of pollution. Key directions for reducing loads to Lake Ontario from the Etobicoke, Mimico, Humber, Don, Rouge and Highland rivers and creeks are outlined in the city's Wet Weather Flow Management Master Plan.

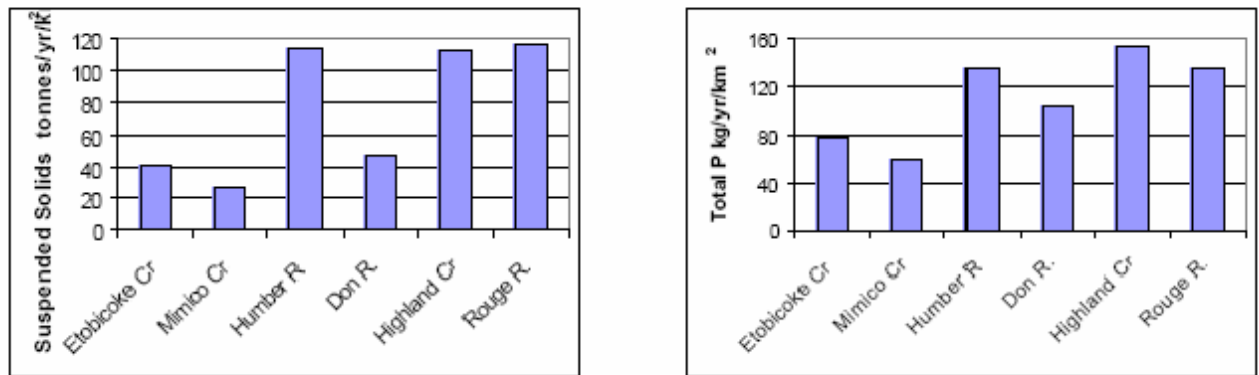


Figure 1 Pollutant Loadings suspended solids and phosphorus by watershed

A University of Guelph study of trends in nitrate and phosphorus levels in tributaries to Lake Ontario during the period 1964-1994 (most recent provincial data) shows that overall levels of nitrates in surface waters has been rising with significant jumps in agricultural areas in the 1960's and 1970's and more recently in urban areas. Total phosphorus levels in tributary streams are declining over the 30-year period due to phosphorus abatement legislation and the resulting pollution control efforts in rural areas (reduced soil erosion) and phosphorus abatement activities in urban areas (decommissioning of in-land sewage treatment plants, rainwater quality management ponds and source controls). Recent watershed report cards for Toronto region watersheds have identified that at best we are currently "holding our own" in terms of water quality trends in the more urbanized rivers. In light of the economic growth and population increase, this is good news and is a good indication that on-going abatement efforts by the various partners are working.

Agricultural non-point source water quality modelling studies by TRCA have shown that a majority of the sediments leaving rural portions of the watersheds can originate from a small percentage of the drainage area due to physiographic and land use factors. The majority of sediment transported in rural watersheds has been linked to agricultural areas. In comparison, relatively small amounts in rural areas come from bank erosion. Across the province, the agricultural industry has been making significant inroads in reducing rural pollution by adopting modern farming practices such as nutrient management, conservation tillage, grass swales and buffer strips. Knowledge of key pollution source areas helps TRCA staff to effectively target Rural Clean Water Programs.

In urban areas, a combination of erosion and sediment control, stormwater retrofits and rainwater source controls have been identified as effective management actions to improve local and downstream water quality and quantity problems. The City of Toronto's Wet Weather Flow Management Master Plan has identified water quality and quantity control measures for creeks and rivers draining south of Steeles Avenue.

Source Water Protection Program for Toronto Region Headwater Creeks and Rivers

The City of Toronto Council has expressed interest in having source water protection activities happen outside its jurisdiction to compliment the directions already underway to implement the Wet Weather Flow Management Master Plan. These activities should seek to reduce peak flows and manage water quality.

A source water protection program (SWPP) for Toronto region creeks and rivers is outlined in **Table 1**. This SWPP is designed to reduce loadings of sediment, bacteria and nutrients to Lake Ontario resulting in improved water quality of watercourses as they enter the city. Multiple watershed-wide benefits are expected from the SWPP initiatives, including flood reductions, improved aquatic habitats, better water quality and streams aesthetics, biodiversity enhancements and safer drinking supplies. The SWPP was designed to target suspended solids, nutrients and bacteria which serve as “key indicator” parameters for assessing safe drinking water supplies and are useful surrogates for tracking other persistent pollutants. The outlined SWPP reflects current knowledge of the key pollution sources and effective management actions, identified through on-going watershed planning studies.

The SWPP provides options for a “level of effort approach” detailing actions that can be accomplished on an annual basis for three alternative levels of funding support (e.g. \$2, \$5 and \$10 million). Funding for the SWPP from local and regional municipalities would be used by the TRCA to lever new funding from our watersheds partners (province and federal governments, and others e.g. foundations). SWPP efforts are initially focused on the larger more rural watersheds. However at higher funding levels, it would be possible to extend efforts more broadly to ensure that activities are being undertaken in all city watercourses such as the Etobicoke and Mimico Creeks.

By 2006, TRCA will be in a position to use our integrated watershed management studies that are being funded by the municipalities, to identify practical, short term and long term actions such as stormwater management enhancements, reforestation, stream bank riparian planting and rural land management activities.

Opportunities for implementing the proposed programs within the Toronto region watersheds will be developed in consultation with city staff, watershed task forces, Rouge Park Alliance and the Remedial Action Plan (RAP) steering committee. The province’s source water protection legislation is expected to be unveiled later this year, at which time we will have a better understanding of funding priorities. Initiation of a municipally funded SWPP will be of assistance in securing drinking water source protection funding from the province. It is anticipated that the federal government will support watershed management efforts designed to protect Lake Ontario drinking water supplies in response to international water quality treaty obligations.

Table 1 SWPP Levels of effort and priority actions on a watershed basis

Funding Level	Rouge River	Higland Creek	Don River	Humber River	Mimico Creek	Etobicoke Creek
Project Type						
\$2,000,000 /yr						
Stormwater Retrofit	\$600,000		\$300,000	\$600,000		
Reforestation	\$100,000			\$100,000		
Riparian/Wetland Plantings	\$100,000			\$100,000		
Rural Land Management	\$50,000			\$50,000		
Stream Channel Improvements						
Total	\$850,000	\$0	\$300,000	\$850,000	\$0	\$0
\$5,000,000 /yr						
Stormwater Retrofit	\$1,000,000		\$500,000	\$1,000,000		
Reforestation	\$500,000			\$500,000		
Riparian/Wetland Plantings	\$200,000			\$200,000		
Rural Land Management	\$100,000			\$100,000		
Stream Channel Improvements		\$250,000	\$250,000		\$200,000	\$200,000
Total	\$1,800,000	\$250,000	\$750,000	\$1,800,000	\$200,000	\$200,000
\$10,000,000 /yr						
Stormwater Retrofit	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Reforestation	\$1,000,000			\$1,000,000		
Riparian/Wetland Plantings	\$1,000,000	\$200,000	\$100,000	\$100,000	\$100,000	\$100,000
Rural Land Management	\$200,000			\$200,000		
Stream Channel Improvements	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Total	\$3,200,000	\$1,200,000	\$1,100,000	\$2,300,000	\$1,100,000	\$1,100,000

The multi-year program presented in Table 1 is broken down into program areas, and some of the proposed works to be conducted by TRCA under these program areas are as follows:

Stormwater Retrofit:

- Approximately 80 locations in upstream areas urbanized prior to 1990, have been identified as areas where water quantity facilities can be constructed or upgraded to provide water quality treatment (**Attachment 2**) .
- Based on a 10 year program at the 2 million dollar investment level/per annum with a 2:1 leverage factor (2006 costs), it is estimated that 50 stormwater management retrofits could be implemented. These estimates are based upon a capital cost of \$500,000 per retrofit and an accompanying \$100,000 urban best management source control program.

Reforestation:

- TRCA has identified potential reforestation lands located on both public and private lands located outside the City of Toronto as illustrated on (**Attachment 3**) . These lands include areas contained within the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan area.

- Based on a 10 year program, at the 2 million dollar investment level/per annum (**Table 1**) and a conservative 2:1 leverage factor, it is estimated that 400 ha of land can be reforested in critical headwater areas for source water protection.

Riparian/Wetland Plantings:

- TRCA has identified critical areas for riparian plantings adjacent to agricultural areas, roadways and other lands where direct flow to streams carries excess levels of sediment and nutrients to watercourses. Riparian zones provide ephemeral wetland habitat, water storage during seasonal flooding and contribute woody material improving fish habitats.
- Based on a 10 year program at the 2 million dollar investment level/per annum (**Table 1**) and a conservative 2:1 leverage factor, it is estimated that 80 ha of riparian forest lining stream banks.

Rural Land Management:

- Rural Clean Water Program works with rural landowners and other funding partners to improve rural water quality through technical, financial and educational services.
- Based on a 10 year program at the 2 million dollar investment level/per annum (**Table 1**) and a conservative 1:1 leverage factor, it is estimated that 60 farm plans will be completed resulting in opportunities for reforestation, riparian plantings, fencing of animals from watercourses, and improved manure storage on small to medium sized farm operations not covered by the provincial Nutrient Management Act.

Stream Channel Improvements:

At the highest proposed funding level, program delivery could include works on stream erosion sites and other channel improvements on urbanized subwatersheds in the Humber, Don and Rouge Rivers and on the smaller more urbanized watersheds (Etobicoke, Mimico and Highland Creeks)

- A monitoring program to inventory, monitor, assess and evaluate watercourse realignments designed based on 'natural' channel design principles.
- Completion of field work and flood risk assessment as well as a preliminary cost-benefit analysis in order to prioritize land areas or structures within TRCA's jurisdiction requiring remedial flood protection works and/or acquisition in order to minimize the risk to public safety or damage to property from flooding.
- Barrier mitigation projects.
- Preparation of risk assessments and emergency planning studies for each large dam as recommended in the Dam Safety Assessment reports. Updating of equipment/technology, operating procedures and structural improvements.
- Capital works on small dams and flood control facilities in order to maintain levels of public safety and risk to property damage, provided by existing flood protection works.
- Waterfront and valley erosion control projects throughout TRCA's jurisdiction.

Conclusions:

This report responds to a request for a multi-year plan from TRCA on the protection of the city's rivers and recommends that TRCA report on a regular basis to Works Committee.

While the City of Toronto generously supports TRCA programs in partnership with upstream municipalities which directly deal with water management, this funding does not generally extend to programs including stormwater management facilities retrofit in areas urbanized prior to stormwater management requirements, reforestation, riparian plantings and rural land management. The increase of investment into these and related program offerings can be financially levered to provide a cost effective investment in source water protection. Upstream municipalities currently invest in these programs which provide downstream benefits to the City of Toronto. TRCA strives to match or better the financial investment for these programs through annual submissions to the Great Lakes Sustainability Fund, federal EcoAction Community Funding Program, the Oak Ridges Moraine Foundation and through the fundraising efforts of The Conservation Foundation of Greater Toronto.

The TRCA objectives, programs and policies are consistent with the WWFMMP, the city's Strategic Plan and Environmental Plan, and provide the necessary ecosystem watershed approach working with and in upstream municipalities to undertake a comprehensive plan of integrated watershed planning and management.

Contact:

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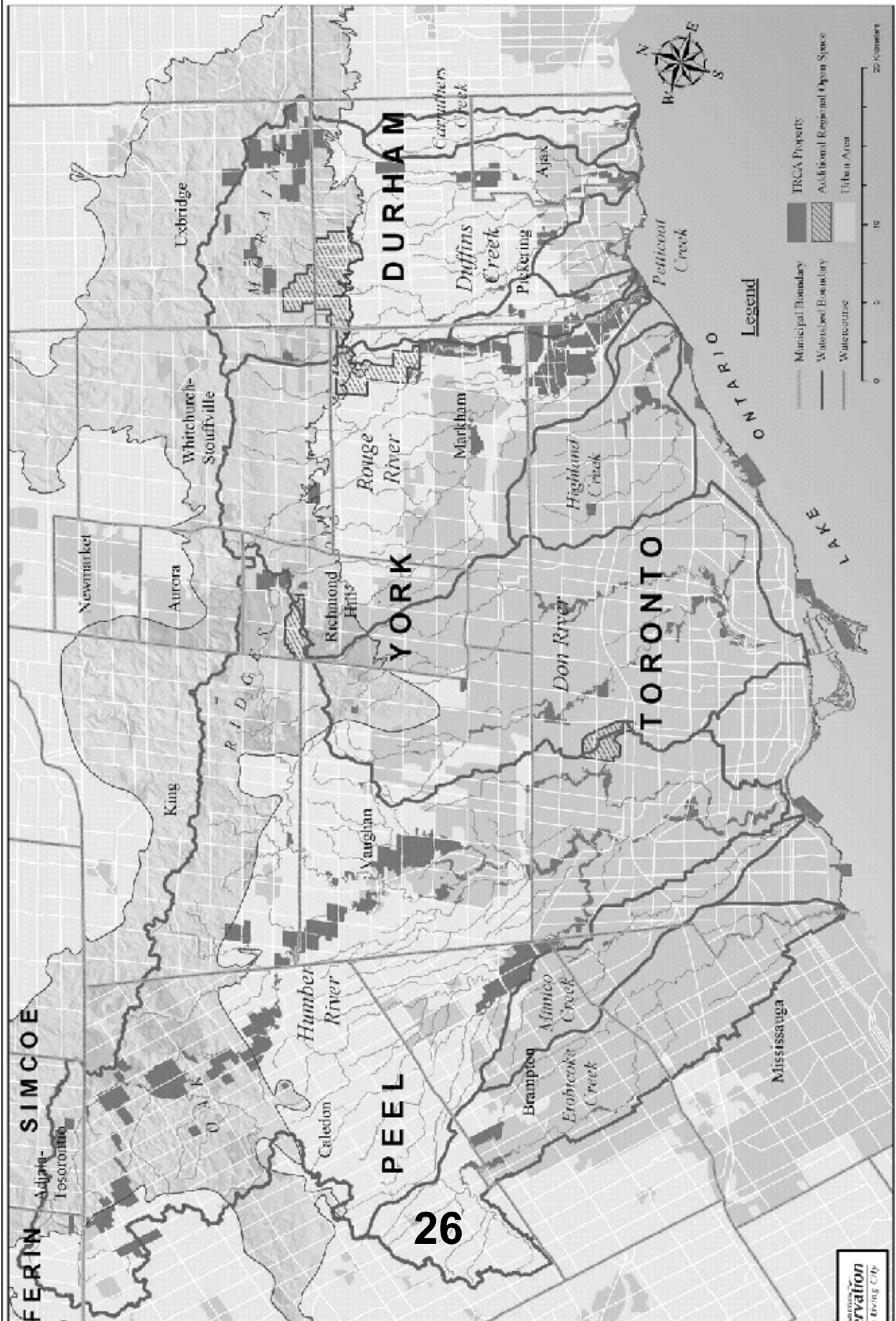
Kathy Stranks, Supervisor, Board Member Services, TRCA
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Brian Denney
Chief Administrative Officer

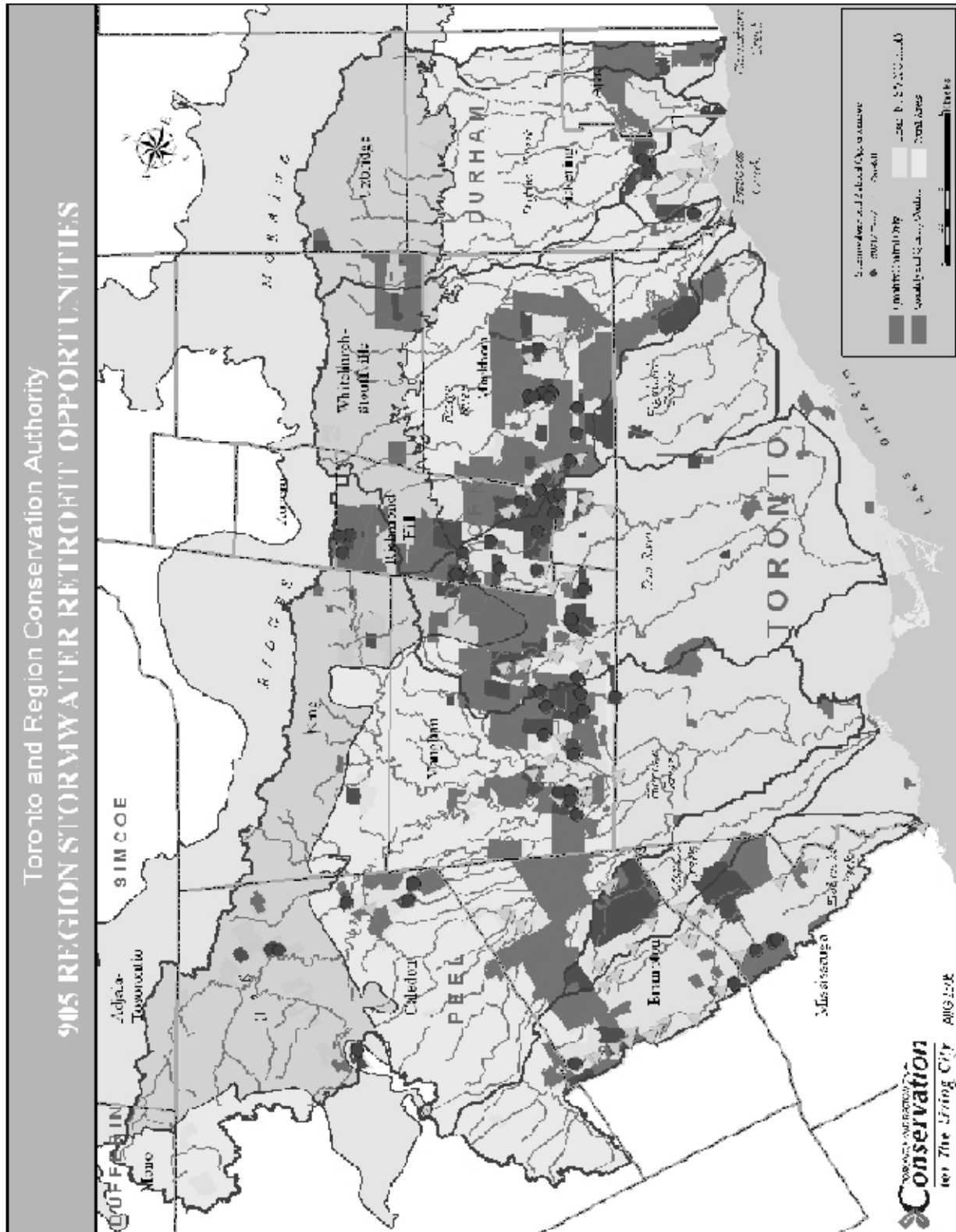
List of Attachments:

- Attachment 1** - TRCA Jurisdiction
- Attachment 2** - 905 Stormwater Management Retrofit Opportunities
- Attachment 3** - Reforestation Opportunities
- Attachment 4** - Reforestation Opportunities (Detailed Example)

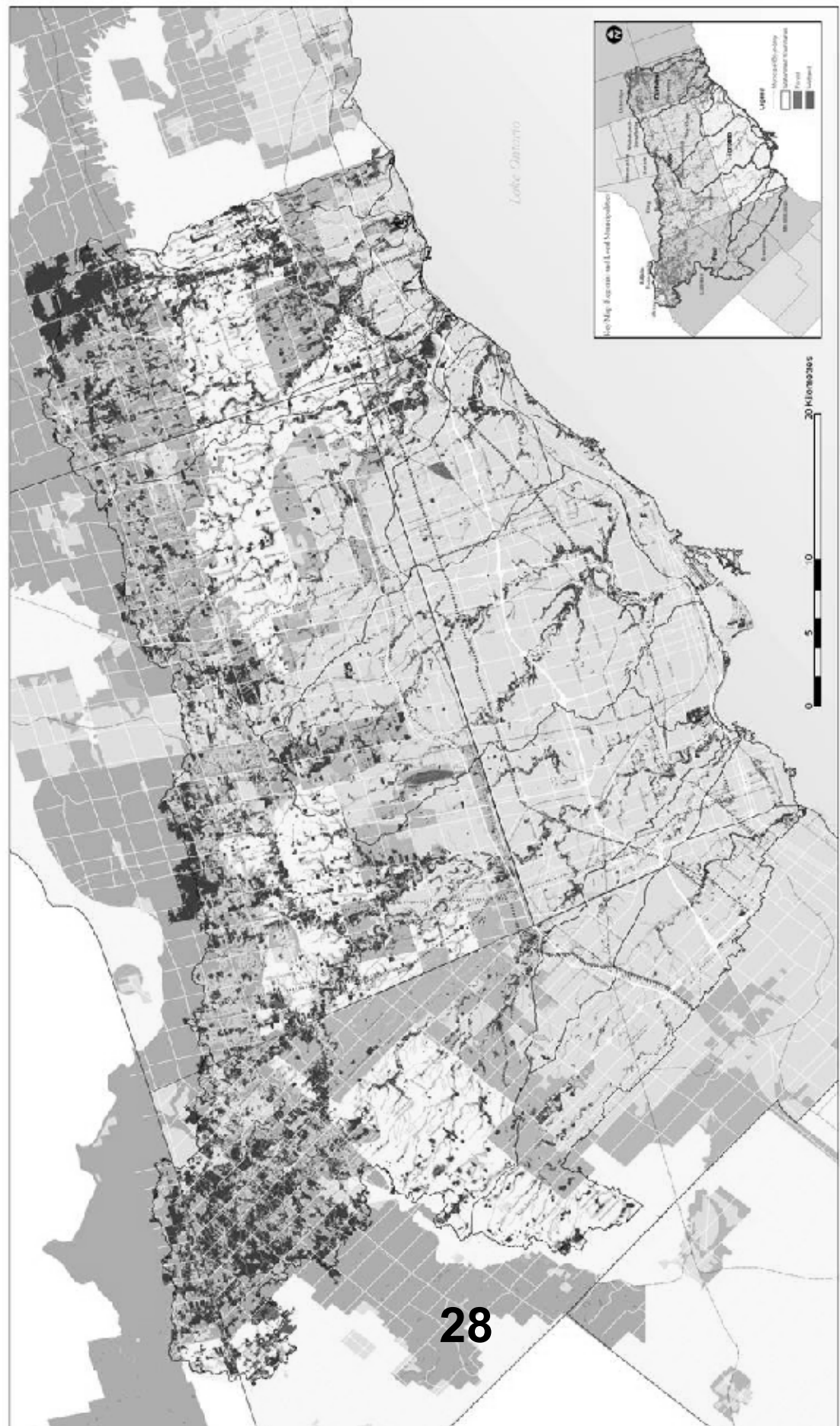
Attachment 1 - TRCA Jurisdiction



Attachment 2 - 905 Stormwater Management Retrofit Opportunities



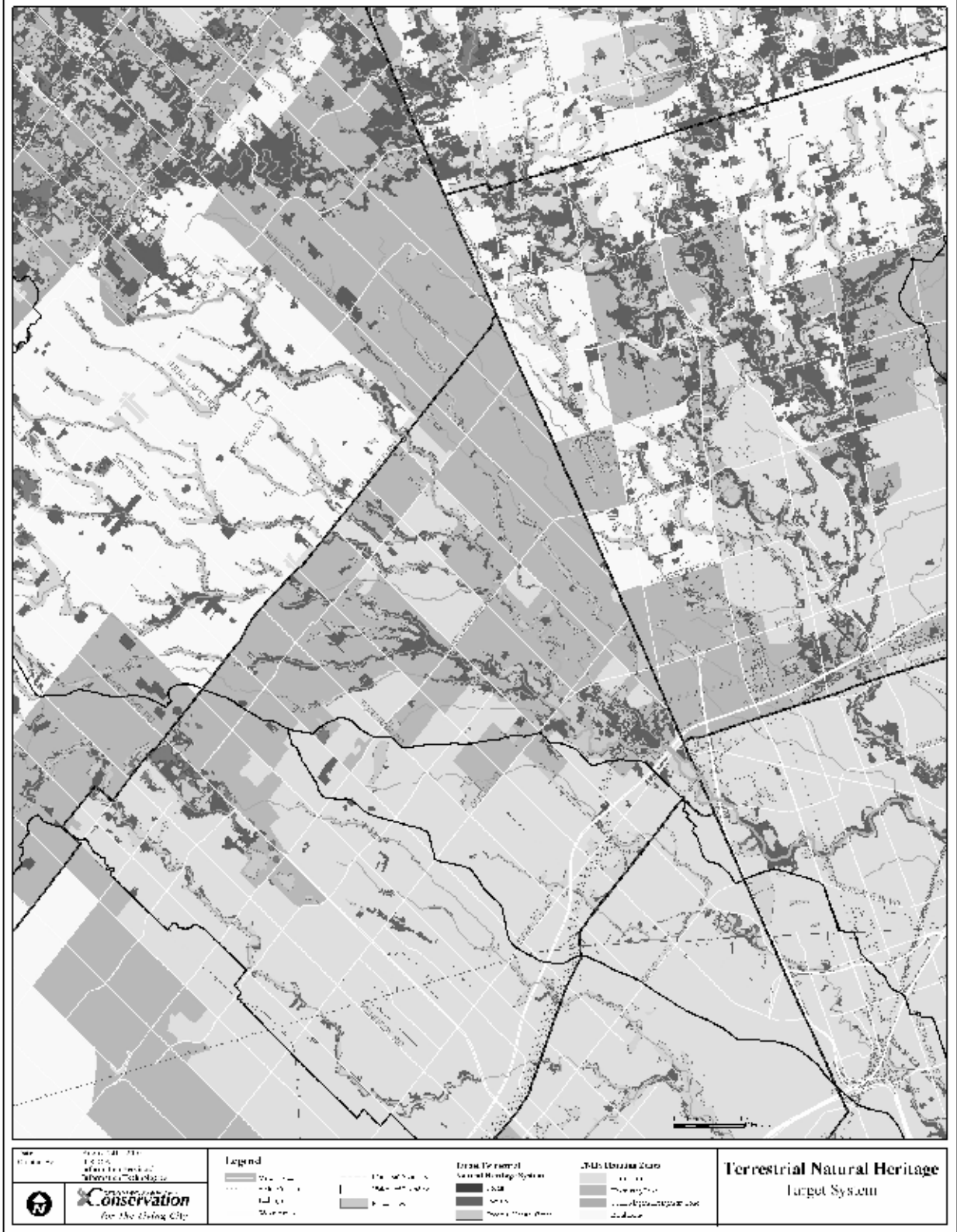
Attachment 3 - Reforestation Opportunities



**Terrestrial Natural Heritage
Target System
TNH Map # 3.**

<p>Legend</p> <ul style="list-style-type: none"> Major Roads State Concern Railways Watercourses 	<ul style="list-style-type: none"> Municipal Boundary Watershed Boundary Roads/Lanes 	<p>Target Terrestrial Natural Heritage System</p> <ul style="list-style-type: none"> Forest Wetland Provincial Natural Corridor 	<p>TNHS Planning Zones</p> <ul style="list-style-type: none"> Urban Zone Urbanizing Zone ORCA/Slagans Escarpment Zone Bank Zone
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Attachment 4 - Reforestation Opportunities (Detailed Example)



TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Adele Freeman, Director, Watershed Management

RE: **HIGHLAND CREEK ENVIRONMENTAL STEWARDSHIP PROGRAM UPDATE**

KEY ISSUE

Highland Creek Environmental Stewardship Program update and implementation of the Highland Creek Community Stewardship Program.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT staff continue implementing the Highland Creek Community Stewardship Program (HCCSP) in collaboration with the City of Toronto, the Friends of Highland Creek, Centennial Community and Recreation Association and the Scarborough Arts Council, with support of the Ontario Trillium Foundation (OTF).

BACKGROUND

At Authority Meeting #9/04 , held on October 29, 2004, Resolution #A299/04 was approved as follows:

THAT staff be directed to pursue funding sources to support the continuation of the Highland Creek Environmental Stewardship Program in future years.

In April of 2005, staff submitted the final report to the EcoACTION Community Fund, marking the completion of a 2 year \$145,290 funded environmental stewardship program. The Highland Creek Environmental Stewardship Program (HCESP) also received in kind contributions from Toronto and Region Conservation Authority (TRCA), the City of Toronto and various community groups, businesses and schools totalling \$152,000.

The final report concluded that the HCESP had accomplished, and in some cases exceeded its deliverables. The following table provides a summary of the expected and actual project results:

SUMMARY TABLE OF RESULTS

	Expected	Actual
planting events	12	17
cleanup events	4	19
celebration events	2	2
seminars	2	2
trees and shrubs planted	3,000	3,788
litter and debris collected (kg)	N/A	19,000
habitat structures created (bat, song bird and wood duck boxes)	45	67
interpretive signs installed	6	6
volunteers involved	520	1,667

The HCESP was initiated to build capacity within this urban watershed and engage a multicultural community in a variety of hands-on restoration activities. It supported a number of stakeholder interests including the City of Toronto Wet Weather Flow Management Master Plan, Canadian Rivers Day, the Great Canadian Shoreline Clean Up and regeneration efforts at Centennial College's Progress Campus. The program also provided outreach and education opportunities to local City of Toronto councillors and MPs to facilitate their special environmental activities and community consultations.

Collectively, this work contributed to more than 4,600 volunteer hours - doubling the program's target commitment to the EcoACTION Community Fund. In addition to this accomplishment, the HCESP provided technical, promotional and event support to other community restoration and enhancement efforts in the watershed undertaken by the Friends of Highland Creek and Owens Corning.

Taking advantage of new opportunities for collaboration in 2005, the HCESP co-hosted the Scarborough Arts Council's "Metamorphosis" art, music and theatre performance at the Heron Park Community Centre in January. In February, the HCESP co-hosted the installation of the Lake Ontario Water Project sculpture mosaic in collaboration with artist Pamela Schuller, the Lake Ontario Waterkeeper and Centennial College.

In summary, through program events, activities and a collaborative steering committee, the HCESP successfully engaged local residents and the diverse communities that make up the watershed, including over 20 schools and post secondary institutions; over 15 community associations, ratepayer groups and service organizations; over 10 businesses; a local church group and representatives and staff from all three levels of government.

Although the EcoACTION funded phase of the HCESP was completed in February, 2005, staff continued to support ongoing community initiatives. In April, 2005 program staff assisted various community groups with their Earth Day clean ups and directly participated in the Centennial Community and Recreation Association's clean up event at Port Union. One spring planting event was hosted, in partnership with two local public schools, and staff provided support for the city's Trees Across Toronto initiative at Birkdale Ravine.

In May, 2005 the program worked in collaboration with TRCA's Healthy Yards program to host a seminar to provide watershed residents with information on the tools and resources required to start a backyard naturalization project, including information on the use of rain barrels, outdoor water conservation and environment-friendly alternatives for lawn and garden maintenance. The program provided 23 residents with an introductory kit of native trees, shrubs and wildflowers to help initiate their property naturalization efforts. The City of Toronto's downspout disconnect/rain barrel program continues to be promoted at all HCESP community events. Rain barrels and outdoor and indoor water conservation kits donated by the City of Toronto were distributed to watershed residents as prizes during spring activities. Also in May, the program hosted an interpretive hike along the lower Highland Creek.

In June, the HCESP hosted the annual Highland Creek Valley Bike Tour to celebrate Bike Week and subsequently held the third annual Highland Creek Community Celebration in honour of Canada Rivers Day. Program staff also attended local Councillors' Environment Days from May through July 2005.

Annual OTF deliverables over the next three years include:

- 7 community events (conservation seminars, festivals and field trips);
- 2,225 event attendees;
- 39 presentations (workshops, presentations and steering committee meetings);
- 255 workshop participants;
- 6 clean up events;
- 6 tree planting events;
- 1 naturalization project.

Annual outcomes include:

- 728 volunteers contributing 1,735 volunteer hours;
- 2,000 kilograms of garbage and debris collected;
- 1,575 trees and shrubs and 1,045 wildflowers planted;
- 17 wildlife boxes installed;
- 30 rain barrels installed.

The first initiative of the new HCCSP was launched in August of 2005 with the Monarch Project. This annual collaboration with the Scarborough Arts Council delivers an exciting youth education initiative linking the arts and environment. A 2 ½ week outdoor workshop was held in Morningside Park and engaged 9 youth in developing their artistic skills while nurturing a strong connection to the natural environment.

In mid-September the HCCSP participated in the Great Canadian Shoreline Cleanup, an annual national and international initiative which engages volunteers in removing garbage and debris from shoreline areas while documenting the amount and type of litter collected. HCCSP community partners and volunteers hosted 5 clean up events during this one week period.

An English as a Second Language (ESL) working group has been established and currently meets on a monthly basis to direct community outreach to the watershed's large multicultural community. Working group members have successfully developed a water awareness survey for ESL teachers to introduce into their curriculum.

FINANCIAL DETAILS

To secure funding sources to support the HCESP beyond the EcoACTION Community Fund project, staff explored new community partnerships to prepare an application for funding to the Ontario Trillium Foundation (OTF). The proposal outlined a new collaborative partnership consisting of TRCA, the City of Toronto, the Friends of Highland Creek, the Centennial Community and Recreation Association and the Scarborough Arts Council.

In July 2005 the new “Highland Creek Community Stewards” collaborative partnership received word that it was approved for receiving \$142,000 from OTF over three years. The collaborative has been working together to initiate the HCCSP components which include resident, school and business outreach programs and habitat restoration and enhancement activities. In cooperation with the Multicultural Environmental Stewardship Program, the HCCSP’s ESL outreach initiative and the Environmental Ambassador program will target the watershed’s growing multicultural community and recent immigrants.

To assist in the delivery of the HCCSP, OTF funds support the hiring of a Stewardship Assistant, an Environmental Ambassador and a summer student each year. The Stewardship Assistant will be hired by the Scarborough Arts Council, and based in the Scarborough community at the council's Kingston Road offices.

DETAILS OF WORK TO BE DONE

Staff will continue to work with the Highland Creek Community Stewards collaborative to implement OTF deliverables, present annual OTF reports and secure in kind and matching funds for the HCCSP. Members of the informal HCESP steering committee will also continue to be engaged in the delivery of the various program components outlined in the OTF program. In addition to working with these key stakeholders, the HCCSP will also support internal initiatives, including a community planting in the fall of 2005 as part of the Port Union habitat compensation deliverables.

Report prepared by: Natalie Affolter, extension 5676
For Information contact: Natalie Affolter, extension 5676
Date: August 31, 2005

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Nick Saccone, Director, Restoration Services

RE: **2005/2006 CAPITAL PROGRAM FOR CONSERVATION AUTHORITY DAM
REPAIRS AND STUDIES**

KEY ISSUE

Staff has prepared information on 2005/2006 Capital Funding Program for Conservation Authority Dam Repairs and Studies and has provided a list of all projects submitted for funding under this program to date.

RECOMMENDATION

IT IS RECOMMENDED THAT the program description and list of projects pertaining to the 2005/2006 Capital Funding Program for Conservation Authority Dam Repairs and Studies be received for information.

BACKGROUND

In 2001, a team made up of conservation authority (CA) and Ministry of Natural Resources (MNR) staff began compiling an inventory of CA Water and Erosion Control Infrastructure (WECl) with the purpose of understanding funding requirements for maintenance activities and dam safety studies related to capital needs within CAs.

Recognizing the need for assistance in the upkeep of a province-wide aging flood and erosion control infrastructure, MNR successfully secured \$5 million under their 2003 capital budget for CAs to carry out WECl-related repairs and studies. This amount was to be matched by municipal contributions for a total one-year investment of \$10 million. Eligibility for funding under this program was restricted to projects which met the following criteria: i) the structure was inventoried in the WECl database, ii) matching municipal funds could be confirmed, and iii) the work could be completed by the end of the fiscal year (March 31st).

In the first year of the program, the Toronto and Region Conservation Authority (TRCA) submitted 11 projects, receiving a 100% approval rate and more than \$220,000 in funding. In addition to carrying out repairs at several dams and erosion control sites, this funding afforded TRCA the opportunity to complete comprehensive safety studies of four TRCA dams: Claireville, G. Ross Lord, Milne and Stouffville.

The announcement of an additional \$5 million investment from the province for 2004/2005 allowed TRCA to continue improving its infrastructure by updating emergency plans and completing safety upgrades at the Claireville and G. Ross Lord Dams; and by replacing several aged and failing erosion control structures in watersheds across the Greater Toronto Area.

Now in its third successful year, TRCA has completed 28 projects to date and anticipates carrying out 18 additional projects under the 2005/2006 program, investing over \$1 million into its dams, flood control structures and erosion control sites. Although an announcement has yet to be made, TRCA is hopeful that the program will continue in 2006/2007 so that much needed repairs and studies can continue in the interest of protecting public safety.

Attachment 1 lists all projects submitted under the CA Capital Funding Program for Conservation Authority Dam Repairs and Studies to date, their respective costs and the portion of MNR funding allocated to each.

Report prepared by: Moranne Burnet, 416-392-9690
For Information contact: Moranne Burnet, 416-392-9690
Date: September 01, 2005
Attachments: 1

Attachment 1

Table 1
Funding Allocation by Program Year

	TOTAL COST (100%)	MNR (50%)	STATUS
2003/2004			
Stouffville Dam Safety Study	\$40,000	\$20,000	Complete
G. Ross Lord Dam Safety Study	\$40,000	\$20,000	Complete
Claireville Dam Safety Study	\$40,000	\$20,000	Complete
Milne Dam Safety Study	\$40,000	\$20,000	Complete
Claireville Dam & G. Ross Lord Dam Sedimentation Studies	\$60,000	\$30,000	Complete
G. Ross Lord Dam Gate Control Structure Repairs	\$35,000	\$17,500	Complete
Claireville Dam Control Room Repairs	\$30,000	\$15,000	Complete
G. Ross Lord Dam Fuel Storage System Replacement	\$50,000	\$25,000	Complete
Reid Manor Park Bank Repairs	\$51,000	\$25,500	Complete
Van Dusen Bank Repairs	\$60,000	\$30,000	Complete
TOTAL	\$446,000	\$223,000	

	TOTAL COST (100%)	MNR (50%)	STATUS
2004/2005			
G. Ross Lord Dam Risk Assessment & Emergency Plan Update	\$20,000	\$10,000	Underway
Small Dams and Flood Control Channels - Assessment of Major Maintenance	\$50,000	\$25,000	Underway
Claireville Dam Borehole Drilling and Piezometer Installation	\$50,000	\$25,000	Complete
Claireville Dam Risk Assessment & Emergency Plan Update	\$20,000	\$10,000	Underway
G. Ross Lord Dam Review of OMS Manual	\$20,000	\$10,000	Underway
York Mills Channel Maintenance	\$10,000	\$5,000	Underway
51 Col. Danforth Trail Gabion Basket Replacement	\$80,000	\$40,000	Complete
Bluffers Park - WHP 1 Headland Repair	\$25,000	\$12,500	Complete
Stouffville Dam Spillway Valve Maintenance	\$10,000	\$5,000	Complete
G. Ross Lord Dam Electrical Upgrades	\$50,000	\$25,000	Underway
Black Creek Flood Control Channel Repair	\$6,000	\$3,000	Complete
Don Mills & York Mills Channel Repair	\$150,000	\$75,000	Underway
Marie Curtis Park Gabion Basket Replacement	\$60,000	\$30,000	Complete
G. Ross Lord Dam Hazard Signage	\$5,000	\$2,500	Underway
G. Ross Lord Dam Safety Boom Installation	\$10,000	\$5,000	Underway
Claireville Dam Hazard Signage	\$5,000	\$2,500	Underway
Claireville Dam Safety Boom Installation	\$10,000	\$5,000	Underway
TOTAL	\$581,000	\$290,500	

	TOTAL COST (100%)	MNR (50%)	STATUS
2005/2006			
Portico Drive Structural Assessment	\$5,000	\$2,500	Underway
Warden & St Clair Gabion Basket Replacement	\$85,000	\$42,500	Underway
Highland Creek Confluence Repair	\$25,000	\$12,500	Underway
345 Beechgrove Gabion Basket Replacement*	\$400,000	\$200,000	Proposed
Yvonne Public School Retaining Wall Reinforcement*	\$20,000	\$10,000	Proposed
Westleigh Crescent Gabion Basket Replacement*	\$80,000	\$40,000	Proposed
Black Creek Channel Concrete Rehabilitation*	\$153,000	\$76,500	Proposed
Black Creek Channel (2) Concrete Rehabilitation*	\$68,500	\$34,250	Proposed
Claireville Dam Mechanical Repairs*	\$45,000	\$22,500	Proposed
Claireville Dam Systems Operations Repairs*	\$6,000	\$3,000	Proposed
Claireville Dam Safety Repairs*	\$2,000	\$1,000	Proposed
G. Ross Lord Dam Mechanical Repairs*	\$26,000	\$13,000	Proposed
G. Ross Lord Dam Electrical Repairs*	\$18,000	\$9,000	Proposed
G. Ross Lord Dam Safety Repairs*	\$11,000	\$5,500	Proposed
G. Ross Lord Dam Structural Repairs*	\$8,000	\$4,000	Proposed
Milne Dam Safety Repairs*	\$19,000	\$9,500	Proposed
Stouffville Dam Safety Repairs*	\$26,000	\$13,000	Proposed
Stouffville Dam Structural Repairs*	\$5,000	\$2,500	Proposed
TOTAL	\$1,002,500	\$501,250	
GRAND TOTAL	\$2,029,500	\$1,014,750	

* pending confirmation of approval

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Nick Saccone, Director, Restoration Services

RE: **THE CITY OF TORONTO VALLEY AND SHORELINE REGENERATION
PROJECT, 2002 - 2006**

KEY ISSUE

Staff has prepared a prioritized list of erosion sites potentially requiring remedial measures under the City of Toronto Valley and Shoreline Regeneration Project, 2002 - 2006.

RECOMMENDATION

IT IS RECOMMENDED THAT the list of prioritized erosion monitoring sites under the City of Toronto Valley and Shoreline Regeneration Project, 2002 - 2006 be received for information.

BACKGROUND

The goal of the City of Toronto Valley and Shoreline Regeneration Project is to minimize the hazards to life and property that results from erosion of riverbanks, valley walls and shoreline, while protecting and enhancing the natural attributes of the valleys and Lake Ontario waterfront.

At present there are nineteen (19) sites on our waterfront and valley land erosion priority lists where staff recommended that remedial measures be considered by the Toronto and Region Conservation Authority (TRCA), as shown in Tables 1 and 2. At risk at these sites are residential and commercial properties, as well as public infrastructure. In evaluating and assigning priorities for erosion control works, three major factors are considered: the potential effect to structures; valley wall conditions; and river/shoreline action. The potential effect on structures is deemed most important and accordingly is given more weight than the physical and geological conditions associated with the other two factors. Determining the potential effect on structures involves the number, size and types of structure(s) affected. Valley wall conditions considered include: the height; slope angle; vegetative cover; groundwater characteristics; and the soil type and composition. The river and lake action as a factor, considers the present shoreline position, as well as the potential future scouring action.

Table 1
Waterfront Erosion Sites in Order of Technical Priority

PRIORITY	LOCATION	WATERSHED	DETAILS			
			PROBLEM	STRUCTURES AT RISK	SLOPE HEIGHT	SLOPE LENGTH
1	Guildwood Parkway	Lake Ontario	Shoreline and bluff erosion	Nine (9) houses	41 m	160 m
2	26 - 30 Livingston Road	Lake Ontario	Bluff erosion	Townhouses, parking lot, pool	124 m	270 m
3	1 Midland Avenue	Lake Ontario	Shoreline and bluff erosion	One (1) house	54 m	100 m
4	Meadowcliffe Drive	Lake Ontario	Shoreline and bluff erosion	Twelve (12) houses	57 m	600 m
5	Rosetta McClain Gardens / Lakehurst Crescent	Lake Ontario	Bluff erosion	Pathway, parkland formal gardens	56 m	140 m
6	Gibraltar Point - Toronto Islands	Lake Ontario	Shoreline erosion	Washroom building, parkland, beaches	0.5 m	1.2 km
7	27 - 33 Crescentwood Road	Lake Ontario	Bluff erosion	Three (3) houses	54 m	60 m
8	27 - 37 Springbank Avenue	Lake Ontario	Bluff erosion	Five (5) houses	54 m	60 m
9	Greyabbey Trail	Lake Ontario	Bluff erosion	Two (2) houses	30 m	30 m

Table 2
Valley Erosion Sites in Order of Technical Priority

PRIORITY	LOCATION	WATERSHED	DETAILS			
			PROBLEM	STRUCTURES AT RISK	SLOPE HEIGHT	SLOPE LENGTH
1	121-129 Col. Danforth Trail	Highland Creek	Slope failure, River bank erosion	Four (4) houses	40 m	30 m
2	345 Beechgrove Drive	Highland Creek	Slope failure, River bank erosion	One (1) house	40 m	60 m
3	1220 Sheppard Avenue East	East Don River	Slope failure, River bank erosion	Office building underground parking	17 m	50 m
4	Manitoba Street	Mimico Creek	Slope failure, River bank erosion	Townhouse development	12 m	30 m
5	221 Martin Grove Road	Mimico Creek	Slope failure, River bank erosion	One (1) house	12 m	40 m
6	4 - 8 Atwood Place	Humber River	Slope failure, River bank erosion	Three (3) houses	4 m	40 m
7	24 Bennington Heights	Don River	Slope failure, River bank erosion	One (1) house	30 m	30 m
8	30 - 48 Royal Rouge Trail	Rouge River	Valley wall failure	Ten (10) houses	30 m	200 m
9	222 Blythwood Road	Don River	Slope failure, River bank erosion	One (1) house	20 m	30 m
10	125 Pegasus Trail	Highland Creek	Slope failure, River bank erosion	One (1) house	12 m	25 m

The technical priorities are reassessed during our annual exercise whereby all sites on our inventory list are visited and monitored. This review reflects the dynamics of the erosion processes and the addition of any new sites, ensuring the works we are proposing for a given year are technically addressing the most hazardous sites within our jurisdiction. These priority lists are used in the preparation of our capital budgets and are available to take advantage of other funding opportunities.

The number of extremely hazardous sites has been significantly reduced over the years. This is due to the fact that TRCA has used a priority ranking system to address the severe sites first. The other key aspect to TRCA's success has been the preventative aspect of the program. Through TRCA's plan input and review process and working with our member municipalities, development adjacent to the waterfront and to the valley and stream corridors is reviewed to ensure development is not introduced into potentially hazardous areas.

Valley and shoreline regeneration measures will be analyzed on the basis of financial, technical and environmental cost/benefits. Acquisition will be considered as a viable alternative to remedial works where the proposed works exceed the value of the benefiting property or are not in compliance with the Valley and Stream Corridor Management Program and the Shoreline Management Program.

Any proposed remedial works will be undertaken in accordance to the procedures outlined in the Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects (2002).

Following the major flood event of August 19, 2005, several new erosion sites were brought to TRCA's attention. Staff are currently assessing the extent of damage sustained at both newly identified and existing erosion sites and will re-prioritize the list of sites to ensure that the most hazardous sites are addressed first.

Report prepared by: Moranne Burnet, 416-392-9690
For Information contact: Moranne Burnet, 416-392-9690
Date: September 01, 2005

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Adele Freeman, Director, Watershed Management

RE: DUFFINS CARRUTHERS WATERSHED RESOURCE GROUP
Minutes of Meeting #3/05, June 22, 2005

KEY ISSUE

The minutes of Duffins Carruthers Watershed Resource Group meeting #3/05, held on June 22, 2005, are provided for information.

RECOMMENDATION

IT IS RECOMMENDED THAT the Minutes of Duffins Carruthers Watershed Resource Group Meeting #1/05, held on January 19, 2005, be received.

BACKGROUND

Copies of the minutes of the Duffins Carruthers Watershed Resource Group are forwarded to the Authority through the Watershed Management Advisory Board. These minutes constitute the formal record of the work of the Duffins Carruthers Watershed Resource Group, and serve to keep the Authority members informed of the steps being undertaken to implement A Watershed Plan for Duffins Creek and Carruthers Creek.

Report prepared by: Joanna Parsons, extension 5575
For Information contact: Gary Bowen, extension 5385
Date: August 25, 2005

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Adele Freeman, Director, Watershed Management

RE: **ETOBICOKE-MIMICO WATERSHEDS COALITION**
Minutes of Meeting #3/05, June 16, 2005.

KEY ISSUE

The minutes of Etobicoke-Mimico Watersheds Coalition meeting #3/05, held on June 16, 2005, are provided for information.

RECOMMENDATION

IT IS RECOMMENDED THAT the minutes of the Etobicoke-Mimico Watersheds Coalition meeting #3/05, held on June 16, 2005, as appended, be received.

BACKGROUND

The Terms of Reference for the Etobicoke-Mimico Watersheds Coalition, dated May 2002, and adopted by the Authority at Meeting #5/02, held on May 24, 2002 by resolution #A124/02, includes the following provision:

Section 3.5 - Reporting Relationship

The Etobicoke-Mimico Watersheds Coalition is considered a subcommittee of the Watershed Management Advisory Board. The Watersheds Coalition Chair will report, at least, on a semi-annual basis on projects and progress.

Report prepared by: Joanna Parsons, extension 5575
For Information contact: Chandra Sharma, extension 5237
Date: August 25, 2005

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #4/05, September 23, 2005

FROM: Adele Freeman, Director, Watershed Management

RE: **HUMBER WATERSHED ALLIANCE**
Minutes of Meeting #3/05, July 19, 2005

KEY ISSUE

The minutes of the Humber Watershed Alliance meeting #3/05, held on July 19, 2005, are provided for information.

RECOMMENDATION

IT IS RECOMMENDED THAT the minutes of the Humber Watershed Alliance meeting #3/05, held on July 19, 2005, as appended, be received.

BACKGROUND

The Terms of Reference for the Humber Watershed Alliance, dated December 2003 and adopted by the Authority at meeting #10/03, held on January 9, 2004 by resolution #A289/03, includes the following provision:

3.9 Reporting Relationship

The Humber Watershed Alliance is considered a subcommittee of the Watershed Management Advisory Board. The Watershed Alliance Chair will report, at least, on a semi-annual basis on projects and progress.

Report prepared by: Lia Lappano, extension 5292
For Information contact: Gary Wilkins, extension 5211
Date: August 11, 2005