

Humber River Watershed Plan

Pathways to a Healthy Humber

June 2008

Prepared by:

Toronto and Region Conservation Authority



Acknowledgements

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EXECUTIVE SUMMARY

The Humber River watershed is an extraordinary resource. It spans 903 square kilometers, from the headwaters on the Niagara Escarpment and Oak Ridges Moraine down through fertile clay plains to the marshes and river mouth on Lake Ontario. The watershed provides many benefits to the people who live in it. It is a source of drinking water drawn from wells or from Lake Ontario. Unpaved land absorbs water from rain and snowfall to replenish groundwater and streams and reduce the negative impacts of flooding and erosion. Healthy aquatic and terrestrial habitats support diverse communities of plants and animals. Agricultural lands provide local sources of food and green spaces provide recreation opportunities. A rich human heritage affords links to the past that enrich and inform our lives today. The natural beauty of the forests, meadows, farmlands, wetlands, rivers and creeks provides urban dwellers with solace, renewal and contact with nature.

However, this magnificent resource is under stress from human activities. The Humber Watershed Alliance, formed in 1994 to coordinate and promote activities to improve watershed health, gave the watershed an overall C grade in *Listen to Your River: A Report Card on the Health of the Humber River Watershed, 2007*. This grade was based on an average of the results for 26 indicators of watershed health that illustrate a wide range of conditions: from a very good rating for the protection of significant landforms to a failing grade for stormwater management. Conditions also vary considerably in different parts of the watershed, with generally higher grades in the upper, more rural parts of the watershed, and lower grades in the highly urbanized lower portions. This review of watershed health emphasizes the need to continue working to protect what is valuable and restore what is degraded.

Issues identified in the report card include many harmful effects of urbanization on water balance, water quality, natural cover, aquatic and terrestrial communities, cultural heritage and air quality. These effects include increased surface runoff, more water pollution, greater annual flow volumes in rivers and streams, increased erosion and sedimentation, channel instability, smog, and losses of cultural heritage and biodiversity. All upland forest connections have been severed in the cities of Toronto, Brampton and the southern portions of both Vaughan and Caledon and more natural vegetation is scheduled for removal, according to current urban development plans. Only 25% of the urban area in the watershed has some level of stormwater management. The quality of fish habitat is deteriorating in many of the watershed's streams.

Successes include the 1999 designation of the Humber as a Canadian Heritage River, recognizing its importance in the history of First Nations peoples, the early Euro-Canadian explorers and settlers of Upper Canada as well as its contribution to the development of the country. Provincial initiatives including the *Niagara Escarpment Act*, *Oak Ridges Moraine Conservation Act*, *Greenbelt Act*, *Places to Grow Act*, *2005 Ontario Provincial Policy Statement*, *Ontario Heritage Act* and the recently adopted *Ontario Regulation 166/06* for conservation authorities all provide increased protection for landforms, environmental and cultural resources and agricultural lands. In addition, many protection, stewardship and regeneration projects have been implemented. Over 400,000 trees and shrubs were planted and 8.8 hectares of new wetlands were created in the watershed between 2001 and 2006. The removal of in-stream

barriers is allowing rainbow trout, brown trout and salmon to access spawning grounds in the Humber River. The recent creation of the Oak Ridges Corridor Park in Richmond Hill is protecting 428 hectares of land from development and retaining the last remaining natural linkage between the western and eastern parts of the Oak Ridges Moraine.

The Humber watershed will experience further, major changes in land use over the next few decades. Approved official plans allow for an additional 8845 hectares of new urban lands beyond 2002 land uses, increasing the amount of the watershed that is urbanized from 27% to 36%. Once these plans are implemented, there will probably be further development in some watershed municipalities up to the boundaries of the *Greenbelt Plan* and *Oak Ridges Moraine Conservation Plan*. A large amount of commercial development is projected to occur along the east branches of the West Humber (Brampton and Caledon) and in the Rainbow Creek and Purpleville Creek subwatersheds (Vaughan). The proposed expansion of the 400 series of Provincial highways includes an anticipated extension to Highway 427 through the central part of the watershed. Trends in municipal servicing may result in a shift from groundwater supplies to lake-based water supplies, for example in Kleinburg and King City.

The population size and diversity of the Humber watershed continues to expand. In 2001 (based on census data) there were approximately 670,000 people living in the watershed, an increase of 37% from 1995. Much of this population growth, and associated urban development, has occurred within the City of Vaughan, Town of Richmond Hill and City of Brampton. The growing population and cultural diversity of the watershed may create demands for different types of nature-based recreation and cultural heritage interpretation activities as well as new approaches to community involvement in stewardship and education programs.

What is the role of the watershed plan? The watershed plan is intended to inform and guide municipalities, provincial and federal governments, TRCA, non-governmental organizations and private landowners as they update their policies and practices for environmental protection and stewardship.

This updated watershed plan is part of an adaptive management approach to address these challenges. Since the publication of *Legacy: A Strategy for a Healthy Humber* in 1997, much has been learned about the Humber watershed from monitoring, research and the experiences of watershed partners. This plan updates the watershed management strategies in *Legacy* in light of new information, a stronger scientific foundation and better understanding of the effects of human actions on the ecosystem. There is also a need to respond to a number of recent policy and planning initiatives, including the *Oak Ridges Moraine Conservation Plan*, *Growth Plan for the Greater Golden Horseshoe*, *Clean Water Act*, City of Toronto's *Wet Weather Flow Management Master Plan*, stormwater retrofit studies of other municipalities, and TRCA's vision for The Living City.

The guiding framework for this watershed plan comprises a set of principles and 30 objectives with specific targets for watershed conditions. They address:

- **Environment:** stream form, groundwater, surface water, air, aquatic system, terrestrial system
- **Society:** cultural heritage, nature-based recreation
- **Economy:** land use, resource use

Nine potential future scenarios were developed and examined in relation to existing conditions to provide an understanding of how the watershed might react to changes in land use and environmental management in the future. This process revealed that if future development proceeds with current approaches to community design and stormwater management, it will not be possible to maintain current conditions, let alone improve them. Instead, there will be additional deterioration of environmental conditions, biodiversity and damage to infrastructure and property. Further, the analysis showed that even if the most innovative sustainable community measures are applied, this deterioration cannot be completely prevented throughout the watershed. The anticipated effects of climate change may exacerbate these concerns.

The pathway to a healthier, more resilient watershed that emerged from this analysis is based on a comprehensive and inter-dependent set of strategies that will protect and enhance valued resources, regenerate damaged systems, and build more sustainable communities. This will help to increase the resilience of natural systems to human activities and climate change. It will also create healthier places for people and wildlife and stronger support for economic activities.

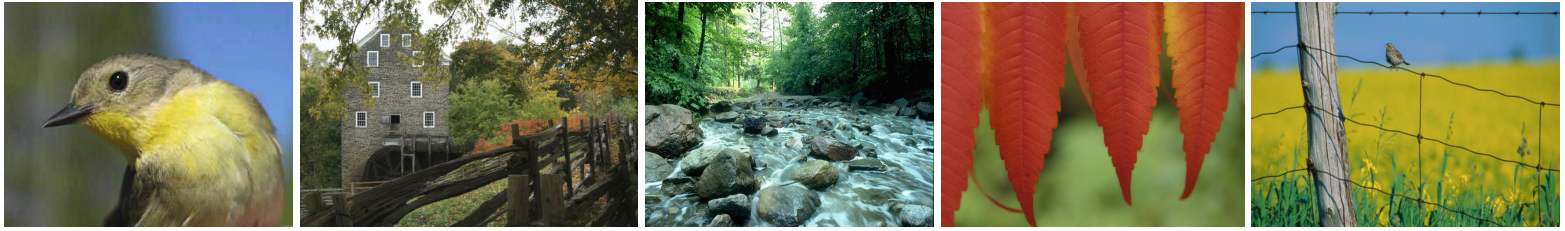
The recommended management strategies fall into three broad categories:

- 1) **Protect and expand the terrestrial natural heritage system:** Figure 5.2 illustrates an expanded natural heritage system that provides multiple benefits, including biodiversity and habitats, water balance maintenance and restoration, opportunities for nature-based recreation, carbon sequestration, improved quality of life, and greater resilience to urban growth and climate change. This system can be accomplished by protecting existing valued assets, securing additional lands, regenerating degraded areas, and improving stewardship of public and private lands. The first priority is the lands in the potential greenfield development areas outside the Niagara Escarpment, Oak Ridges Moraine and Greenbelt. The second priority is the protected countryside areas of the *Greenbelt* and *Oak Ridges Moraine Conservation Plans* and the rural area of the *Niagara Escarpment Plan*; and the third priority is in natural core and linkage areas of the *Oak Ridges Moraine Conservation Plan* and natural areas of the *Niagara Escarpment Plan*.
- 2) **Build sustainable communities:** More sustainable approaches to urban form, infrastructure, transportation and resource use are proposed in order to contribute to increased environmental integrity and quality of life. They should be applied to new communities, as well as to the intensification or redevelopment of existing ones. Some of the key features include reduced imperviousness, rainwater harvesting and other measures to maintain or restore predevelopment water balance, design features to facilitate sustainable choices (e.g. energy conservation, reduced vehicle use, support for local agricultural products) and protection and adaptive re-use of cultural heritage features. Erosion and sediment control practices must be improved to protect watercourses, especially in areas of intense urban growth. Development should be designed to proceed at a pace and extent that allows sufficient time to adopt, test and evaluate the effectiveness of new technologies and to make adjustments if the results do not meet the objectives and targets for the watershed.

- 3) **Recognize the distinctive heritage of the Humber through an enhanced regional open space system:** The Humber watershed has the basis for a significant, linked regional open space system including inter-regional trails, conservation areas, major municipal parks, and cultural heritage features and landscapes. Greater collaboration is needed between public and private sector partners to improve links between nature-based recreation and cultural heritage destinations and experiences and to facilitate better planning and management of the system. This system should be further developed to reach its potential to provide experiences for a growing population and support healthy communities, interpretation of natural and cultural heritage, links with local neighborhoods and connections to surrounding watersheds and regions. The status of the Humber as a Canadian Heritage River is a remarkable designation that should be promoted. Completion of a contemporary trail along the historic Carrying Place portage route that follows a spectacular river valley system would help to highlight and connect people with the natural and cultural heritage assets of the watershed.

To accomplish the management strategies, a **collaborative, integrated approach** is required. This begins with increased awareness to ensure that watershed residents, businesses, developers and agencies understand the importance of the watershed, its water cycle, natural systems and cultural heritage. The coordinated efforts of government agencies and community leaders must be applied to plans and policies, permits and regulations, enforcement, infrastructure operations and maintenance, stewardship and regeneration programs, and education and awareness initiatives.

Many challenges lie ahead on the pathway, but a **healthy, sustainable Humber watershed** is within reach. This plan shows that a “business-as-usual” approach to future development will result in continued losses of environmental quality, biodiversity and cultural heritage, along with considerable costs to address the health, social and economic consequences of degraded environmental conditions and damaged infrastructure and property. Instead, there are opportunities to create a better future, with healthy natural systems and a rich natural and cultural heritage, supporting a high quality of life for our communities. With the guidance offered in this plan, a concerted effort by all watershed partners can bring these opportunities to fruition.



Humber River Watershed Plan Implementation Guide

June 2008

Prepared by:

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We look forward to working with these and many other partners in implementation ...



Executive Summary

Introduction

The *Humber River Watershed Plan – Pathways to a Healthy Humber (2008)*, was prepared by the Toronto and Region Conservation Authority (TRCA), in partnership with municipal, provincial and federal government representatives and other stakeholders including the Humber Watershed Alliance. The Watershed Plan provides guidance to local, regional and provincial governments and TRCA as they update their policies and programs for environmental protection, conservation, and restoration within the contexts of land and water use, and the planning of future development. It also provides direction to local non-governmental organizations and private landowners with regard to best management practices and opportunities for environmental stewardship. The Watershed Plan is based on a strong understanding of current conditions developed through analysis of environmental monitoring information, combined with leading edge approaches to predicting potential future conditions that involved modelling and expert input. A series of management summit workshops were also held to develop recommendations that address key watershed management issues.

The Watershed Plan shows that a “business-as-usual” approach to future development will result in continued losses of environmental quality, biodiversity and cultural heritage, along with considerable costs to address the health, social and economic consequences of degraded environmental conditions and damaged infrastructure and property. A healthy, more resilient Humber watershed that supports a high quality of life for our communities is within reach only if opportunities to protect and restore healthy natural systems, build more sustainable communities, and enhance the regional open space system are acted upon.

Purpose of the Implementation Guide

The purpose of this guide is to facilitate implementation of the recommendations contained in the *Humber River Watershed Plan* by planners, consultants, managers, businesses, community groups, residents and other watershed stakeholders. The Guide organizes the Watershed Plan recommendations according to relevant implementation tools (Policy; Regeneration; Land Securement; Stewardship and Education; Operation and Maintenance; Enforcement; and Monitoring) and assembles additional information to inform initial action. The Guide outlines a 10 year work plan of implementation projects, within the context of existing programs and likely implementing partners. Like the Watershed Plan, the Implementation Guide is intended to guide on-going implementation and updating or development of programs and policies. The proposed projects contained in this Guide are meant to serve as a basis for discussion among implementing partners and as a source of ideas for further development of individual partners’ own long term work plan and budget preparations.

Strategic Watershed Management Direction

The *Humber River Watershed Plan* concludes that the watershed is at a critical crossroads in that it continues to support many unique natural and cultural heritage values, and yet a number of present and anticipated stresses will challenge the ability to sustain present conditions. The Watershed Plan identifies three strategic management directions for the protection and enhancement of the watershed:

1. Protect and expand terrestrial natural cover.

Protect, restore and enhance natural cover in a target terrestrial natural heritage system. This action is especially important in areas upstream of existing and future urban growth, from a water management and erosion control imperative, and for parts of the target system vulnerable to loss or impact from urban growth, from a habitat biodiversity standpoint. It will also contribute to serving the growing demand for nature-based recreation and provide greater resilience to climate change. Land use policy, regeneration and land securement projects are the primary implementation mechanisms to achieve this set of recommendations.

2. Build more sustainable new communities and retrofit older ones to improve their sustainability
by improving water management and promoting more sustainable practices overall.**a) *Improve Water Management***

Manage for pre-development water balance (i.e. runoff volume control and maintenance of infiltration) by protecting natural heritage systems, naturalizing urban landscaping, using innovative lot level and conveyance stormwater management technologies, and rain harvesting. This set of actions is critical to water management and the associated health of the aquatic system.

b) *Promote Sustainable Practices Overall*

Facilitate the use of these innovative water management approaches by promoting improved urban form, green buildings and sustainable behaviour, and at the same time address a broad range of other objectives for the sustainable community. Of particular interest is the need to accelerate the shift to the adoption of more sustainable practices – through education/awareness, testing, and demonstrating new technologies. A co-ordinated combination of new policies, “retrofit” type regeneration projects, improved operations and maintenance programs, stewardship, education, and monitoring initiatives will be necessary.

3. Recognize the Humber’s distinctive heritage through an enhanced regional open space system.

Further develop the regional open space system to support healthy communities and a growing population by securing additional lands for greenspace, expanding the trail network, and creating new opportunities for interpretation and celebration of natural and cultural heritage. Promote the distinctive experiences of the hills of the headwaters, kettle lakes and Humber valley wilderness as part of marketing campaigns for local businesses and attractions. Cultural heritage features and landscapes are increasingly playing a role in recreation (e.g. rural heritage settings, adaptive re-use of heritage buildings) and opportunities to integrate them with the regional open space system should be considered. Active and participatory education programs were identified as a strategic means of engaging the public and raising awareness of these issues and several regeneration capital works initiatives have been identified to address this set of recommendations.

Top Priority Implementation Projects

This Implementation Guide outlines a 10 year work plan of implementation projects addressing all recommendations of the Watershed Plan, and is organized according to primary implementation mechanisms:

- Policy;
- Regeneration;
- Land Securement;
- Stewardship and Education;
- Operations and Maintenance;

Enforcement; and
Monitoring.

The following list of top priority implementation projects and actions has been selected with consideration for their collective ability to address the three strategic management directions noted above, in an expeditious and mutually supportive way. They are not listed in any particular order. The reference numbers in brackets (i.e. 1-8) are the respective project numbers, as listed in the implementation work plan tables within the Guide, where additional information is provided.

Policy and Related Special Studies

1. Municipalities and TRCA should work together to investigate ways to incorporate the following **new policy directions** into their planning documents (see **Table 1.1** for details and Table 1.2 - project 1-1):
 - a) Identify a **target terrestrial natural heritage system** (TNHS) based on the system recommended in the *Humber River Watershed Plan* and adopt policies to protect and restore natural cover.
 - b) Manage for pre-development **water balance** (i.e. reduce excess runoff volume, maintain or restore natural levels of infiltration and evaporation) with particular emphasis on areas confirmed as **significant recharge areas**.
 - c) Develop strategies and policies to promote **sustainable urban form**, including sustainable infrastructure, transportation and resource use.
 - d) Conduct **Master Environmental Servicing Plans** (MESPs) in a subwatershed context to establish the environmental features, functions and linkages as part of the growth planning process rather than limiting them to political or land ownership boundaries.
 - e) Recognize, maintain and enhance a linked **regional open space system** that provides the basis for recreational experiences of the distinctive natural and cultural heritage of the watershed.
 - f) Conduct **comprehensive flood risk assessment plans** where intensification is proposed in a flood vulnerable area or Special Policy Area.
 - g) Support **stormwater retrofits** in existing developments and redevelopment projects (including road reconstruction).
 - h) Adopt policy to implement the Greater Golden Horseshoe Area Conservation Authorities' **Erosion and Sediment Control Guideline for Urban Construction** and update municipal Erosion and Sediment Control by-laws and Fill by-laws as necessary.
 - i) Adopt policy to recognize and implement the **Humber River Fisheries Management Plan**.
 - j) Support **updated and expanded monitoring** programs, including ambient monitoring, requirements for pre-development baseline monitoring, and the promotion and testing of new technologies and their cumulative effects.
2. ORM Municipalities – recognize the *Humber River Watershed Plan* in their official plans, as required by the **Oak Ridges Moraine Conservation Plan** (ORMCP) (1-7).

3. ORM municipalities and TRCA should prepare a **major development proposal review checklist** that specifies the information to be included in a development application and criteria to determine ORMCP conformity (1-8).
4. MPIR, MMAH, MOE, municipalities, TRCA, AMO, CO, BILD - Establish **development standards for sustainable community design** for application to new development proposals or urban expansions (1-3).
5. TRCA, municipalities and other approval agencies - Develop a strategy/procedure for **streamlining approvals for innovative designs** (1-4).
6. TRCA, BILD, municipality - Promote a **sustainable greenfield neighbourhood demonstration project** (1-5).
7. TRCA – Undertake a continuous simulation and event-based hydrologic modelling study to determine the most conservative approach to sizing SWM ponds for flood control in future growth areas (1-11).
8. TRCA, municipalities – Undertake a scoped economic assessment of the implications of implementing the Watershed Plan integral recommendations, including valuation of ecosystem services, preparation of a methodology for applying the net gain approach, and development of recommendations for applying fairness and equity in implementation (1-18).

Regeneration

1. All partners – **Increase natural cover**: 1) in Oak Ridges Corridor Park, Nashville Resource Management Tract, Bolton Resource Management Tract and Claireville Conservation Area - implement existing restoration plans (2-1); 2) in Whitebelt - prepare restoration implementation plans for the natural heritage system identified in municipal plans and co-ordinate with developers (2-2); and 3) in Headwaters - prepare restoration implementation plans for targeted lands in priority areas and implement prior to urban development (2-3).
2. TRCA, municipalities – **Develop sustainable neighbourhood retrofit action plans** (2-8)
3. Toronto and Vaughan – **Undertake projects identified in stormwater retrofit plans** in Black Creek, Rainbow Creek, Lower Humber and West Humber subwatersheds. Projects in combined sewer areas should be undertaken first (2-9)
4. TRCA, NGOs - Continue restoration work in the **Humber Marshes and Humber Estuary** to increase wetland cover and improve aquatic habitat (2-11).
5. MNR, TRCA, Ontario Streams - **Further modify the eight (8) in-stream barriers** along the main channel between Bloor St. and Highway 401, to improve passage for jumping and non-jumping species, including repairing and improving the Raymore Park Fishway, upon completion of structural and fish passage assessments (2-12, 7-23).
6. Ministry of Culture and partners – **Establish a facility for archaeological artifact storage and document collections** that is accessible to researchers; secure funding for capital and operations (2-22).
7. TRCA, Ministry of Culture, Aboriginal groups - **Increase awareness of the Carrying Place Trail heritage** by creating educational resources (e.g. book, video, webpage) and interpretive signs on contemporary trails (2-23).

Land Securement

1. TRCA – **Update priority list for land securement** within the Humber watershed based on the Humber River Watershed Plan's recommended priorities within the TNHS and for further development of the system of inter-regional trails and public greenspace (3-1, 3-4).
2. TRCA and municipalities - Work with MPIR to investigate mechanisms, as may be necessary beyond planning measures, to **secure the target TNHS lands in potential urban growth areas** (i.e. "whitebelt") that do not have any legislated protection from urban development (estimated to be 446 hectares) (3-2).
3. TRCA, municipalities, NGOs – **Secure lands** to establish the missing link in the Humber Trail between Steeles Ave. and Hwy. 7 along the main branch (3-5).
4. TRCA, municipalities, NGOs – Undertake a **land securement strategy** for the proposed East Humber Trail (3-6).
5. TRCA, Municipalities, NGOs – Undertake a study to: confirm the location of the historic Carrying Place trail; **identify a conceptual route for the proposed contemporary Carrying Place Trail** that connects the proposed East Humber Trail to a proposed northern gateway to the Humber greenspace system near Hackett Lake; and develop a strategy for the associated land securement and trail implementation (3.7).

Stewardship and Education

1. TRCA and municipalities – Deliver **technology transfer workshops, seminars and materials** for sustainable technologies, innovative stormwater management, erosion and sediment control, and sustainable urban form (4-1, 4-2, 4-8, 4-9).
2. TRCA, municipalities and others – Develop a co-ordinated program to **accelerate implementation of lot level retrofits** (rain gardens, permeable paving, rain barrels/cisterns and native plant landscaping) in priority areas by the business and residential and institutional sectors including resources for promoting rain gardens (2-8, 4-12, 4-14, 4-21).
3. TRCA, MNR, municipalities, community groups – Co-ordinate the development of educational materials on **invasive species removal** techniques and engage volunteer groups to help in monitoring and removal (4-18).
4. Municipalities, utilities, TRCA – Develop an outreach program based on the results from the *Renewable Energy Road Map* to promote the **uptake of renewable energy technologies** (4-35).
5. Ministry of Education, Boards of Education, School boards, TRCA – Encourage all Boards of Education in the Humber watershed to participate in the **Ontario Ecoschools Program** and schools to achieve certification (4-54).
6. TRCA, NGOs, municipalities - Organize **annual community festivals or events** and provide opportunities to learn about and celebrate the natural and cultural heritage of the Humber River watershed (4-38).
7. TRCA and others – Develop a pilot project for Ontario **history and archaeology seminars for adults**, featuring Humber sites. Special attention to reaching out to new Canadians and descendents of the watershed as target audience (4-42).

8. TRCA and others - Develop a **communications plan** in partnership with Aboriginal groups to identify key groups and contacts, protocols for consultation and opportunities for cultural heritage interpretation, education and awareness programs, storing and viewing of artifacts, and special events (4-51).
9. Municipalities, federal and provincial agencies, institutions and businesses - Adopt a local food procurement policy (4-59).

Operations and Maintenance

1. Municipalities, TRCA – Prepare or update comprehensive stormwater management master plans for enhanced controls and low impact development in existing urban areas and new developments (5-1).
2. Municipalities, TRCA – Develop guidelines for designing and establishing municipal **SWM facility maintenance programs**, including monitoring, rehabilitation and financing mechanisms (5-2, 5-3, 5-4).
3. Municipalities – Conduct assessments of **sediment accumulation in SWM ponds** and develop a prioritized list of clean out projects (5-4).
4. Toronto, Vaughan – Undertake **urban storm sewer outfall studies** to identify high priority sources of bacteria and phosphorus. Focus on Lower Humber and West Humber subwatersheds (5-5).
5. Municipalities – Undertake retrofits of conveyance and end-of-pipe stormwater measures as part of **road reconstruction projects** to provide improved water quantity and quality control (5-6).
6. TRCA – Update the **Claireville Dam operations manual** (5-22).
7. TRCA, municipalities – Undertake an annual proactive program of EA projects to **implement high priority flood risk remediation projects** identified through the TRCA *Flood Protection and Remedial Capital Works Prioritization Project* (5-23).
8. TRCA, municipalities – Prepare **flood emergency response plan** for Special Policy Areas and flood vulnerable areas, including an inventory of hazards, prioritization, and emergency response protocol (5-24).
9. TRCA – **Track advances in the prediction of regional and local climate change** and reassess local flood risks and water management programs (5-25).

Enforcement

1. Various agencies, municipalities - Develop **interjurisdictional compliance protocols** for poaching (wildlife), erosion and sediment control, tree cutting, topsoil and land disturbance, dumping, trespassing, and encroachment). Identify gaps in regulatory capability and capacity. Identify options for addressing gaps. Develop resources and implementation plan (6-2).

Monitoring

1. TRCA and partners - Identify technologies that show promise and monitor their performance using **Sustainable Technologies Evaluation Program (STEP)** – i.e. Rainwater collection and re-use, permeable pavement, groundwater and soil contamination risk with infiltration technologies, etc. and long term performance and maintenance costs of any green technology (7-1, 7-2).

2. TRCA and partners - Launch a **cumulative effects (i.e. effectiveness) monitoring program** to assess the effectiveness of innovative development design in mitigating predicted impacts (7-6).
3. TRCA, municipalities- Review recommendations for additional monitoring in the Humber watershed as part of the 5 year review and **update of the Regional Watershed Monitoring Program (RWMP)** (7-7, 7-11, 7-12, 7-14, 7-17, 7-19).
4. York, Peel, Durham and Toronto – Conduct new gravity survey of Laurentian bedrock channel between Weston Rd. and Jane St. in Vaughan through YPDT Groundwater Management Project (7-13).
5. MNR, volunteers, TRCA - Develop a **volunteer based detection and response program for aquatic invasive species** (i.e. round goby, rusty crayfish) (7-21).
6. MNR, TRCA – Evaluate the **effectiveness of in-stream barrier mitigation** and aquatic species partition barrier projects (7-22).
7. Municipalities – Develop and implement a program to **monitor trail use and participation rates** in other related recreational activities (7-25).

Tracking Progress

TRCA is proposing to convene an annual multi-stakeholder forum to report on progress at implementing the Watershed Plan and confirm priorities for the following year. Particular attention will be given to the status of top priority implementation projects recommended in this Implementation Guide. Other unanticipated opportunities will be considered as well, based on criteria such as partner contributions, expected outcomes and future benefits. Changes and trends in watershed conditions will be monitored through programs such as the Terrestrial Natural Heritage Program and Regional Watershed Monitoring Program. Results will be periodically reported by TRCA with the assistance of the Humber Watershed Alliance through the publication of progress reports, report cards and other appropriate media.