

APPENDIX 'A'

Rouge River Watershed
Boundary in Markham

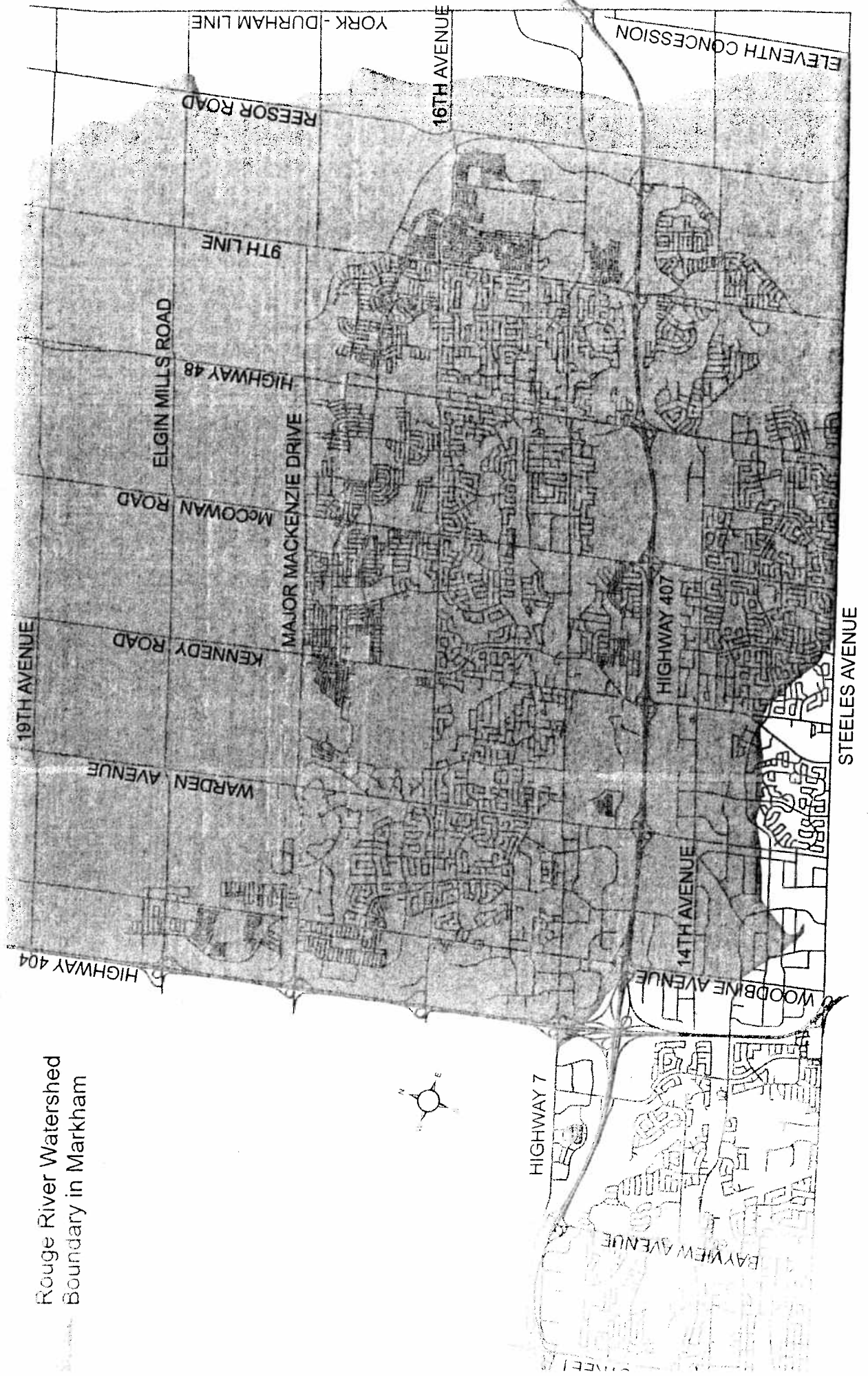


Table 1.1 Top 10 New Policy Recommendations for the Rouge Watershed

Targeted Natural Heritage System	
Overall Policy Direction	► Identify a targeted Terrestrial Natural Heritage System based on the system recommended in the watershed plan (see Figure 1.1) and adopt policies to protect and restore natural cover in the Rouge Watershed from 24% to at least 31% of the land base.
Policy Rationale	► Natural cover provides multiple benefits such as: reducing storm runoff volumes, mitigating climate change, enhancing urban aesthetics and increasing property values, recreational opportunities, increasing biodiversity and improving air quality.
Policy Recommendations	► Identify a targeted natural heritage system for the Rouge Watershed in official plans and adopt policies to protect and restore natural cover.
Secure the targeted system – Rec. 54	► Apply the principle of “net gain” to provide compensatory habitats to replace features and habitats within the NHS that cannot be retained during private development, infrastructure and other public sector projects.
Restore and enhance natural cover – Rec. 60	► Manage the interface of development with the natural heritage system in new and re-developments and infrastructure to enhance natural heritage through completion of Naturalization, Restoration and/or Edge Management Plans.
Manage the matrix – Rec. 66	► Consider integrating into the Terrestrial Natural Heritage System (TNHS) the Potentially Significant Recharge Areas, where they are shown to make an important contribution to the ecological integrity of the TNHS (i.e. where possible, give protection to lands that provide multiple function). ► Stormwater management facilities may be permitted in the “potential natural cover” portion of the target Natural Heritage System provided that they are not located within the Rouge Park boundaries, as defined by the criteria in the Rouge North Management Plan, as delineated in the Rouge North Implementation Guide, and that the MESP or Environmental Impact Statement demonstrate no adverse effects to the ecological integrity of the TNHS and the facility is naturalized to the extent possible. ► All lands deemed to be part of the Terrestrial Natural Heritage System should be dedicated into public ownership through any subsequent applications for development or land use change.
Best Practices for Implementation	► Incorporate design elements into urban developments, including buffers, barrier plantings and trails, which improve the interface of the urban fabric with existing natural areas. ► Require the use of native species in site restoration planting plans and a sign-off by a qualified professional on an “as installed” basis.
Targeted Aquatic Natural Heritage System	
Overall Policy Direction	► All development should aim to manage for water balance on the development site to maintain pre-development volumes of infiltration, evapotranspiration and surface runoff, with particular emphasis on areas identified as having potentially significant recharge.
Policy Rationale	► Current stormwater management practice is to manage for “peak flows”. However, downstream erosion impacts continue to degrade aquatic habitats and alter natural stream-form processes which can put stream-side infrastructure at risk, leading to increased maintenance and repair costs and in some cases, premature failure or replacement. To minimize these risks stormwater management for new development needs to be undertaken on a “volume control” basis that maintains pre-development recharge rates (e.g. Figure 1.2), flow paths and water quality as much as possible. Maintenance of predevelopment recharge rates is especially important in areas identified as significant in sustaining local stream baseflow or regional aquifer levels. (see Figure 1.3)
Policy Recommendations	► Eliminate or minimize increases to runoff volume from new development to avoid erosion impacts to downstream watercourses ► Protect the functions of potentially significant recharge areas for those stream reaches (Robinson Creek, Morningside Creek, Lower Bruce, tributaries to the mid Little Rouge and upper Main Rouge River) that are heavily reliant on local sources of groundwater discharge. ► When establishing land use designations for planned urban boundary expansions, direct open space, natural heritage system or other compatible land uses (i.e. low imperviousness) to areas identified as potentially significant recharge, where possible. ► Undertake hydrological studies and modelling as part of environmental planning associated with large scale development proposals (e.g., through MESP studies for Secondary Plans or block plans) to confirm or refine recharge rates and groundwater flow directions and the significance of their functions in sustaining aquifer water levels, groundwater flow patterns, aquatic habitat (where target species rely on
Identify and protect key recharge and discharge areas as well as subsurface flow direction – Rec. 1	
Protect or enhance	

Table 1.1 Top 10 New Policy Recommendations for the Rouge Watershed

infiltration – Rec. 2	groundwater discharge) and natural heritage systems and features. Require site-specific hydrogeological studies and modelling for major development (i.e., subdivisions, major infrastructure) proposed in areas confirmed through the MESP as significant recharge areas in order to define the local pre-development water balance, establish site-specific water balance criteria that maintain ecological functions and demonstrate how the appropriate proportion of infiltration and evaporation/reuse measures for stormwater management will achieve the water balance objectives established through the MESP studies.
Best Practices for Implementation	- Where significant recharge areas are not present and site conditions do not permit infiltration, alternate measures should be provided to evaporate, transpire or reuse a volume of runoff equivalent to pre-development infiltration plus such additional volume as is required to prevent watercourse impacts. - Following construction, require replacement of an optimum depth of topsoil in pervious areas (e.g. parks, open spaces, yards, etc.), that has been amended with compost, to maintain or increase pre-development soil moisture storage and infiltration capacity and to provide a suitable environment for restoring vegetation, based on stormwater management and vegetation cover targets. - Incorporate a treatment train hierarchy for stormwater management, with increased emphasis on lot level/source and conveyance methods in addition to the traditional end-of-pipe methods, to meet watershed or local objectives for water quality, erosion control, flood control, and water balance. - Minimize the amount of effective impervious surface areas (i.e. impervious surfaces that drain directly to storm sewers). - In planning and design of subsurface infrastructure (e.g. sewers and water mains) avoid areas where the water table is predicted to be shallow (less than 2 metre depth below surface, Figure 1.4). Where construction below the water table is necessary, mitigate impacts on groundwater flow and discharge. - In developments where water table is shallow (less than 2 metres depth below surface, Figure 1.4) convey cool, clean groundwater collected by foundation drains directly to watercourse or wetlands rather than stormwater management ponds, where possible, to avoid contamination and increases in temperature.
Sustainable Urban Form	
Overall Policy Direction	Develop strategies and policies to promote sustainable urban form, including sustainable infrastructure, transportation and energy and resource conservation.
Policy Rationale	To create compact and healthy communities that maximize the efficient use of resources while minimizing the negative community, personal health and environmental effects of energy-intensive sprawling land use patterns.
Policy Recommendations	- Promote and provide incentives to encourage compact, transit-supportive developments that integrate a site's environmental attributes into the site design and which use energy efficiently. - Adopt policies to encourage rain harvesting and use within buildings for non-potable uses. - Develop partnerships between utilities and municipalities to facilitate the use of district energy schemes and renewable energy sources as part of the community design. - Promote residential and industrial grid-tied energy generation capacity using renewable energy sources, with surplus energy purchased by the utility at the market rate. - Implement Regional and City transportation strategies and master plans by undertaking strategic transportation corridor and network planning studies at the MESP stage in order to reduce the number of crossings of streams and other natural heritage corridors, before environmental assessments are undertaken for specific projects.
Implement sustainable urban form – Rec. 71 Implement sustainable infrastructure – Rec. 76 Implement sustainable transportation – Rec. 80	
Best Practices for Implementation	- Incorporate green building design such as green roofs and solar panels - Orient buildings to maximize sunlight, passive solar energy, wind shelter and natural ventilation - Incorporate landscaping to reduce energy needs - Integrate dual plumbing to use rain water for toilet flushing or irrigation, especially where abstraction is desirable to meet water balance

Table 1.1 Top 10 New Policy Recommendations for the Rouge Watershed

	objectives. ▶ Promote standards or certification programs such as LEED for neighbourhoods or Green Globes ▶ Secure additional public lands or make multiple use of public recreation lands for infiltration and stormwater management to complement lot level practices (e.g., along road rights of way, along trails, in parks and open space, on municipal properties) ▶ Require use of water conservation practices (e.g., ultra low flush toilets, low flow shower heads, rain sensor switches for automated irrigation systems). ▶ Require new homes to meet at a minimum standards such as Energy Star certification requirements or an EnerGuide rating greater than 80. ▶ Require Environmental Management Plans for major infrastructure at the detailed design stage to serve as a due diligence and adaptive management tool for mitigation measures during construction based on observed vs. predicted impacts ▶ Minimize the amount of impervious surface area including reduced street widths in low-traffic areas, innovative road network designs, shared and underground parking, etc. ▶ Make provisions for near urban agriculture and community gardens.
Environmental Servicing Plans (MESP)	
Overall Policy Direction	▶ Require MESP to be undertaken in conjunction with planning for major urban development such as block plans or secondary plans. The minimum study area of MESP should be the subwatershed scale, considering cumulative as well as upstream and downstream effects of all proposed development in the study area.
Policy Rationale	▶ Sustainable community planning and development requires that the environmental systems framework and the functional relationship and interdependencies of the water resources system and the natural heritage system be scientifically understood and commitments made to maintain, restore or enhance the systems before development proceeds. The subwatershed and in some cases the watershed represent the appropriate scale for investigating these relationships and the potential effects of the proposed development. As the key tool for determining development form in relation to the natural system and environmental servicing infrastructure, MESP identify features, functions and linkages and define protection and mitigation measures to address watershed policy recommendations such as those listed in the other sections of this table.
Policy Recommendations	▶ Major urban development will only be approved upon satisfactory completion of an MESP, based upon a study terms of reference pre-approved by the municipality and TRCA. ▶ The minimum study area of MESP should be the subwatershed scale. ▶ The MESP will generally include water resource system studies to address and confirm: • groundwater recharge and discharge areas, flow rates and flow paths; • aquifer vulnerability; • water balance; • flood and erosion risks and controls; • geomorphic analysis to identify least risk areas for infrastructure stream crossings; and • a conceptual water management strategy describing the stormwater drainage design including source, conveyance and end-of-pipe measures to be utilized in proposed developments including approximate locations and preliminary sizing. ▶ The MESP will generally include terrestrial natural heritage system studies to address and confirm: • The extent and composition of the existing natural heritage system; • How the Target Terrestrial Natural Heritage System may be refined and implemented based on locally identified opportunities, the most current field data and the application of the Rouge North Management Plan ecological criteria • The functional relationship and interdependencies of the water resources system and the natural heritage system.

Table 1.1 Top 10 New Policy Recommendations for the Rouge Watershed

	▶ The MESP should also address at the appropriate level of detail: • Implementation of transportation strategies and servicing master plans relative to minimizing the number of crossings of the natural heritage system and stream corridors and minimizing interference with significant recharge areas; • Establishment of the pre-development baseline monitoring program; and • Cultural heritage and archaeological investigations and consultation requirements. • Conceptual trail routes.
Best Practices for Implementation	▶ Identify and map the water and natural heritage features, functions and a recommended system that should be restored, enhanced and protected. ▶ Identify sensitive or significant areas where further detailed study is required in order to establish criteria for development and a suite of potential mitigation measures. ▶ Establish criteria and targets for urban stormwater management including recommendations for measures needed to achieve water balance. ▶ Establish a monitoring program to inform future adaptive management needs. ▶ Identify significant stream corridors where natural heritage objectives require optimum design and opening size of crossings to minimize impacts to terrestrial, aquatic or geomorphic function.
Regional Open Space System	
Overall Policy Direction	▶ Recognize and promote a regional open space system based on the distinctive natural and cultural heritage resources of the watershed that provides the basis for a linked system of countryside and urban wilderness park recreational experiences (see Figures 1.5, 1.6 and 1.7).
Policy Rationale	▶ The Rouge watershed contains a variety of cultural sites and natural heritage areas that should be linked into a co-ordinated network of landscape-based experiential and accessible recreational opportunities that provide compatible employment for home-based businesses and local residents.
Policy Recommendations	▶ Develop a recreation strategy for the Northern Countryside which incorporates rural and agricultural-based land uses, identifies scenic corridors and associated landforms and establishes official plan policies to conserve landforms and associated ecological functions, cultural heritage landscapes and scenic vistas. ▶ Adopt standards of practice for public use operators, such as environmental management systems for public agencies, Audubon Program or equivalent for golf courses, and parks and Environmental Farm Plans for agri-tourism businesses where these uses are adjacent to the Natural Heritage System in order to maintain or enhance the NHS. ▶ Prepare archaeological master plans. ▶ Investigate and conserve cultural heritage through an MESP process prior to changes in land use, including development, trail creation and reforestation, in accordance with the requirements of the Ontario Heritage Act (2005) and designate as appropriate in official plans.
Increase opportunities for public enjoyment that are compatible with, and raise awareness of, the Watershed's natural and cultural heritage – Rec. 96 Develop a recreation strategy for Northern Countryside – Rec. 99 Protect urban wilderness experience of Rouge Park – Rec. 100 Investigate and conserve cultural heritage prior to land use change – Rec. 106	

Table 1.1 Top 10 New Policy Recommendations for the Rouge Watershed

Best Practices for Implementation	▶ Prevent incompatible uses in proximity to the wilderness portions of Rouge Park (Figure 1.5) and associated natural and cultural heritage landscapes (Figure 1.6). ▶ Dedicate lands for public trail purposes through the planning process (see Figure 1.7). ▶ Recognize specific cultural heritage landscapes in municipal official plans (e.g., countryside roads such as 14th Avenue, Reesor Road and Twyn Rivers Drive, agricultural communities, clusters of century homes and 20th century ethnic architecture). ▶ Incorporate heritage buildings and their contextual surroundings (i.e. an appropriate buffer) into proposed developments ▶ Employ avoidance or mitigation measures for the protection of cultural heritage resources, including: • Alternative development approaches • Isolating development and site alteration from significant built and natural features and vistas • Design guidelines that harmonize mass, setback, setting and materials • Allowing only compatible in fill and additions • Reversible alterations • Buffer zones, site plan control, etc. (See Ministry of Culture. 2005. <i>Heritage Resources in the Land Use Planning Process</i>) ▶ Protect First Nations archaeological sites as green spaces with limited investigative excavations. ▶ Maintain the heritage character of Cedar Grove through designation as an historic area and development of interpretive programs.
Protective Flood Risk Assessment Plans	
Overall Policy Direction	▶ Conduct comprehensive flood risk assessment plans where intensification is proposed in a flood vulnerable area (FVA) and/or a Special Policy Area (SPA; see Figure 1.8).
Policy Rationale	▶ To maintain or decrease the existing level of risk where intensification is proposed in flood vulnerable areas and/or Special Policy Areas. Notwithstanding the provincial direction for SPAs in the Provincial Policy Statement, there is still pressure for new development in FVAs and SPAs and this trend is expected to continue with implementation of the Growth Plan.
Policy Recommendations	▶ Where a change in land use is proposed in a flood vulnerable area and/or a Special Policy Area that would lead to intensification, the municipality should work with the proponent, TRCA, and the Province (where applicable) to conduct a comprehensive risk assessment plan that would maintain or decrease the existing level of risk and detail flood remediation, flood proofing, flood warning, and emergency response measures.
Best Practices for Implementation	▶ Prior to secondary plan approval, undertake as part of an MESP, an updated hydrologic and hydraulic study at the appropriate scale (subwatershed) to evaluate the effects on potential future flooding and to confirm the level of stormwater management control required.
	▶ Support flood risk reduction programs to improve hydraulic capacity of road and rail crossings in flood vulnerable areas and identify prioritized remediation plans.
	▶ Use a treatment train hierarchy for stormwater management practices to ensure no increase in pre-development peak flows, based on the most recent hydrologic and hydraulic studies.
	▶ See also Section 5 (O & M of this Implementation Guide)
Supportive Retrofits in Existing Developments and Redevelopment Projects	
Overall Policy Direction	▶ Support retrofits of source/lot level, conveyance and end of pipe storm water management measures in existing developments and redevelopment projects on a comprehensive basis.
Policy Rationale	▶ To develop and implement co-ordinated plans to improve stormwater quality and manage quantity on a "volume control" basis in urban areas where controls are either absent or do not meet current standards.
Policy Recommendations	▶ Existing developments and redevelopment projects with outdated or absent stormwater controls should be retrofitted to the degree possible, to incorporate a treatment train hierarchy with source, conveyance and end-of-pipe measures to provide water quality treatment, erosion

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retrofits in existing urban areas – Rec. 20	control, flood control and address water balance objectives. ▶ When planning for major redevelopment within the built boundary to meet provincial intensification targets (including road expansion or reconstruction projects) stormwater management plans should be prepared and retrofits designed in an integrated and comprehensive manner.
Best Practices for Implementation	▶ Stormwater management plans for redevelopment projects should be undertaken in consultation with TRCA. ▶ Incorporate stormwater management measures that meet multiple objectives (e.g. water quality, erosion control, etc.) and require minimal land areas. ▶ Untreated stormwater run-off from external existing developments should be treated, to the extent possible, in redevelopment projects. ▶ Where infiltration opportunities are limited, stormwater management plans for re-development projects should include other practices to address water balance objectives for the reduction of runoff volume, including replacement of an optimum depth of topsoil, naturalization of landscaped areas, rain gardens, rain harvesting and green roofs, especially on commercial/industrial/institutional properties with extensive impervious surfaces.
6. Erosion Prevention & Sediment Control	
Overall Policy Direction	▶ Adopt the Greater Golden Horseshoe Conservation Authorities' Erosion & Sediment Control Guideline for Urban Construction and update municipal Erosion and Sediment Control by-laws and Fill by-laws as necessary.
Policy Rationale	▶ Current guidelines and enforcement have not been adequate to prevent degradation of watercourses and fish habitat from sedimentation from construction sites.
Policy Recommendations Improve erosion and sediment control and site restoration – Rec. 11	▶ Require adherence to the Greater Golden Horseshoe Conservation Authorities' Erosion & Sediment Control Guideline for Urban Construction, as amended from time to time. ▶ Update municipal Erosion and Sediment Control by-laws and Fill by-laws to current standards. ▶ Restrict topsoil stripping until draft approval.
Best Practices for Implementation	▶ Ensure appropriate erosion prevention and sediment controls are in place prior to topsoil stripping. ▶ Improve construction management practices by developers by adopting a "M.O.R.E." approach to erosion prevention and sediment control – Multi-barrier; Ongoing process; Regular inspection; Education. ▶ Phase topsoil stripping to smaller geographic areas and require site stabilization/re-vegetation as soon as possible. See also Section 6 (Enforcement) of this Guide
8. Fisheries Management Plan	
Overall Policy Direction	▶ Adopt policy to recognize and implement the Rouge River Watershed Based Fisheries Management Plan.
Policy Rationale	▶ To ensure the maintenance, protection or enhancement of the fish and aquatic resources of the Rouge Watershed (Figure 1.9).
Policy Recommendations Protect habitat and maintain flow conditions – Rec. 44	▶ Require proponents of land use change to apply the Rouge Park North Management Ecological Criteria to achieve maximum riparian buffer width along a watercourse. ▶ Require proponents of land use change to implement best management practices as documented in the Rouge River Watershed Based Fisheries Management Plan (FMP). ▶ In areas identified in the FMP as habitat for the fish species redside dace, adherence to the recommendations listed for minimum riparian buffer width in the Redside Dace Recovery Strategy (Draft MNR, 2005) should be upheld. The highest level of protection between the two "plans" (FMP/Recovery Strategy) should be applied.
Best Practices for Implementation	▶ Increase and improve natural cover along stream corridors (restoration of riparian areas) and on tableland as identified in the Targeted Terrestrial Natural Heritage System (Figure 1.1). ▶ Apply recommendations of the Rouge River Watershed Based Fisheries Management Plan at the Fisheries Management Zone scale.

Table 1.1 Top 10 New Policy Recommendations for the Rouge Watershed

	► Protect the conveyance and habitat functions of headwater drainage features by maintaining and managing for: • landform and topographical characteristics; • existing surface flow regimes and their seasonal distribution; • the amount and pattern of groundwater contributions (Figures 1.2 and 1.3); and • instream habitat structure (e.g. pool riffle sequences, undercut banks, woody material).
1.2.3.3.3 Adaptive Management	
Overall Policy Direction	► Support updated and expanded monitoring programs, including ambient monitoring, requirements for pre-development baseline monitoring, cumulative effects monitoring and the monitoring of new technologies to assess their contributions to watershed improvements.
Policy Rationale	► Long term, watershed-wide and shorter term site-specific monitoring data are needed to establish baseline conditions, measure impacts from development, assess new technologies and practices and to inform any necessary remedial actions.
Policy Recommendations Monitor, evaluate and adjust – Rec. 40	► Maintain municipal support for ongoing ambient monitoring on a long term basis, as part of the Regional Watershed Monitoring Network, for baseflows, stream flows, groundwater levels, evaporation and precipitation in the Rouge watershed, as baseline data to inform adaptive management. ► As part of the planning process to designate “Whitebelt” lands for urban development, require a minimum of 3 years of monitoring data prior to beginning construction and site alteration in order to establish baseline parameters for ground and surface water, natural heritage, fluvial geomorphology and aquatic systems. ► Require monitoring of the effects of new and retrofitted urban development and stormwater management practices on receiving watercourses and the hydrologic water balance in order to apply adaptive management measures as necessary to adjust the balance of infiltration/evaporation/reuse stormwater management technologies needed to maintain water balance. ► Phase urban developments across the watershed to assess cumulative effects based on pre and post development monitoring and adjust practices in subsequent development phases based on monitoring results. See also Section 7 (Monitoring) of this Implementation Guide.
Best Practices for implementation	► Arrange for third-party verification of technology performance when using new or untested technologies. ► Require developers to provide “as-built” certification to ensure stormwater facilities are constructed properly. ► Require developers to undertake or contribute to compliance monitoring to ensure stormwater management facility performance targets are met. ► Require the preparation of conceptual post-development monitoring plans as a condition of draft plan of subdivision approval to inform adaptive management.

Table 1.2 Policy Initiatives and Special Studies

1-1 = Top priority project		Next Steps, Projects and Programs (lead partner in bold)	
Theme	Rouge Watershed Plan Recommendation (Rec.# as per RWP Appendix F)		
Sustainable Urban Design ► <i>Growth Plan</i> ► <i>Rouge Park</i>	As per section 3.2.6 of the <i>Greenbelt Plan</i>, recognize the <i>Rouge Watershed Plan</i> as a guiding document that builds on and supports the <i>Rouge North Management Plan</i> and <i>Rouge North Implementation Manual</i> – Rec. 118 Ministry of Public Infrastructure and Renewal and all relevant agencies should address the <i>Rouge Watershed Plan</i>'s recommendations through Implementation Analysis & Sub-Area Assessment (s.5.3/p. 35 of <i>Growth Plan for the Greater Golden Horseshoe</i>), in keeping with special status accorded the Rouge lands through the <i>Greenbelt Plan</i>'s section 3.2.6 – Rec. 119. Encourage behavioural shifts and innovative urban design forms that minimize impervious areas, aim to maintain pre-development rates of infiltration, evapotranspiration and surface runoff – Rec. 7 Apply sustainability principles and measures to urban form at all scales – watershed, community, and building site – as detailed in Development of a Sustainable Community Scenario for the Rouge River Watershed (TRCA, 2007) – Rec. 71 Implement sustainable infrastructure – Rec. 76 Implement sustainable transportation – Rec. 80	1-1* Municipalities - should work with TRCA to investigate ways to incorporate the new policy directions into their planning documents (see Table 1.1 of this Implementation Guide for details on the policy directions) 1-2 MPIR - should initiate discussions with municipalities regarding Growth Plan and Sub-Area Assessment. 1-3* MPIR, MMAH, municipalities, TRCA, AMO, CO, BILD - should establish development standards for sustainable community design for application to new development proposals or urban expansions, consistent with the special recognition in the Greenbelt plan for Rouge Park and its watershed. 1-4* TRCA, municipalities and other approval agencies - Develop a strategy/procedure for streamlining approvals for innovative designs. 1-5* Municipality, TRCA, BILD - Promote a sustainable greenfield neighbourhood demonstration project. 1-6 Ongoing – TRCA should develop guidelines for implementing water balance policy directions	✓ ✓ ✓ ✓ ✓ ✓
	Recognize and act on the <i>Rouge Watershed Plan</i>'s recommendations as per section 24 of the <i>Oak Ridges Moraine Conservation Plan</i> which states: "The objectives and requirements of each watershed plan are to be incorporated into the municipality's official plan, and major development commenced after April 23, 2007 is prohibited unless it conforms with the watershed plan." – Rec. 120	1-7* Each ORM municipality - should recognize the Rouge River Watershed Plan in its official plan, as required by the Oak Ridges Moraine Conservation Plan (ORMCP). See also Figures 1.10 (ORMCP land use designation) and 1.11, a compliance review checklist for major development on the ORM. 1-8 ORM municipalities and TRCA - should prepare a major development review checklist that specifies the information to be included in a development application and criteria to determine ORMCP conformity.	✓
	Use the Watershed Plan to support and provide more specific guidance to implement Provincial initiatives – Rec. 117	1-9 Provincial ministries - should use the watershed plan to inform future reviews of relevant legislation and plans such as those for the Oak Ridges Moraine, Greenbelt, Growth Management and the Provincial Policy Statement.	✓

Table 1.2 Policy Initiatives and Special Studies

1-11 = Top priority project

Theme	Rouge Watershed Plan Recommendation (Rec.# as per RWP Appendix F)	Next Steps, Projects and Programs (lead partner in bold)	
Source Water Protection	Address the Rouge Watershed Plan's recommendations in the fulfillment of source water protection planning requirements of the Clean Water Act – Rec. 121	1-10 Ongoing – TRCA to address the watershed plan's recommendations during source protection planning	✓
Flood Control	Undertake an updated hydrologic study to evaluate the effects on flooding of proposed development and to confirm the level of stormwater management control before expanding urban land use boundaries beyond those reflected in the existing Official Plans – Rec. 30	1-11 TRCA, Markham, York - Undertake a study to apply continuous simulation and event-based hydrologic modelling to determine the most conservative criteria for sizing SWM ponds for flood control protection of SPAs and other downstream FVAs) once the expected distribution of land uses beyond Official Plan boundaries is understood. 1-12 TRCA, Markham, York - Update the Rouge River Watershed hydrology model (V. Otthymo) within and downstream of future growth areas (i.e., re-evaluate and adapt flood control criteria, as necessary) once the expected distribution of land uses beyond Official Plan boundaries is understood, to determine the effects of the proposed development on the Regional Flood Event flows and the resulting effect on the Regulatory Flood Plain downstream and confirm the level of control. Undertake a dedicated study for Robinson Creek.	✓ ✓
Pollution Prevention	The Province should: ▶ Develop guidelines for inland fill operations to ensure acceptable fill quality and location. ▶ Adopt policy, criteria and guidelines that address water temperatures and chloride. – Rec. 26 Adopt by-laws limiting the cosmetic use of pesticides (Toronto and Markham have already done this) – Rec. 28	1-13 MOE, partner ministries - Develop guidelines for inland fill operations to ensure acceptable fill quality (chemical and physical parameters) and location. 1-14 MOE, MNR - Develop SWM guidelines for the protection of aquatic systems from changes in water temperature and chloride concentrations. 1-15 Municipalities - Adopt by-laws limiting the cosmetic use of pesticides	✓ ✓ ✓

Table 1.2 Policy Initiatives and Special Studies

[B] = Top priority project

Theme	Rouge Watershed Plan Recommendation (Rec.# as per RWP Appendix F)	Next Steps, Projects and Programs (lead partner in bold)		
Public Access	Develop a plan to achieve a balance between public access and protection of sensitive ecological and cultural heritage resources including: ▶ Policies and guidelines for the phasing out or relocation of public uses that are incompatible with the objectives of this Watershed Plan and Rouge Park's management plans. ▶ Decommissioning of unauthorized trails. ▶ Development of policies and enforcement of regulations for unauthorized or incompatible uses and harmonization of appropriate by-laws among municipalities. Standards of practice for public use operators, such as environmental management systems for public agencies, Audubon Program or equivalent for golf courses, and Environmental Farm Plans for agri-tourism businesses. – Rec. 101	1-16 Rouge Park, TRCA, municipalities - Complete the Rouge Park Heritage Appreciation and Visitor Experience Plan. 1-17 TRCA, Rouge Park, municipalities - Prepare a plan for the rest of the Watershed, including: ▶ baseline study of trail use; ▶ develop method for assessing carrying capacity of the NHS; ▶ establish criteria for triggering development or review of management plans for public greenspace and trails (e.g. criteria for unacceptable impacts on natural and cultural heritage resources or visitor experiences).	✓	✓
Economics		1-18* TRCA, municipalities - Undertake a scoped economic assessment of the implications of implementing the watershed plan's 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.		

Table 2.1 Regeneration Project Priorities

1-1* = Top priority project

Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Implementation Project or Program	Next Steps, Projects and Programs (lead partner in bold)	Notes
Natural Cover Restoration	Increase natural cover to improve water management – Rec. 3, 4, 5, 6	Rouge Park process underway to develop detailed "restoration prescriptions" based on habitat potential, for all areas identified for natural cover restoration in the Park (Rouge Park).	Increase Natural Cover: 2-1* Rouge Park – Rouge Park, NGOs, TRCA - Continue to implement Rouge Park restoration prescriptions, with the following priorities: ▶ South of Steeles Ave. ▶ Little Rouge Corridor ▶ Bob Hunter Environmental Area ▶ East Markham lands	✓
	Increase and improve natural cover along stream corridors and on tableland – Rec. 46	Recovery planning for roadside dace (MNR).	2-2 Whitebell – Markham, York, TRCA - Develop restoration implementation plans (e.g., Habitat Improvement Plans - "HIP"s) for the natural heritage system identified in municipal growth plans to enable implementation of natural cover in advance or concurrently with land development.	✓
	Restore public and private lands to increase the quantity and quality of natural cover; achieve an increase in natural cover by 10% (net 2.4% of watershed or 270 ha) over 2002 levels within 5 years – Rec. 60, 61, 62, 65	Ecosystem recovery planning for the terrestrial system (TRCA) Town of Richmond Hill's Natural Heritage Strategy. Tree Protection Resolution and Private Tree Protection By-law. Town of Markham OPA 140 (Rouge North Management Area/Greenbelt) identifies natural heritage areas to be protected. Markham's "Trees for Tomorrow" tree planting program. Programs that provide funding and other resources include Rural Clean Water Program, Canada-Ontario Environmental Farm Plan, Oak Ridges Moraine Environmental Enhancement Fund, Greenbelt Farm Stewardship Program, TRCA's Private Land Stewardship Programs and City of Toronto Climate Change Strategy. Active NGO programs include those of Friends of the Rouge Watershed, 10,000 Trees for the Rouge, Evergreen, Ontario Streams, etc.	2-3 Headwaters – TRCA, Richmond Hill, Whitchurch-Stouffville, York, NGOs, landowners - Develop restoration implementation plans (e.g., HIPs) for headwater areas in advance of urban growth to enable implementation of natural cover (and its hydrologic benefits) in advance of land development. Initial priorities are: ▶ Upper Rouge/Beaver Creek: North Leslie/Jefferson Forest (pre-development opportunity; urban growth related lands coming into public ownership). ▶ Middle Tributaries (Bruce and Berczy Creeks): West Gormley lands (urban growth related lands coming into public ownership) ▶ Middle Tributaries (Bruce Creek): Bruce's Mill Conservation Area (opportunity of publicly owned land)	✓

Table 2.1 Regeneration Project Priorities

1-1* = Top priority project			
Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Implementation Project or Program	Next Steps, Projects and Programs (least partner in bold)
Natural Cover Restoration (continued)			2-4 TRCA - Develop GIS overlay maps in a convenient electronic format (e.g., Geomatics folder) using the following criteria to refine terrestrial natural heritage implementation priorities and plans at the site scale: ▶ Lands within the target TNHS (Figure 1.1) ▶ Stormwater management needs. ▶ Quantity of existing natural cover in catchments of headwater drainage features drainage to redside dace and brook trout habitat as identified in <i>Rouge River Watershed Based Fisheries Management Plan (RFMP)</i>. ▶ Potentially significant recharge areas (Figure 1.3) ▶ Known opportunity sites for wetland restoration. ▶ Vulnerable habitat patches supporting species of conservation concern in urban or near urban areas ▶ Opportunities to "fill in" deficient patches with increased forest cover ▶ Biodiversity criteria from TRCA Ecosystem Recover Planning project. 2-5 TRCA, Rouge Park, NGOs, landowners - Create and enhance riparian cover where lacking, as detailed in <i>Rouge River Watershed Based Fisheries Management Plan</i>. Co-ordinate with detailed restoration implementation plans noted above. Start with: ▶ Tree cover in brook trout habitat (north of Major MacKenzie Drive in the Upper Rouge, gaps south of Stouffville Road in potential coldwater discharge zones in the Little Rouge); ▶ Overhanging grassy meadow cover in redside dace habitat (Upper Rouge, Bruce Creek, Morningside Creek); and ▶ Create riparian wetland habitat along the upper main channel of the Little Rouge River south of Elgin Mills Road (Little Rouge).

Table 2.1 Regeneration Project Priorities

1-1 = Top priority project

Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Implementation Project or Program	Next Steps, Projects and Programs (and partner in bold)		
Sustainable Community Retrofits	Improve sustainability of development design to maintain pre-development rates of infiltration, evapotranspiration and runoff – Rec. 7, 8, 9	York Region's Sustainability Strategy York's Best Practices for New Communities Discussion Paper	2-6 TRCA , municipalities, landowners - Develop sustainable neighbourhood retrofit action plans using an integrated approach including residential social marketing, naturalization, SWM, infiltration, energy and STEP monitoring. Start with the following subwatersheds: ► Upper Rouge ► Carleton ► Berczy ► Ekhardt	✓	✓
	Implement stormwater retrofits in existing urban areas – Rec. 20, 22, 24 Prevent and reduce the release of pollutants in urban and rural areas – Rec. 25 Naturalize stormwater ponds – Rec. 28 Retrofit existing stormwater management facilities to incorporate water quality and erosion control – Rec. 28	City of Toronto Wet Weather Flow Management Plan Implementation Stormwater retrofit studies of the Towns of Markham and Richmond Hill Leadership in Energy and Environmental Design for Neighbourhood Development (LEED-ND) – in pilot phase Sustainable Pickering Program	See also Section 4 for lot level SW retrofit stewardship projects on residential, business, and institutional lands. See also Section 5 for SW infrastructure maintenance and financing actions.	✓	✓
Aquatic Habitat	Implement lot level stormwater management during new development and retrofit existing developed areas – Rec. 45 Improve stewardship of public and private lands – Rec. 66, 67, 70 Implement sustainable urban form – Rec. 71, 73, 74, 75	City of Toronto Green Development Standard Markham Centre Plan	2-7 Municipalities - Undertake end of pipe retrofit projects, as opportunities arise, as identified in municipal SW retrofit plans. 2-8 Richmond Hill, TRCA - In five years review and reconfirm the need to undertake a sub-watershed, detailed design study for end-of-pipe retrofits and improved stormwater management for Beaver Creek. This initiative should be reviewed in five years following verification of the benefits of all potential retrofit and recommissioning initiatives on Beaver Creek and other subwatersheds, based on additional flow data and new calibrated hydrologic models.	✓	✓
	Protect habitat and maintain flow conditions – Rec. 44 Enhance aquatic habitats using natural channel design principles – Rec. 47 Increase management attention to non-fish components of aquatic systems – Rec. 48 Optimize fish passage for native fish species – Rec. 49	Leslie Tributary Aquatic System Study (TRCA) Implementation of Rouge Park management plans, including programs for: ► Stream restoration work with Ontario Streams, and ► Upland habitat restoration with volunteer groups. Rainbow trout and brown trout stocking program (MNR)	Partners: DFO, MNR, TRCA, Rouge Park, Ontario Streams, municipalities, NGOs In addition to the riparian cover actions noted above: 2-9 Enhance aquatic habitat for target species as identified in the <i>Rouge River Watershed Based Fisheries Management Plan</i> . Examples include: ► Rehabilitate stream channels, especially in Bruce Creek. ► Restore coldwater habitat in the tributary crossing Reesor Road north of Old Finch Ave in Little Rouge.	✓	✓

Table 2.1 Regeneration Project Priorities

1-1* = Top priority project			
Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Implementation Project or Program	Next Steps, Projects and Programs (lead partner in bold)
Aquatic Habitat (continued)	Install/maintain barriers to partition species or exclude invasive species – Rec. 50	Active NGO programs include those of Ontario Streams and Friends of the Rouge Watershed. Town of Richmond Hill's Newberry Park wetland restoration project.	▶ Continue ongoing Rouge Marsh restoration efforts of MNR and Rouge Park. Further instream projects are recommended to be undertaken in conjunction with improved flow management or as opportunities arise in upstream urbanizing areas. 2-10 Mitigate priority fish barriers as identified in the <i>Rouge River Watershed Based Fisheries Management Plan</i>. Start with barriers identified in Bruce Creek, Berczy Creek, and the tributaries along McCowan and Markham roads, north of Stouffville Road.
Flood and Erosion Risks	Manage flood risks – Rec. 29, 32. Inventory erosion risks – Rec. 39	Flood and erosion control programs (TRCA)	See Section 5 on Operations and Maintenance.
Nature-Based Recreation and Trails	Implement an inter-regional trail network, as proposed on the <i>Rouge River Watershed Trails Plan</i> – Rec. 98 Develop a recreation strategy for the Northern Countryside – Rec. 99 Develop a plan to achieve balance between public access and resource protection – Rec. 101	Recreation and trail improvements in the Rouge Park Plan are being implemented by City of Toronto south of Steeles Ave. Plans for Little Rouge Corridor and Bob Hunter Environmental Area are nearing completion. Rouge Park Heritage Awareness and Visitor Experience Plan Rouge Watershed Inter-regional Trails Plan provides conceptual framework. Local and regional municipal trails plans include some inter-regional components (e.g. Markham's Bicycle and Pathways and Trails Master Plan Studies)	2-11 Rouge Park, TRCA, municipalities - Implement recreation and trail improvements in Rouge Park plans. 2-12 TRCA, Rouge Park, municipalities - Undertake detailed planning and develop a long term funding strategy to implement the Rouge Watershed Inter-regional Trails network (see Figures 1.7 and 2.1-2.6 of this Guide). 2-13 Whitchurch-Stouffville, Markham, York, TRCA, Rouge Park - Develop a Northern Countryside recreation strategy. 2-14 Municipalities - Decommission unauthorized trails.

Cultural Heritage	Establish a permanent repository for the storage of archaeological artifacts, with participation by Aboriginal representatives – Rec. 109	Bruce's Mill Management Master Plan Oak Ridges Corridor Park East Management Plan	Partners: TRCA, Ministry of Culture, Aboriginal communities, municipalities, private and avocational archaeologists, Ontario Archaeological Society, Ontario Association of Professional Archaeologists 2-15* Establish a location for archaeological artifact storage, secure funding for capital and operations	✓
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Table 3.1 Securement Projects

1-1* = Top priority project

Theme	RWP Recommendation (Rec. # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)	✓
Securement of Terrestrial Natural Heritage	Secure the targeted system – Rec. 54	Rouge Watershed securement initiatives of TRCA, Rouge Park, municipalities, Nature Conservancy and ORM Land Trust	3-1 TRCA and Rouge Park – should update their priority list for securement within the Rouge Watershed based on the RWP's recommended priorities within the TNHS (see above list). 3-2 Municipalities, TRCA, Rouge Park - Work with MPIR to investigate mechanisms, as may be necessary beyond planning measures, to secure the targeted TNHS lands in the "whitebelt" that do not have any legislated protection.	✓ ✓
Securement of Stream Corridors	Protect stream form – Rec. 36	Secondary plans and plans of subdivision for redevelopment	3-3 Municipalities, TRCA - Seek opportunities to acquire lands in strategic locations to allow stream corridors to evolve naturally, without impacting property or infrastructure.	✓

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project

Theme	Target Audience	RWP Recommendation (Rec. # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (Lead partner in bold)
4.1. Technical knowledge transfer: training workshops, seminars and materials				
Sustainable Technologies	Developers, consultants and builders	Improve sustainability of development design – Rec. 7 Implement sustainable urban form - Rec. 71, 73, 74	Sustainable Technologies Evaluation Program (STEP) includes workshops and materials to disseminate information; led by TRCA; jurisdiction wide.	4-1* TRCA - Consider RWP priorities in preparation of annual training work plans. Deliver in partnership with academia, business, media, trade fairs.
Erosion and Sediment Control	Municipal and CA staff, consultants and contractors	Improve erosion and sediment control and site restoration - Rec. 14	TRCA delivers annual technical workshops in different locations throughout the jurisdiction. e.g., As part of STEP, TRCA hosted a technical workshop on E&SC in March 2007.	4-2* TRCA , municipalities - Continue and expand existing E&SC training program.
Site Restoration and Planting	Municipal and CA staff, consultants and contractors, horticultural industry	Improve erosion and sediment control and site restoration - Rec. 14 Promote stewardship of private and public lands - Rec. 70	TRCA maintains information about local suppliers of native plants (within 50 miles) TRCA's Nursery and Indigenous Plant Propagation Program supplies native trees, shrubs and aquatic vegetation to support Authority regeneration activities across the watersheds. TRCA's Valley & Stream Regeneration Program provides technical planning/design and regeneration implementation services through ongoing funding partnerships with member municipalities. Eligible projects include (but not limited to): ▶ tree and shrub planting for naturalization, ▶ sediment and erosion control, ▶ wetland habitat creation, and ▶ trails.	4-3 TRCA - Maintain current nursery propagation and production of native plants from locally collected seed sources to facilitate TRCA and other partner regeneration/planting initiatives throughout TRCA's jurisdiction. 4-4 TRCA - Maintain and publish an inventory of native plant suppliers. 4-5 TRCA , NGOs - Outreach program to encourage local growers and retailers to grow and stock more native plants.
Invasive Alien Species	Municipal, CA, and Rouge Park staff, nurseries	Reduce occurrence of invasive alien species – Rec. 69		4-6 TRCA , Rouge Park, municipalities - Convene a forum for information sharing on invasive species management techniques and upcoming threats.

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project

Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)	
Sustainable Urban Form	Developers, consultants, builders and media	Implement sustainable urban form - Rec. 71, 73, 75		4-7* Green Building Councils, TRCA, municipalities, BILD, Canadian Urban Institute, NGOs, media - Conduct seminars on LEED (Leadership in Energy and Environmental Design)	✓
Sustainable Purchasing	Home buyers and media	Implement sustainable urban form - Rec. 71, 75		4-8* Green Building Councils, TRCA, municipalities, BILD, NGOs, media ▶ - Conduct seminars for media	✓
Spills Prevention	Municipal staff	Prevent pollution - Rec. 25	Municipal Emergency Management Plans may incorporate spill management plans	4-9 Municipalities - Develop a public education strategy for spills prevention coupled with targeted outreach with industrial sectors (trucking, waste disposal, construction)	✓
4.2. Sustainable urban landscapes					
Healthy Yards	Homeowners and renters, garden contractors	Implement stormwater retrofits - Rec. 22	Healthy yards programs incorporate info re: naturalization; composting, wildlife habitats, chemical free landscaping, invasive species, access by pets, flood risk factors ...etc (multiple delivery agents, e.g. Richmond Hill Healthy Yard and organic lawn Care Programs, Toronto's Urban Forestry and Wet Weather Flow stewardship and outreach program).	4-10 Various partners - Continue existing programs	✓
		Prevent pollution - Rec. 25, 28 Manage flood risks - Rec. 29 Restore and enhance natural cover - Rec. 63 Manage the matrix - Recs. 66, 67, 68, 69, 70		4-11* TRCA, municipalities, NGOs - Develop a strategy for co-ordination of outreach programs and a lot level marketing campaign (with residential, business and institutional lands focus), as part of the sustainable neighbourhood retrofit project (See Section 2 Regeneration). Consider feasibility of expanding GTA wide. 4-12 TRCA, municipalities - Undertake a study to estimate how many people are reached by current communication methods.	✓ ✓

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project

Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)
			communities in the jurisdiction. TRCA's Multicultural Environmental Stewardship Program (jurisdiction-wide) provides: ▶ materials in multiple languages ▶ displays at cultural events ▶ subsidized New Canadian visits to Conservation Areas ▶ research, reports and shared information regarding various religious practices including river offerings and their impact on natural systems. Markham Green Neighbourhoods includes communities in the Rouge Watershed and is delivered by TRCA, Markham, & community partners. Toronto Wet Weather Flow Stewardship and Outreach Program funds community projects including naturalization, stewardship, and public outreach.	4-13 TRCA - Add cultural heritage content to the Multicultural Environmental Stewardship Program
Invasive Alien Species	Homeowners, volunteer groups	Reduce occurrence of invasive alien species – Rec. 69	Municipal invasive species control programs (e.g., City of Toronto's Dog Strangling Vine program, Asian long-horned beetle program, etc.)	4-14* TRCA, Rouge Park, municipalities, NGOs, CFIA - Co-ordinate the development of educational materials on invasive species removal techniques and engage volunteer groups to help in monitoring and removal.
Pollution Prevention	Youth and adult groups, general public	Prevent pollution - Rec. 25, 28	Yellow Fish Road Program teaches people that whatever goes down the street sewer ends up in rivers and lakes. Yellow fish symbol is applied beside the storm drain, door hanger literature distributed to the surrounding homes.	4-15 TRCA, school boards - Continue existing Yellow Fish Road Program
Environmental Stewardship for Businesses and Institutions	Businesses & institutions	Implement stormwater retrofits - Rec. 22	TRCA is initiating an eco-industrial park project in partnership with the GTAA (Greater Toronto Airport Authority) in the Etobicoke and Mimico Creek watersheds OCETA – TRCA partnership for P2 and energy conservation projects.	4-16* Municipalities, TRCA - Implement demonstration projects for SWM retrofit, naturalization and other sustainable practices with the business and institutional landowners (See also sustainable neighbourhood retrofit project in Section 2 and healthy yards outreach programs and marketing campaign above).

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project				
Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)
4.3. Rural lands				
Water Quality and Terrestrial Habitat	Rural land-owners	Prevent pollution - Rec. 26 Manage the matrix - Rec. 70 Provide services for local farm businesses - Rec. 82	TRCA's Rural Water Quality Stewardship Program and Rural Tree and Shrub Program uses GLSF funding to work with farmers across the jurisdiction to provide financial and technical assistance to encourage and promote beneficial management practices on farms, including but not limited to fencing cattle out of streams and proper manure storage. Caring for the Moraine Landowner Contact Program implemented by TRCA with funding from ORMF: provides non-farm rural landowners with technical and financial assistance to implement woodland, wetland and riparian projects on their private property. Target area recently expanded to include Rouge Headwaters. Managed Forest Tax Incentive Program, operated by the Ontario Ministry of Natural Resources for properties > 10 acres	Partners: TRCA, York Region, Rouge Park, OMNR, Great Lakes Sustainability Fund, Oak Ridges Moraine Foundation, Friends of the Greenbelt Foundation, Transport Canada 4-17 Continue existing programs, giving priority to private lands in the "Protected Countryside" zone of the Greenbelt 4-18 Develop a rural stewardship program for farms in the Greenbelt incorporating water quality and tree planting, with a special focus on the riparian zone.
				✓ ✓
Water Quality and Terrestrial Habitat			Rural Tree and Shrub Program operated by TRCA for rural landowners for properties > 2 acres York Natural Planting Partnership for Private Landowners provides site visitation and technical advisory services to assist landowners in achieving environmental objectives through plant material supply and installation. Program is open to qualifying private landowners within the Region of York/TRCA jurisdiction. Projects are accepted and ranked for funding support subject to established criteria. Transport Canada Tenant Stewardship Program	
Environmental Farm Plans	Farmers (landowners and tenants)	Prevent pollution - Rec. 26 Manage the matrix - Rec. 70 Provide services for local farm businesses - Rec. 82	TRCA Rural Water Quality Stewardship Program (see above) staff also visit TRCA owned agricultural lands, interview tenant farmers and prepare an Environmental Farm Plan (EFP) for each property. Most Rouge Park farmlands now have EFPs. Healthy Futures for Ontario Program (OMAF)	4-19 Ontario Ministry of Agriculture and Food, Ontario Soil and Crop Improvement Association, TRCA, Transport Canada, Rouge Park - Continue existing programs, giving priority to private lands in the "Protected Countryside" zone of the Greenbelt, and completing EFPs for the remaining tenant farms in Rouge Park (<5 farms)

Table 4.1 Stewardship and Education Projects

1-1 = Top priority project

Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects, and Programs (lead partner in bold)
Agricultural Sustainability	Farmers (landowners and tenants)	Implement the GTA Agricultural Action Plan – Rec. 81, 82	GTA Agricultural Action Plan implementation programs.	4-20 GTA Agricultural Action Plan Implementation Committee. NGOs (e.g., Friends of the Greenbelt Foundation), TRCA, Rouge Park – Develop work plans to co-ordinate action on those GTA Agricultural Action Plan recommendations noted as having particular relevance in the RWP. See also Section 5 O&M for publicly owned agricultural lands.
Local Food First	Institutions, restaurants, and businesses, and general public News media and general public	Support local food production – Rec. 83	Farmers' markets Food/tourism festivals Programs to increase public awareness of local, sustainable agriculture e.g., Foodland Ontario label. TRCA is introducing an urban agriculture program at Kortright's Living City Campus to raise public awareness of the benefits of local foods.	Partners: Municipalities, regional Federations of Agriculture, restaurant associations, TRCA, NGOs (e.g., Friends of the Greenbelt Foundation), GTA Agricultural Action Committee 4-21 Support local food festivals through partnerships, e.g. Conservation Areas as venues, integrate with existing programs like Maple Syrup Festival. 4-22 Build partnerships with groups already in action promoting local food through the NGO "Friends of the Greenbelt Foundation". See also "Recognition" initiatives below.
4.4. Resource Use				
Water Supply and Conservation	All sectors	Increase water efficiency and conservation – Rec. 88	York Region's Water for Tomorrow program Durham Region's Water Efficient Durham program City of Toronto Water Efficiency Program	4-23 Municipalities - When existing water efficiency programs are updated, consider incorporating: - rain-harvesting, - water efficient native plants for landscaping, - monitoring of water use rates, - pricing incentives, - recommendations from <i>Action Plan for Sustainable Practices</i> to increase participation, partnerships with schools and community groups. Partners: Municipalities, school boards, utilities, BILD, TRCA
Energy and Waste	All sectors	Reduce energy use and increase non-fossil fuel alternatives – Rec. 91	Greater Golden Horseshoe Mayors' Megawatt Challenge TRCA's Sustainable House Demonstration	4-24 Continue with existing programs

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project				
Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)
Energy and Waste (continued)		Reduce waste - Rec. 92	(Kortright Centre) Municipal waste reduction and management programs Renewable Energy Road Map (Ontario wide)	4-25 Promote the development of Municipal Energy Management Plans and where appropriate District Energy Plans 4-26* Develop an outreach program based on the results from the Renewable Energy Road Map to promote the uptake of renewable energy technologies 4-27* Promote the EcoSchools program to all schools in the watershed 4-28 Promote the use of standards such as Energy Star for new homes and LEED for all new buildings
4.5. Interpretation and Education				
Natural Heritage (terrestrial and aquatic)	Local residents, general public, school students, Park and Conservation Area visitors	Improve aquatic system - Rec. 48, 51, 52 Increase opportunities for public enjoyment that raise awareness of the Watershed's natural and cultural heritage - Rec. 96	Existing programs include: ▲ Rouge Park - many interpretive events and materials ▲ York Children's Groundwater Festival ▲ Watershed on Wheels for school students Grades 1-6 provides in-class curriculum-based programming, free of charge, booked to full capacity every school year ▲ Curriculum-based programs at Hillside School, York Region's Outdoor Ed Centre in Markham at Milne Park; RH Crosby PS; Programs ▲ Bruce's Mill CA Environmental Education ▲ Claremont Field Centre and Lake St. George, in nearby watersheds ▲ Citizen Scientist group (volunteers collect fish and invertebrate data) ▲ Town of Richmond Hill Walks on the Wild Side program and proposed Ecological Centre at Oak Ridges Community Centre.	Partners: TRCA, Rouge Park, municipalities, Rouge Valley Foundation, school boards, MNR, Ontario Streams 4-29 Continue existing programs. See also Section 7 on Monitoring for educational benefits of volunteer monitoring. 4-30* Implement the Rouge Park Interpretive Plan.
Natural Heritage		Develop recreation strategy for Northern Countryside - Rec. 99 Protect urban wilderness experience of Rouge Park - Rec. 100 Interpret natural and cultural heritage - Rec. 102		4-31 Develop interpretive program for lower Rouge Watershed and Marsh before connections are made with Waterfront Trail. 4-32 Install educational signage about the marsh ecosystem, angling and fish consumption information at public access points near the Rouge Marsh. 4-33 Identify, develop and promote fish viewing opportunities. 4-34 Install signage about redside dace at Bruce's Mill. 4-35 Install signage to alert public to invasive species threats (aquatic and terrestrial) and how to avoid their spread. Start at the mouth of the Little Rouge.

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project

Theme	Target Audience	RWP Recommendation (Rec.# as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner(s) bold)	
Natural Heritage (continued)				4-36 Work with municipalities to complete formal naming process for all watercourses in Rouge River system. 4-37 Identify opportunities to interpret natural heritage in Northern Countryside. See also Section 2 on Regeneration	✓
Cultural Heritage	Local residents, general public, school students, Park and Conservation Area visitors	Increase opportunities for public enjoyment that raise awareness of the Watershed's natural and cultural heritage – Rec. 96 Develop recreation strategy for Northern Countryside – Rec. 99 Interpret natural and cultural heritage – Rec. 102 Improve celebration of cultural heritage – Rec. 106 Develop active and participatory programs to increase awareness – Rec. 110, 111, 112, 113, 114, 115	Existing programs include: ▶ Rouge Park – many interpretive events and materials, as well as Interpretive Plan and Heritage Appreciation Visitor Experience (HAVE) Plan (expected early 2008) ▶ Stouffville Public Library's lecture series ▶ Markham Museum's and Whitchurch-Stouffville Museum's heritage buildings and landscapes, exhibits, archival material and programming ▶ Ontario Heritage Trust, provincial heritage plaque system ▶ Canadian Heritage site signage ▶ Municipal Heritage signage programs ▶ Others? (signage, publications, participatory programs, museums)	Partners: TRCA, Rouge Park, municipalities (staff and heritage boards), Markham Museum, Whitchurch-Stouffville Museum, Boyd Archaeological Field School, Stouffville Public Library 4-38 Continue existing programs. 4-39 Implement the Rouge Park Interpretive Plan and Rouge Park Heritage Appreciation and Visitor Experience Plan, with an immediate focus on the Cedar Grove area. 4-40* Develop pilot project for Ontario history and archaeology seminars for adults, featuring Rouge watershed sites. Special attention to reaching out to new Canadians and descendants of past peoples of the watershed as target audience. 4-41 Build partnerships to provide learning opportunities and increase awareness of living culture, such as photography, drawing, painting and performance arts. 4-42 Identify candidate Heritage Conservation Districts, including Cultural Heritage Landscapes and areas having multiple properties with cultural significance, for designation under the Ontario Heritage Act, in consultation with Municipal Heritage Boards.	✓ ✓ ✓ ✓ ✓ ✓

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project					
Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)	Yrs 1-5 6-10
Cultural Heritage (continued)				4-43 Provide expertise and resources to local ethnic groups to establish forms of public recognition of their culture (past and present) in the watershed, including First Nations groups, and the Mennonite community as well as other 19 th - 21 st century ethnic communities and influences. 4-44 Develop a toolkit of interpretive materials (static and mobile signage) that promote links between human and natural heritage (e.g., interpretive signs about the influences of human activities on historic and current environments). 4-45 Develop and install signage for communities, streets and public buildings with historic names, trail guides/maps and public art. 4-46 Protect and interpret cultural features that also serve as wildlife habitat (e.g., barn owls shelter in active farm buildings, turkey vultures nest in old silos or barns). 4-47 Build partnerships to enhance "living culture" interpretive and tourism opportunities in the Watershed (e.g., identify architectural assets in need of restoration and look for opportunities to revitalize heritage properties by forming partnerships to increase revenue and find adaptive re-use, such as event facilities, restaurants, community centres, and art centres/performance spaces.)	✓

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project

Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (Lead partner(s) only)	
Aboriginal Heritage (continued)		archival research - Rec. 114		4-49 Continue to research the Rouge River branch of Toronto Carrying Place Trail. 4-50 Determine appropriate teaching sites for archaeological field schools at a Pre-Contact site, with Aboriginal consultation and approval, and on a Post-Contact site, with community consultation and approval, partnered with the TRCA Archaeology Program, the Ontario Heritage Trust, the Ontario Archaeological Society, local school boards, and other stakeholder organizations. 4-51 Identify additional opportunities for TRCA's archaeological field school to contribute to the new (2006) Ontario school curriculum on Aboriginal and pioneer life and develop a sustainable funding plan.	✓
4.6. Recognition Programs					
Sustainable Practices	Residents, businesses, agencies and institutions	Implement sustainable urban form - Rec. 75 Prevent pollution - Rec. 28 Manage the matrix - Rec. 70	Federation of Canadian Municipalities awards for municipalities Rouge Park awards "Conservation Partner" sign provided by TRCA to private rural landowners that participate in stewardship programs Environmental garden awards (Markham, Toronto) Canadian Institute of Planners Ontario Professional Planners Institute Communities in Bloosm Green Building Council Landscape Ontario	Partners: Everyone 4-52 Continue existing recognition programs and ensure that Rouge Watershed projects are profiled where appropriate. Consider establishing "leaders in sustainable practices" award in co-operation with high profile stakeholders and in co-ordination with a business leaders peer outreach program.	✓
Local Food First	Institutions, restaurants and businesses, TRCA, GTA Agricultural Council	Support local food production - Rec. 83	TRCA has adopted a local food purchasing policy for its Food Services.	4-53* Provide profile and recognition for institutions, restaurants and businesses that feature local food selections	✓

Table 4.1 Stewardship and Education Projects

1-1* = Top priority project

Theme	Target Audience	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)	Yes/No
Cultural Heritage	Public	Improve recognition of cultural heritage – Rec. 105	Ontario Archaeological Society – Peggi Armstrong Award for Public Archaeology	4-54 Ontario Archaeological Society - Provide profile for public cultural heritage programs and individuals who promote cultural heritage.	✓

Table 5.1 Operations and Maintenance Improvement Projects

1-1* = Top priority project

Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)	
Stormwater Infrastructure	Maintain stormwater infrastructure – Rec. 23, 24	Performance monitoring undertaken by Richmond Hill has identified "recommissioning opportunities" (i.e., techniques to optimize performance of existing SWM ponds) Southern Ontario Municipal Discussion Group focus on storm water management infrastructure operations and maintenance programs.	5-1* Municipalities, TRCA – Conduct a watershed-wide assessment of sediment accumulation in SWM ponds and develop a prioritized list of clean out projects by municipality. Research new simpler techniques for carrying out pond clean outs. 5-2* Municipalities - should formalize stormwater infrastructure maintenance programs to monitor the performance of existing stormwater management ponds, conduct maintenance and sediment clean-out when required, and undertake "recommissioning" through minor modifications to optimize performance with respect to water quality and erosion control. 5-3* Municipalities – Investigate innovative financing mechanisms such as SWM fees (municipal water and sewer bill) and credits for property owners, to help fund SW maintenance programs and retrofit projects. 5-4* Municipalities in co-operation with TRCA should: ▶ Develop guidelines for design and establishment of municipal SWM facility monitoring, maintenance and rehabilitation, including financing mechanisms. ▶ Undertake a study to identify sediment disposal alternatives for GTA municipalities. ▶ Undertake a study to develop cost estimates for overall SWM facility maintenance. ▶ Initiate a study that evaluates the benefits of biodegradable anionic polymers in reducing the cost of sediment removal from stormwater ponds and wetlands. ▶ Undertake a program of stormwater retrofits as part of road reconstruction projects to provide improved water quality and quantity control.	✓ ✓ ✓ ✓
Nature-Based Recreation Facilities and Lands	Recognize the regional system and establish multi-partner program – Rec. 97	There are many individual plans for nature-based recreation facilities e.g.: ▶ Rouge Park Management Plan ▶ Rouge North Management Plan ▶ Little Rouge Corridor Plan ▶ Bruce's Mill Conservation Area	5-5 TRCA, Rouge Park, municipalities - Continue to implement existing plans for individual areas. 5-6 TRCA, Rouge Park, municipalities - Establish a multi-partner program with long term funding commitments and a funding formula to support maintenance and reinvestment in existing properties as well as further expansion and development of the system.	✓ ✓

Table 5.1 Operations and Maintenance Improvement Projects

1-1* = Top priority project				
Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)	Yes
Facilities and Lands (continued)				
Rouge Park	Establish management and operational agreements for Rouge Park – Rec. 103 Maintain heritage character of Cedar Grove and Locust Hill – Rec. 112	Land Management Plan ► Oak Ridges Corridor Park Management Plan Agreement among Rouge Park, TRCA and Toronto for day-to-day operations and maintenance of Rouge Park in Toronto. Little Rouge Corridor Management Plan and Bob Hunter Environmental Area plan identify Cedar Grove as a heritage gateway to the Park and Locust Hill as a significant heritage area.	5-7 Rouge Park, municipalities, TRCA - Consider development of a multi-partner tourism strategy for the regional open space system.. 5-8 City of Toronto, TRCA, Rouge Park - Continue to implement existing agreement for Rouge Park in Toronto and undertake a review and update of the agreement. 5-9 Rouge Park, York, Markham, Whitchurch-Stouffville, Richmond Hill, TRCA - Negotiate an agreement for Rouge Park in York Region. 5-10 Rouge Park - Implement Little Rouge Corridor Management Plan and Bob Hunter Environmental Area Management Plan. 5-11 Rouge Park - Implement recommendations for Cedar Grove heritage gateway through partnerships with Markham Culture and local community groups. Support designation of Cedar Grove as a Heritage Conservation District.	✓ ✓ ✓ ✓
Other Public & Institutional Properties (e.g., parks, community centres, schools, churches, cemeteries, golf courses, hydro corridors)	Incorporate Rouge Watershed Plan directions into property operations and maintenance – Rec. 126 Prevent and reduce release of pollutants – Rec. 28	Some municipalities have environmental management programs for their properties (e.g., City of Toronto's environmental code for parks and community centres, Richmond Hill program in progress) Some golf courses are participating in the Audubon Program or similar programs to incorporate environmental considerations into management activities.	5-12 TRCA - Prepare a map showing locations of public and institutional properties in relation to the TNHS and stormwater management priorities. 5-13 TRCA - Facilitate technical transfer among public and institutional landowners (e.g., regarding naturalization, invasive species, Canada geese, integrated pest management, stormwater management, pollution prevention etc).	✓ ✓
Transportation and Roads	Prevent and reduce release of pollutants – Rec. 28	Most municipalities and the MTO have snow disposal and road salt management plans.	5-14 Municipalities, MTO - Review and implement existing management and monitoring plans with consideration for new information arising from the Rouge Watershed Plan (e.g., groundwater recharge/discharge).	✓

Table 5.1 Operations and Maintenance Improvement Projects

1-1 = Top priority project

Theme	RWP Recommendation (Rec # as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)		
Transportation and Roads (continued)		Rouge Park takes opportunities to: ► Encourage mass transit access to public use areas. ► Discourage road widening where possible. ► Encourage road closures through natural areas. ► Work with governments to minimize negative impacts of roads on wildlife and natural areas through barriers, vegetative buffers, speed controls, wildlife underpasses etc.	5-15 Municipalities, MTO - Review and adapt operations to minimize the impacts of transportation on the Park and other natural heritage lands in the watershed. see also SW infrastructure above	✓	✓
Publicly-owned Agricultural Lands	Support agricultural vitality on public lands – Rec. 85	Rouge Park has a policy to identify and preserve working farms through agricultural heritage zoning. TRCA's new operating practice is to allow longer leases on its lands. An agricultural policy to foster sustainable farm operations is in preparation. TRCA has several projects underway in the Humber Watershed promoting urban agriculture and research into new crops for niche markets (e.g., Toronto urban farm, agreement with Farm Start of the U. of G. for a training farm at Claireville CA, and an urban farm demonstration program at Kortright's Living City Campus).	5-16 Rouge Park and TRCA – Continue policy supporting longer farm leases. Seek opportunities to celebrate agriculture and community gardens as an expression of culture, in addition to their roles in food production and land/water stewardship. 5-17 Transport Canada, ORC, municipalities - Other public landowners should recognize and support agriculture as a long term use (e.g., longer term leases) when leases come due. 5-18 Rouge Park, TRCA - Seek farm tenants who are willing to test new crops and grow food for local markets on TRCA/Rouge Park land. 5-19 TRCA - Co-ordinate farmland initiatives among public landowners in the GTA	✓	✓
Flood and Erosion Risks	Manage flood risks – Rec. 29, 32, 33, 34	The GTA Flood Program provides services in four areas: ► Program delivery/administration ► Forecasting ► Communications ► Flood operations Flood and Erosion Control Programs	5-20 TRCA - Update the GTA Flood Program to achieve compliance with Provincial Guidelines (Ontario Flood Forecasting and Warning Implementation Guidelines for Conservation Authorities and MNR), when available. 5-21 TRCA - Continue: ► flood forecasting and warning; ► real time precipitation and stream gauge network; ► flood vulnerable site database response model.	✓	✓

Table 5.1 Operations and Maintenance Improvement Projects

1-1* = Top priority project			
Theme	RWP Recommendation (Rec.# as per RWP Appendix F)	Existing Project or Program	Next Steps, Projects and Programs (lead partner in bold)
Flood and Erosion Risks (continued)		(TRCA) Markham's Watercourse Erosion Restoration Implementation Program Markham is undertaking an inventory of at risk infrastructure.	5-22* TRCA, Markham, York - undertake a flood risk reduction study to improve the hydraulic capacity of road and rail crossings in flood vulnerable areas, (see Figure 1.8) starting with the Markham (Unionville) Special Policy Area. The study should identify a prioritized remediation plan. 5-23 TRCA, municipalities – Undertake an annual proactive program of EA projects to remediate flood vulnerable sites, as per the above noted remediation plan, incorporating opportunities for net gain in achieving the objectives of the watershed plan 5-24* Markham, TRCA - Prepare flood emergency response plan for SPAs, including an inventory of hazards, prioritization, and emergency response protocol (See also related Town of Markham Council resolution). 5-25* TRCA - Track advances in prediction of climate change and re-assess local flood risks and management measures. 5-26 TRCA, Markham - Operate and maintain Milne Dam for passive flood control, recreational and ecological purposes. 5-27 TRCA, municipalities – Establish and maintain an inventory of infrastructure "at risk" of erosion and conduct regular monitoring. Identify a prioritized remediation plan.
			✓
			✓
			✓
			✓
Forest Fire Prevention and Emergency Response	Implementation actions for forest fire prevention and response arose during development of the Implementation Guide and are not included in the final draft Watershed Plan.	Municipal Fire Departments. MNR Forest Fire Fighting Plan	5-28 TRCA, MNR, Rouge Park, municipalities - Review existing fire response programs of MNR and Rouge Park and prepare updated, co-ordinated plan including: ▶ philosophy and principles ▶ prevention ▶ access ▶ responsibilities and resources ▶ emergency response protocol.
			✓

Table 6.1 Enforcement Actions

1-1* = Top priority project

Theme	Target Audience	Enforcement Responsibility (lead in bold)	RWP Recommendation	Existing Project or Program	Next Steps, Projects and Programs	✓	✓
Fish	Fisher-people Landowners	DFO, MNR, and other partners	Increase enforcement capacity – Rec. 125	Inter-jurisdictional Compliance Protocol for Fish Habitat and Associated Water Quality (Ontario)	6-1 Continue existing program	✓	✓
Poaching (wildlife)	Hunters	MNR	Increase enforcement capacity – Rec. 125	MNR Report a Poacher telephone hotline	6-2* For each theme: ▶ Develop inter-jurisdictional compliance protocol	✓	✓
Water Use	Water-takers	MOE	Enforce permits to take water – Rec. 89	Inspection and compliance activities (TRCA)	▶ Identify gaps in regulatory capability and capacity	✓	✓
Section 28 of CA Act	Private land owners and municipalities	TRCA	Increase enforcement capacity – Rec. 125	Implementation of Greater Golden Horseshoe Conservation Authority Erosion and Sediment Control Guidelines	▶ Identify options for addressing gaps	✓	✓
Municipal by-laws and regs including: erosion & sediment control, tree cutting, topsoil & land disturbance, dumping, trespassing, encroachment	Landowners Developers	Municipalities, DFO	Improve erosion & sediment control and site restoration – Rec. 12, 16, 17, 18, 19 Increase enforcement capacity – Rec. 125		▶ Develop resources and implementation plan	✓	✓
Property Signage	Public	TRCA, Rouge Park and other public landowners, with NGOs	Increase enforcement capacity – Rec. 125		6-3 Develop a co-ordinated program: ▶ NGO volunteers undertake an inventory of existing signage and identify gaps/deficiencies ▶ Landowners improve signage	✓	✓
Rouge Park	Public	Rouge Park, municipalities, TRCA	Increase enforcement capacity – Rec. 125 Protect the urban wilderness experience of Rouge Park – Rec. 100	City of Toronto assigned four additional enforcement officers to Rouge Park in 2007.	6-4 Increase patrolling of Rouge Park by enforcement agencies/officers to weekly (or more frequently) to establish visual presence in the Park and as preventive measure	✓	✓

Table 7.1 Evaluation of Innovative Technologies

1-1 = Top priority project

Theme	RWP Recommendation	Next Steps, Projects and Programs (lead partner in bold)	
Sustainable Technologies Evaluation Program	Promote, test and evaluate innovative approaches and technologies – Rec. 41 ▶ Commit long term support to the TRCA's Sustainable Technologies Evaluation Program (STEP) as a forum for co-ordinated performance monitoring and evaluation among a number of agencies and private partners ▶ Arrange for third-party verification of technology performance ▶ Implement and evaluate pilot projects using innovative technologies ▶ Communicate results through seminars and publications	7-1 TRCA - Identify technologies that show promise and monitor their performance using STEP, i.e.: ▶ rainwater collection and re-use ▶ permeable pavement ▶ groundwater and soil contamination risk with infiltration technologies ▶ long term performance and maintenance costs of any green technology ▶ solar, wind, geothermal energy 7-2 TRCA - Assess life cycle costs relative to conventional alternatives using the Athena Sustainable Materials Institute life cycle costing tool. (This is becoming a standard part of STEP evaluations because it is usually very difficult to promote new technologies without a sophisticated analysis of costs and savings). 7-3 TRCA - Develop checklist of considerations for the siting and review of wind and solar farms and closed loop geothermal systems.	✓ ✓ ✓
Sustainable Community Design Effectiveness	Monitor the effects of new and retrofitted urban development design and stormwater management practices and implement adaptive management for adjustment of practices where necessary – Rec. 42 ▶ Require developers to undertake or contribute to compliance monitoring and enforcement to ensure stormwater management facility performance targets are met. ▶ Conduct monitoring studies at the technology scale and subwatershed scale to determine the extent to which community design standards and innovative stormwater management practices mitigate the cumulative effects of urban development on the water balance and aquatic systems.	7-4 TRCA, municipalities, MPIR, BILD - Convene discussions with MPIR and determine mechanisms for requiring developers in the Growth Plan area to monitor sustainable technologies and other innovative design features to ensure performance targets are met. Note the Greenbelt Plan section referencing the <i>Rouge River Watershed Plan</i> may provide a unique mechanism to set this requirement in the Rouge. 7-5 TRCA, municipalities, BILD Develop core monitoring protocols for common SWM and other sustainable technologies.	✓ ✓

Table 7.1 Evaluation of Innovative Technologies

1-1* = Top priority project			
Theme	RWP Recommendation	Next Steps, Projects and Programs (lead partner in bold)	Yes No 1-2-3-4-5-6-7-8-9-10
Sustainable Community Design Effectiveness (continued)		7-6* TRCA, municipalities - Launch cumulative effects monitoring program for innovative development design: ▶ Review suitability of candidate watersheds or reaches: Upper Rouge, Berczy and Bruce (i.e., availability of baseline info, stage of development, suite of innovative practices). ▶ Define research questions ▶ Ensure adequate baseline monitoring and establish ongoing monitoring network	✓
York Durham Sewer System	Environmental agencies, including DFO, MOE, MNR and TRCA, should continue to work with York Region to monitor aquifer water levels over the long term and ensure that the aquifer recovers from the dewatering undertaken to facilitate construction of the York Durham Sewer System - Rec. 79	7-7 Region of York, DFO, MOE, MNR, TRCA - Continue existing program	✓

Table 7.2 **Ambient Watershed Conditions and Long-term Trends**

1-1* = Top priority project

Theme	RWP Recommendation	Next Steps, Projects and Programs	Justification	
Regional Watershed Monitoring Network (RWMN)	Enhance the regional watershed monitoring network – Rec. 131	7-8* TRCA - Review recommendations for additional monitoring in the Rouge watershed, as noted below, as part of the 5 year review and update of the RWMN. Priorities are also noted below	TRCA should continue to implement the RWMP in order to provide data on ambient conditions and long term trends. Specific program improvements are outlined below.	✓
Climate Change	Enhance the regional watershed monitoring network – Rec. 131 Track advances in the prediction of climate change....and reassess flood risks – Rec. 33	7-9 Environment Canada, TRCA - Continue to collect data in the Rouge Watershed to track changes resulting from global climate change (i.e., climate, baseflow and stream gauge data). See also Section 5 on Operations, Management and Maintenance (Flood Control Program study recommendations)	Uncertainty associated with the likely degree and timing of changes to climate within the Rouge Watershed creates challenges for the development of comprehensive strategies that will help the Watershed to adapt.	✓
Air Quality	Undertake a vegetation impacts study – Rec. 93	7-10 Universities, MOE, TRCA, Rouge Park - Initiate a GTA-wide study to determine the economic and ecological impacts of poor air quality on local agricultural crops, urban forest and natural heritage. This will require the installation of more ozone monitors in each watershed.		✓
Precipitation	Improve monitoring of precipitation – Rec. 130	7-11* TRCA, municipalities - Additional rain gauges should be installed in the northeast, middle and southern parts of the Watershed to supplement the data from the Buttonville Airport gauge and address the need for subwatershed-level data for calibration of hydrologic models. This will assist in future hydrologic modelling and calibration. Implementation of the new gauges should be co-ordinated with similar efforts to augment the rain gauge network in neighbouring watersheds. It may be feasible to co-ordinate siting of new precipitation gauges with neighbouring watersheds.	More gauges are required because of the presence of the ORM and Lake Ontario and a growing urban heat island, which are known to affect variability in precipitation across the watershed. Improved hydrologic modelling and calibration will inform growth plans, watershed management plan updates and provide improved input to design of regeneration projects.	✓

Table 7.2 Ambient Watershed Conditions and Long-term Trends

1-1 = Top priority project			
Theme	RWP Recommendation	Next Steps, Projects and Programs	Justification
Groundwater	Install nests of groundwater monitoring wells – Rec. 131	7-12 TRCA - Seek additional funding partnerships to install nests of groundwater monitoring (water level and groundwater quality) wells at additional sites in the watershed to improve spatial coverage and at various depths to improve knowledge of each of the three major aquifers. Potential locations include: ▶ Northeast corner of the watershed on the Oak Ridges Moraine (3 wells) ▶ Near Major Mackenzie Drive and McCowan (3 wells); Assume York Region's wells as part of the RWMN, once their project monitoring is complete. ▶ Lower Rouge south of the Iroquois shoreline (2 wells)	There are currently only three Provincial Groundwater Monitoring network wells installed in a single aquifer within the Rouge Watershed. Therefore, TRCA does not have sufficient data to assess groundwater level or quality trends in the Watershed. Also, we do not have data regarding lateral groundwater flow in aquifers, or vertical connections between aquifers. Therefore, we recommend adding three new locations with nests of 2-3 wells at each location. These new wells should be located to assess water level changes in aquifers that discharge at surface water flow gauge locations as well as to facilitate the assessment of both regional and local effects of urban development and land conservation. It may be possible to either assume responsibility for or obtain data from existing monitoring wells installed by others (i.e., York-Durham Sanitary Sewer project), and the exact locations can be flexible, as long as they provide reasonable geographic coverage of the watershed. Without such coverage, TRCA will not be able to evaluate groundwater flow patterns and gradients in the Rouge Watershed, and our ability to adequately calibrate the groundwater model will be diminished. The priority for these new wells is considered to be high, since it is not possible to accurately validate the groundwater flow model or assess hydrogeologic conditions without field observations. Wells in other watersheds, particularly in Duffins Creek, could be used to assist in assessing groundwater flow patterns, but this does not eliminate the need for adequate geographic coverage of the Rouge Watershed.
Surface Water	Implement additional stream flow gauges – Rec. 132	7-13 TRCA - Install one additional stream flow gauge on the Main Rouge River downstream of the Morningside Creek confluence and another gauge on the Little Rouge River south of Finch Avenue to facilitate watershed-scale calibration of models.	Additional stream flow gauges are recommended to help in establishing baseline flow regime in streams that will be affected by future development, in order to assess impact of future development on flow regime and evaluate success of innovative SWM measures and development forms in mitigating impacts. Additional stations will also allow improved calibration of hydrologic models and improved understanding of subwatershed hydrologic response.

Table 7.2 Ambient Watershed Conditions and Long-term Trends

1-1* = Top priority project

Theme	RWP Recommendation	Next Steps, Projects and Programs	Justification
Surface Water (continued)		7-14* TRCA - Install one additional stream flow gauge on each of the major headwater tributaries ("Middle Tributaries") to assist in watershed-scale calibration and analysis. Gauges should be located on Beaver Creek, Upper Rouge River upstream of the Beaver Creek Confluence, Berczy Creek, Bruce Creek, and Robinson Creek as close to the confluences with the Main Rouge as possible. An alternative to long term permanent gauge installations may be a 5 year monitoring program with more temporary equipment, as necessary to improve calibration of models and then a re-evaluation of long term need. 7-15* TRCA - Explore opportunities to restore historic Water Survey of Canada sites on the Main Rouge and to formalize temporary gauges established for the York Durham Sewer System and North Leslie projects. 7-16 TRCA - Develop targets and undertake a study to identify and monitor the maintenance of a natural range in variation of flow regime. Review and update targets periodically based on long-term monitoring data.	✓
Stream Form	Implement improvements to the monitoring of stream form - Rec. 133	7-17* TRCA - Establish additional fluvial geomorphology monitoring sites immediately downstream of areas of future urban expansion. They should be established as soon as possible to determine an existing conditions baseline and should be monitored annually, probably for at least 20 years.	The additional sites are needed to establish baseline stream form and rates of change to track the effects of future development.

Table 7.2 Ambient Watershed Conditions and Long-term Trends

1-1* = Top priority project					
Theme	RWP Recommendation	Next Steps, Projects and Programs	Justification	Notes	Priority
Stream Form (continued)		7-18* TRCA - Reference sites should also be established downstream of developing areas. Locations to consider include Bruce Creek, Berczy Creek, Robinson Creek, and the Little Rouge River just upstream of Major Mackenzie Drive, plus corresponding reference sites for all of these upstream of the areas of potential future development.		✓	
		7-19 TRCA - Enhance the current monitoring protocols at the established fluvial geomorphic monitoring sites (i.e., additional cross-sectional surveys, greater frequency).	Enhanced monitoring at existing stations, which currently do not generate enough data to reliably track some aspects of channel change will provide benefits for watershed and sub-watershed studies in the Rouge watershed.	✓	
Water Quality	Enhance the regional watershed monitoring network - Rec. 131	7-20 TRCA - Continue ambient monitoring at the seven existing water quality stations.	Since the Rouge Watershed Planning study began, two additional water quality stations have been established on the Main Rouge River and on the Little Rouge River at Steeles Avenue. With these additions, the total network of seven ambient water quality stations is deemed to be adequate, provided that supplementary studies are conducted for specific projects.	✓	
		7-21 TRCA - Supplement this ambient monitoring with targeted monitoring studies conducted on a project basis to answer specific questions, e.g.: ▶ effectiveness of road salt management plans; ▶ bacteria source monitoring - pending the outcome of the Environment Canada source tracking study; and ▶ short term (2-3 year) dry/wet weather monitoring co-ordinated with stream flow monitoring at the recommended new gauge sites on the lower Main Rouge and Little Rouge Rivers. Re-evaluate the need for long term water quality station at end of pilot study	A disadvantage of the current Rouge water quality monitoring network is that sites are not associated with stream gauge locations, and thus are limited in supporting flow integrated water quality analyses.	✓	

Table 7.2 Ambient Watershed Conditions and Long-term Trends

1-1 = Top priority project

Theme	RWP Recommendation	Next Steps, Projects and Programs	Justification	Yes	No
Aquatic System	Continue and improve monitoring of the aquatic system – Rec. 53	7-22* TRCA - Install four additional stations in the following locations: ► Fish Management Zone 3 (Bruce Creek) (high priority) ► FMZ 5 (Main Channel and within Eckardt Creek) (high priority), and ► FMZ 10 (Beaver Creek) (low-moderate priority). 7-23 TRCA, MNR - Continue monitoring of redside dace movement in FMZ 1 (Upper Rouge) and FMZ 2 (Berczy Creek) (continuation of the Leslie Tributary Aquatic System Study). 7-24 MNR - Conduct a thorough Angler Use Survey to define the fishery and assess fishing pressure throughout the Watershed, including the proposed Marsh Monitoring and Creek Survey Project at the Rouge Mouth (as per recommendations in the <i>Rouge River Watershed Based Fisheries Management Plan</i>). 7-25* TRCA, MNR, NGOs (e.g., FRW, Ontario Streams, Citizen Scientist), volunteers - Develop a volunteer-based detection program for aquatic invasive species (i.e., Round goby, rusty crayfish).	There are virtually no data for fish, benthos and temperature in these reaches in Fish Management Zones 3, 5 and 10. The additional stations in FMZ 3 and 5 are required to answer specific subwatershed and watershed scale questions about redside dace distribution within the Rouge. Fish communities and general aquatic conditions need to be characterized as they are potential areas for restoration initiatives targeted by TRCA, MNR and York Region. These stations are of high priority because redside dace status may change within the next 12 months to Schedule 3 (endangered). This would activate provincial Species at Risk Act which will come into effect in Spring 2008. Development will occur soon in FMZ 3 and 5. York Region is currently interested in undertaking restoration in these subwatersheds in relation to the York Durham Sewer System zone of influence restoration. Without baseline information, it will be impossible to direct implementation activities and assess projects. Additional monitoring in FMZ 10 is required to understand a subsystem that is known to experience water quality impacts from stormwater runoff. Beaver Creek has also been the focus of restoration efforts to improve fish passage but the effects on the aquatic community (pre and post) are not well understood. Information from this additional monitoring station will have value at a regional scale. The current priority is low to moderate: monitoring this system will contribute to the interpretation of overall watershed health, but until there are substantial improvements to stormwater, little change is anticipated in this reach.	✓	✓
Terrestrial System	Continue monitoring the terrestrial system – Rec. 59	7-26 TRCA, municipalities, Rouge Park, NGOs, volunteers - Continue and expand remote sensing, biological field inventories and community volunteer-based monitoring. 7-27 TRCA, MNR - Develop additional indicators and monitoring protocols for biodiversity.		✓	✓

Table 7.2 **Ambient Watershed Conditions and Long-term Trends**

1-1* = Top priority project			
Theme	RWP Recommendation	Next Steps, Projects and Programs	Justification
Terrestrial System (continued)		7-28 TRCA, municipalities, Rouge Park - Develop and implement a program to monitor the success of ecological restoration projects and effectiveness of invasive species control sites.	✓
Nature-based Recreation	Monitor trail use and participation rates in other activities such as bird-watching, boating, fishing and picnicking – Rec. 101	7-29 Municipalities , Rouge Park, TRCA - Develop and implement a program to monitor trail use and participation rates in other related recreational activities.	✓

Table 7.3 **Adaptive Management**

1-1* = Top priority project			
Theme	RWP Recommendation	Next Steps, Projects and Programs (lead partner in bold)	Justification
Monitoring and Adjustments	Develop an adaptive management program – Rec. 135	7-30 TRCA , municipalities – Develop an adaptive management program ▶ Review the adequacy of existing monitoring mechanisms, including additions noted in Table 7.2 (e.g., RWMN and requirements for compliance and effectiveness monitoring). ▶ Identify any necessary modifications to existing analytical, assessment and reporting protocols. ▶ Define triggers for initiating adjustments to policies, plans, implementation and management. ▶ Identify the mechanisms and procedures for engaging watershed partners in a process for amending the watershed plan and relevant watershed management policies and programs. ▶ Secure commitment to implement the adaptive management program.	✓