

7.0 POLICIES FOR ENVIRONMENTAL PLANNING

(Policies for TRCA's role as a public commenting body, resource management agency, service provider, and landowner under the *Planning Act* and the *Environmental Assessment Act*; this chapter also includes policies for TRCA's delegated role under the *Planning Act* for the provincial interest in natural hazards.)

7.1 INTRODUCTION

The following policies guide TRCA in its commenting roles under the *Planning Act* and the *Environmental Assessment Act*(s). In these roles, TRCA fulfills its responsibilities as a public commenting body, a service provider, and occasionally as a landowner, to approval authorities in the planning and development process. In addition, TRCA's role as a resource management agency helps inform the comments and technical service that staff provide to approval authorities. TRCA's four strategic objectives are also being pursued through this process: Healthy Rivers and Shorelines, Greenspace and Biodiversity, Sustainable Communities, and Business Excellence. This is accomplished by engaging with our municipal partners, the development industry, the public, and other stakeholders, to achieve the shared goal of building a sustainable city-region.

The Provincial Policy Statement (PPS) dictates that any government agency's advice that affects a planning matter "shall be consistent with" the PPS. As a public commenting body, and in accordance with our provincial and municipal memorandums of understanding and municipal service agreements, TRCA's comments typically relate to the PPS sections on natural heritage, natural hazards, and water. For natural hazards, TRCA must also implement its delegated responsibility to represent the Provincial Interest on natural hazards (section 3.1 of the PPS) through review of *Planning Act* applications.

The environmental planning component of many provincial, municipal, and conservation authority policy documents is modelled after the PPS, aiming first to protect natural features and areas, and second, to manage developable lands for minimizing impacts to the function of natural features. PPS 2014 also states that natural heritage systems shall be identified, recognizing linkages between and among features. Similarly, as a reflection of the planning and development process in Ontario, Section 7 of The Living City Policies is structured with protection policies (7.3) that seek to set aside lands from development (The *Natural System* made up of natural features, natural hazards and water resources, and restoration areas), followed by a set of policies for management (7.4) of developable lands (Water, Natural Features and Hazards Management, Infrastructure, and Recreational Uses). These are followed by a section (7.5) on implementation of all Section 7 policies (Plan Input and Plan Review).

The planning process's typical separation of the natural and built environments, and its emphasis on the protection side of the environmental policy regime, may stem from the perception that *ecosystem services* such as climate regulation and water and air purification, can only come from natural areas. And that further, the built-out tableland portions of the landscape are devoid of any potential for ecosystem benefit. In this regard, TRCA's watershed science tells us that the management side of the existing policy regime is becoming increasingly important. This is because its focus is on the lands to be developed, or redeveloped, and how

their design can help maintain, restore and enhance the features and functions of the *Natural System* as well as contribute their own share of *ecosystem services*.

Insert-Sidebar:

Natural processes that help “sustain and fulfill human life” are considered *ecosystem services*. Natural systems perform *ecosystem services* on which humans depend and that are economically and ecologically impossible to duplicate. There are many *ecosystem services* that a healthy Natural System can provide. They include:

- Regulation of the hydrologic cycle by capturing, storing and cleaning the water we drink and swim in;
- Reduces peak flows and flooding from storm events;
- Promotes healthy fish and aquatic communities;
- Contributes to cleansing pollutants from the air we breathe, producing oxygen;
- Regulates climate; provides shade;
- Provides active and passive recreational opportunities;
- Promotes a sense of place from identifying with the unique character that natural areas bring to a city;
- Promotes healthier lifestyles resulting from clean air and water and access to open spaces with natural aesthetics.

The protection and management policies in Section 7 are preceded by “Landscapes of the Toronto Region” that describes the different landscapes across the jurisdiction, providing varying levels of *ecosystem services*. For example, for many of the heavily urbanized parts of the TRCA jurisdiction, the degree of *ecosystem services* provided by the *Natural System* can be diminished as a result of urban impacts. The management policies in section 7.4 aim to offset this imbalance by recommending the *restoration* of natural heritage and the *remediation* of natural hazards that also integrate natural elements into the built-up area. This approach can serve multiple functions, such as environmental regeneration, stormwater management and urban beautification, thereby boosting the level of *ecosystem services* across the entire landscape.

Section 7 policies also recommend consideration of *cumulative impacts* and an *adaptive management* approach to planning. As a regional, watershed-based agency, TRCA is in a unique position to be able to consider the *cumulative impact* of many different projects on a particular subwatershed or shoreline reach, especially given the range of *development* applications circulated to TRCA from multiple municipalities. Further, review is informed by watershed plan recommendations and the regional watershed and waterfront monitoring programs that indicate trends in watershed conditions, to which *development* must adapt in order to avoid or mitigate impacts.

Overall, the policies in Section 7 respect the legislative framework for environmental planning, seeking to align with the objectives of municipalities and other partners for building sustainable communities. The policies also reflect the unique characteristics of TRCA’s watersheds, and are informed by an integrated watershed management approach.

Goal: To implement an integrated watershed-based approach to improving watershed health while respecting and adding value to the existing planning policy framework.

How Chapter 7 Policies Will Be Used:

The policies in Chapter 7 apply to applications circulated to TRCA for comment under the *Planning Act* and the environmental assessment process. Comments based on the policies of Chapter 7 constitute **recommendations** to approval authorities based on TRCA roles as: a public commenting body (comments should be considered), “delegated provincial interest” (comments must be considered), service provider (based on TRCA-municipal agreements), landowner (comments may be considered) and resource management agency (comments may be considered). In each of these roles, comments ~~should or may be considered and~~ represent TRCA’s most current science-based advice on protecting and managing the Natural System within the context of the planning and development of sustainable communities. Comments based on the policies of Chapter 7 pertaining to **natural hazards** also constitute **recommendations** to approval authorities; however, they are comments that **must be considered** in accordance with the MMAH/MNRF/CO MoU. Both of these commenting roles are distinct from (albeit related to) TRCA’s Regulatory role implemented through the TRCA permitting policies in Chapter 8. However, as noted in TRCA’s municipal planning advisory service agreements, TRCA is in no way limited in exercising its rights under the *Planning Act*, the *Conservation Authorities Act*, or any other applicable legislation to independently appeal or advocate any position on a planning decision to the Ontario Municipal Board. This is also applicable to TRCA’s delegated responsibilities from the Ministry of Municipal Affairs and Housing and the Ministry of Natural Resources and Forestry as part of the Provincial One-Window Plan Review Service to represent the provincial interest on natural hazards encompassed by Section 3.1 of the PPS.

The commenting roles for Chapter 7 are in Table 3.1 of the LCP that was taken from the “Policies and Procedures for Conservation Authority Plan Review and Permitting Activities” (May 2010). For further details on the role of conservation authorities in the planning and development process, the May 2010 document should be consulted.

Relationship to Chapter 6 Policies (Advocacy)

In participating in the review of applications under the *Planning Act* and *Environmental Assessment Act(s)*, and where appropriate, TRCA will complement its mandated regulatory and plan review roles with the policies of Chapter 6. In this regard, such comments will reflect TRCA’s advocacy role that promotes and encourages the planning and development of complete and sustainable communities.

Relationship to Chapter 8 Policies (Regulation)

In participating in the review of applications under the *Planning Act* and *Environmental Assessment Act(s)*, TRCA ensures that applicants and approval authorities are aware of any Section 28 *Regulation* requirements under the *Conservation Authorities Act*, where applicable (see Chapter 8 for *Regulation* policies). Further, TRCA assists in the coordination of these applications to avoid ambiguity, conflict and unnecessary delay or duplication in the process. Although permission under Section 28 may not be sought or issued for many years after approval of a planning application or environmental assessment, in order to support a proposal under the planning or environmental assessment process, TRCA needs to ensure that the requirements under the *Regulation* can likely be fulfilled at the time a permit application is received.

Definition of Development: In this Environmental Planning chapter (Section 7.0), the Provincial Policy Statement definition of *development* applies, whereas in the *Regulation* chapter (Section 8.0) the *Conservation Authorities Act* definition applies. The PPS definition includes lot creation but does not include grading. *Development* in the Section 7.0 is often mentioned in tandem with *site alteration*, as in the PPS. As well, the PPS definition of *development* does not include activities that create or maintain *infrastructure* authorized under an environmental assessment process. The full definitions of *development* are in the definitions section of The Living City Policies.

7.2 LANDSCAPES OF THE TORONTO REGION

Many unique landscapes make up the natural and built environments of TRCA's watersheds. These landscapes form the broad canvas upon which the communities of southern Ontario have been built and have thrived. Landscapes within the nine watersheds forming TRCA's jurisdiction provide definition to the biophysical and cultural character of the region from the *headwaters* of the Oak Ridges Moraine to the shoreline of Lake Ontario. For some landscapes, their attributes are protected in varying degrees by federal or provincial legislation. This legislation is a helpful tool for TRCA and its partners to ensure that landscapes continue their valuable functions in our watersheds for the long term.

Goal: To ensure that the landscapes of the Toronto region continue to function as the foundation of natural *green infrastructure* and sustainable communities.

7.2.1 The Provincial Greenbelt

The Greenbelt is described by the Province as a broad band of protected countryside where urbanization should not occur, in order to provide permanent protection to the agricultural land base and ecological features and functions. The Province's Greenbelt Plan (2005) is implemented through municipal official plan policies and maps. The Greenbelt Plan acknowledges that the federal government, conservation authorities, and other agencies also have regulations and standards that apply in the Greenbelt. This includes TRCA's Regulation under the Conservation Authorities Act. The Plan states that where these regulations or standards are more restrictive than those found in the Greenbelt Plan, the more restrictive provision prevails. In this way, various agencies and different levels of government can work collectively to manage and guide land use within the Greenbelt.

The Greenbelt Plan includes the Oak Ridges Moraine and the Niagara Escarpment, plus an additional one million acres of land designated as Protected Countryside. The Protected Countryside of the Greenbelt within TRCA's jurisdiction consists of lands south of the Oak Ridges Moraine including: the headwaters of Etobicoke Creek; the headwaters and some middle reaches of the Humber and Rouge River watersheds; the entire Rouge Park; and the headwaters and middle reaches of the Duffins Creek watershed, including less-developed portions of the Lake Iroquois shoreline.

Additionally, Greenbelt Plan Amendment No. 1 introduced a new Urban River Valley designation to protect natural and public open space lands along river valleys in urban areas to connect the rest of the Greenbelt Area to the Great Lakes and other inland lakes. Where

implemented, the designation confers a provincial “interest” on urban river valleys already protected through municipal official plan policies and TRCA’s *Regulation* and policies.

Oak Ridges Moraine

The Oak Ridges Moraine (ORM) is a geologic feature that encompasses 190,000 hectares of land and water. It is 160 kilometres in total length and located north of and parallel to the Lake Ontario shoreline. The ORM is an irregular ridge of sands, gravels, and tills towering up to 300 metres higher than Lake Ontario and was deposited by the melt-waters between two receding glacier lobes some 13,000 years ago.

Within TRCA’s jurisdiction, the ORM serves as the headwaters for the Duffins Creek and Rouge, Don, and Humber River watersheds. The Oak Ridges Moraine Conservation Plan requires that *watershed* plans, water budgets, and conservation plans be undertaken for the ORM portions of *watersheds*, and that the objectives and requirements of those *watershed* plans be incorporated into municipal official plans. In partnership with its municipalities, TRCA completed *watershed* plans for its four *watersheds* with headwaters on the ORM to help understand its functions and how best to protect them. The Plan also requires the protection of lands it designates as Natural Core Areas, Natural Linkage Areas and Countryside Areas with restrictions on permitted uses. Settlement Areas as designated under the Plan are for the purpose of focusing and containing urban growth on the Moraine. Policies in the Plan are divided into four parts that transition from protection to management-type policies. Within Natural Core, Natural Linkage Areas, and Countryside Areas key natural and hydrological features must be buffered by “minimum vegetative protection zones” of 30 metres. The Plan has the overall purpose of maintaining, and where possible, improving or restoring the *ecological integrity* of the Oak Ridges Moraine.

TRCA has been delivering numerous conservation programs on the ORM for several years including: operating conservation areas and educational field centres; private landowner stewardship; agricultural lands environmental enhancement; land securement into public ownership; and the development of trails systems. In 2000, TRCA joined eight other conservation authorities with *watersheds* on the ORM to form the Conservation Authorities Moraine Coalition. Their mandate is to advocate for strong policy protection for the ORM, plus expanded and coordinated efforts in the study and management of groundwater resources and natural heritage systems, stewardship, land securement, and trails development.

Niagara Escarpment

The Niagara Escarpment is a UNESCO World Biosphere Reserve, designated for its unique characteristics and the presence of a provincial land use plan to guide development in its area. The landform is a largely forested ridge of fossil-rich sedimentary rock that extends through the northwest portion of TRCA’s jurisdiction, where it is largely overlain by glacial drift of the ORM. The Escarpment is an important area for groundwater recharge as well as forming the headwaters of the main branch of the Humber River. The Escarpment encompasses wildlife habitats, farms, scenic views, mineral resources, and historic sites and towns. In 1985, the Niagara Escarpment Plan (NEP) was Canada’s first large-scale environmental land use plan. The NEP strikes a balance between protection, conservation, and sustainable development to ensure that the escarpment will remain substantially as a continuous natural environment for future generations (MNR [website](#)). The 2005 NEP with recent amendments is now in force.

To achieve this balance, the NEP sets out seven distinct land use designations, each with a set of policies and permitted uses. The designations that occur within TRCA’s jurisdiction include:

Escarpment Natural Area, Escarpment Protection Area, Escarpment Rural Area and Mineral Resource Extraction Area. Lands designated as Escarpment Natural Area provide the highest level of protection for the most significant natural features. Escarpment Protection Areas and Escarpment Rural Areas are also protected because they provide a buffer for the most significant features while still encouraging compatible uses. Mineral Resource Extraction Areas include pits and quarries licensed pursuant to the *Aggregate Resources Act* as well as other areas where mineral resource extraction may be permitted. The Niagara Escarpment Commission interprets the NEP and assesses development proposals on lands within the NEP Area to ensure that it is in accordance with NEP policies.

Protected Countryside

The Greenbelt Plan includes policies for three types of lands found within its Protected Countryside designation: the Agricultural System, the Natural System and Settlement Areas.

The Agricultural System policies protect the predominance of agricultural uses in lands designated as specialty crop areas and prime agricultural areas and support mixed uses in lands designated as rural areas within the Protected Countryside. The Agricultural System is integral to the long term sustainability of the Natural System because many farms contain important natural features and the stewardship of these farms has facilitated both environmental and agricultural protection.

The Natural System within the Protected Countryside is made up of a Natural Heritage System and a Water Resource System. The Natural System policies protect natural heritage areas and hydrologic/landform features (i.e. wetlands, significant woodlands) that are often functionally interrelated and that collectively support overall ecological integrity in the Protected Countryside.

Rural Settlement Areas provide significant economic, social and commercial functions to the prime agricultural areas and rural areas that form the Agricultural System. The Greenbelt Plan's Settlement policies are intended to ensure that as these areas evolve, they remain compatible with the other elements of the Protected Countryside (Agricultural and Natural Systems).

~~), agricultural and rural lands. Much of these lands were cleared of forest for agricultural purposes during early European settlement times. They provide a pastoral landscape of long viewsheds comprised of hedgerows, barns and livestock, equine facilities, farm fields containing crops, remnant woodlots, wetlands and headwaters. The open fields of the agricultural and rural areas, allow for water infiltration, wildlife movement and linkages among local natural features and to natural features extending into the landscapes to the north and south. Agricultural land also provides a source of locally grown food and has a generally high potential for containing archaeological sites.~~

The Rouge River Watershed is of particular significance within the Protected Countryside of the Greenbelt because of the extensive public investment in establishing the Rouge Park and the efforts of all levels of government in preparing the Rouge Park Management Plan (1994) and the Rouge North Management Plan (2001). The Rouge Watershed and the Little Rouge River

serve as a vital ecological corridor linking the environmental systems of Lake Ontario to the Oak Ridges Moraine. Section 3.2.6 of the Greenbelt Plan states that land use planning and resource management for the Protected Countryside portion of the Rouge watershed shall comply with the Plan as well as the 1994 and 2001 Rouge Management Plans. For Rouge watershed lands outside of the Protected Countryside, the section goes on to state that the Rouge Management Plans (and any supporting plans/initiatives from municipalities or conservation authorities) should be considered as guiding documents. Parks Canada is establishing a Rouge National Urban Park and is working to convert Park management responsibilities from the various agency landowners.

The Lake Iroquois Shoreline is an escarpment that delineates the shoreline of ancient Lake Ontario formed approximately 12,500 years ago when lake levels were up to 60 metres higher than the present lake level. In many areas, urban *development* occupies lands both above and below the Shoreline feature. Yet, due to its often sandy nature, significant height and steep slopes, the actual narrow linear feature has not been extensively developed in its eastern segment. The Lake Iroquois Shoreline has been identified in the Watershed Plan for the Duffins and Carruthers Creeks as an area of significant *groundwater discharge* (at the base) and/or recharge (at the brow) and is often associated with *wetland* and *woodland* features where the Shoreline remains undeveloped. The Greenbelt Plan includes the Lake Iroquois Shoreline in Durham Region as an area of hydrological significance.

7.2.1 - It is the policy of TRCA:

- a) To provide environmental technical and policy advice to municipalities related to planning and environmental assessment applications in the Provincial Greenbelt to achieve land use planning decisions that conform to the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, and the Niagara Escarpment Plan.
- b) That Watershed Plans, Implementation Guides, and technical background documents, as amended from time to time, for TRCA *watersheds* in the Greenbelt Plan Area, be used in the review of *development* proposals in the Provincial Greenbelt and as reference documents to inform and guide ongoing TRCA programs and their long term planning and budget preparation.
- c) To support the legislated protection and management of the Greenbelt, Oak Ridges Moraine, and Niagara Escarpment, and continue to participate as a partner in coordinated programs to secure lands, provide stewardship services, and advance the science and understanding of the Provincial Greenbelt lands through *watershed*, groundwater, and natural heritage studies and monitoring programs.

~~To support and encourage the protection of agricultural land as an important landscape component within watersheds for its values as:~~

- ~~• a source of local food production and employment;~~
- ~~• a cultural heritage landscape;~~
- ~~• areas with a high potential for containing archaeological sites;~~
- ~~• connecting lands to support native flora and fauna populations; and,~~
- ~~• pervious surfaces that permit infiltration of water to help maintain aquifer water levels and minimize runoff.~~

- d) To recommend, where appropriate as determined by TRCA staff, that *development or site alteration* of existing developed lands on or adjacent to the Lake Iroquois Shoreline (on or off the Greenbelt) employ planning, design, and construction practices that minimize impervious surfaces and maintain or enhance the visual landscape character and size, diversity, and connectivity of adjacent natural features, in accordance with the policies in Sections 7 and 8 of this document.

7.2.2 The Agricultural Landscape

agricultural and rural lands. Much of these lands were cleared of forest for agricultural purposes during early European settlement times. Agricultural and rural lands. They provide a pastoral landscape of long viewsheds comprised of hedgerows, barns and livestock, equine facilities, farm fields containing crops, remnant woodlots, wetlands and headwaters. The open fields of the agricultural and rural areas, allow for water infiltration, wildlife movement and linkages among local natural features and to natural features extending into the landscapes to the north and south. Agricultural land also provides a source of locally grown food and has a generally high potential for containing archaeological sites. TRCA is Secretariat for, and has a memorandum of understanding with, the Greater Toronto Area Agricultural Action Committee and Golden Horseshoe Food and Farming Alliance, helping to identify pathways for a more integrated and coordinated approach to food and farming viability. These endeavours aim to ensure that the Golden Horseshoe retains, enhances and expands its role as a leading food and farming cluster.

7.2.2 -It is the policy of TRCA:

- a) To support and encourage the protection of agricultural land as an important landscape component within watersheds for its values as:
- a source of local food production and employment;
 - a cultural heritage landscape;
 - areas with a high potential for containing archaeological sites;
 - connecting lands to support native flora and fauna populations; and,
 - pervious surfaces that permit infiltration of water to help maintain aquifer water levels and minimize runoff.
- b) To support and encourage the implementation of best management practices for agricultural operations such as environmental farm plans and nutrient management plans to protect water quality.

TRCA *watersheds* are dominated by existing urban and urbanizing areas that can be described as the “built” or “urban” landscape in contrast to the Greenbelt Plan Area, which constitutes much of the ecologically valuable natural and rural landscapes of our Toronto Region. Remnant and degraded habitats are typical in the context of the urban landscape. Generally, the more urbanized an area, the less likely it is for sensitive species to be present. This is frequently a result of past practices of manipulating, hardening, or enclosing natural areas in favour of *development*. Although TRCA continues to strive for protection, expansion, and *restoration* of the terrestrial and aquatic resources of the existing *Natural System*, on its own, the System may not be able to provide an adequate level of *ecosystem services*.

The Province’s Growth Plan for the Greater Golden Horseshoe (2006) requires municipal official plans to be amended to intensify *development* in already built-up areas in order to accommodate growth without encouraging urban sprawl. In addition, the Growth Plan designates 25 Urban Growth Centres (UGC’s) to be revitalized as community focal points accommodating a significant share of population and employment growth. Of the 25 UGC’s in the Growth Plan, 10 are within TRCA’s jurisdiction. Now that many of these areas of existing *development* are being redeveloped and intensified in accordance with the Growth Plan, there is even greater pressure on the remnant natural spaces from the impacts of light, noise, urban runoff, and recreational use. Yet if planned and designed appropriately, both greenfield lands and *redevelopment* lands can retain and enhance ecological value.

TRCA’s *Natural System* is made up of natural features and areas, water resources, natural hazards, and areas of *potential natural cover or buffers*.

There are a number of ways in which the potential for *ecosystem services* of the urban landscape can be harnessed to supplement those from natural landscapes. In this regard, helpful components from the built environment are street, park, and yard trees, as well as green roofs, swales, rain gardens and other *built green elements of green infrastructure* (see Section 6.7). *Built green elements* can contribute to the proper functioning of abutting *Natural System* lands as well as provide additional benefits like curbing the *urban heat island effect* and reducing runoff. Further, proposals for *redevelopment* and *intensification* in the urban landscape can, where feasible, incorporate measures towards restoring natural forms and functions and remediating flooding and erosion hazards of the existing *Natural System*. For example, the revitalization of a brownfield site to a residential or mixed use, concurrent with the *restoration* and *remediation* of an abutting degraded *valley corridor* and flood prone area, is not only a gain for *biodiversity* but is also a benefit to its future occupants for public safety and enjoyment of a natural amenity (e.g., trails along a valley corridor providing opportunities for active forms of transportation).

~~7.2.27.2.3~~ **It is the policy of TRCA:**

a) To recommend the retention of *natural green elements* and the use of *built green elements* in *development and redevelopment*, to maximize *ecosystem services* in the urban landscape.

b) To recommend that *development and redevelopment* incorporate *restoration and remediation* of degraded areas of the *Natural System* to improve the level of *ecosystem services* provided by the *Natural System*.

7.2.34 Lake Ontario Shoreline

The Lake Ontario shoreline spans nearly 60 kilometres across the bottom of TRCA *watersheds* and likely has the most complex geological, cultural, and planning history of any landscape in TRCA's jurisdiction. The current shoreline (and water level) of Lake Ontario is just one of five shorelines known to exist over the past 135,000 years and may be the ultimate example of the physical expression of geologic processes, climate change, and the *hydrologic cycle*.

TRCA's *Lake Ontario Waterfront Development Program (1980)* classified the shoreline into four sectors; the Etobicoke Sector, the City of Toronto Sector, the Scarborough Sector and the Pickering/Ajax Sector. The Etobicoke Sector is characterized by a relatively uniform shore cliff, with variations from sandy sloping beaches to 6-metre bluffs. The City of Toronto shoreline is largely altered due to *development*, however, some sandy beaches, such as Cherry Beach, remain. The Scarborough Sector is dominated by the Scarborough Bluffs which extend 15 kilometres from Victoria Park Avenue to the mouth of the Highland Creek and reach heights of up to 65 metres. The Pickering/Ajax sector consists of smaller bluffs interspersed amongst sandy beach areas. The sediment comprising the Toronto Region shoreline is generally a mixture of sands, silts, clays, tills, and gravels, which are highly erodible. As a result, the shoreline has been, and continues to be, modified by wave attack, the wave climate, groundwater conditions, wind erosion, numerous other factors in addition to adjacent development.

TRCA's role in managing the waterfront has also evolved over time. The main focus of the initial Shoreline Management Program and Lake Ontario Waterfront Development Program (both 1980) was to prevent, eliminate, or reduce the risk of flooding and erosion hazards to life and property. However, those documents also promoted a comprehensive approach to shoreline management that balanced the natural coastal processes and attributes of the Lake Ontario waterfront with development pressures and the public demand for open space. This is a reflection of TRCA's Provincially-designated role as the lead implementing agency for the Etobicoke to Ajax-Pickering shoreline (except for the central downtown waterfront area), to enable safe public access and regional scale recreation opportunities. The Integrated Shoreline Management Plan of 1996 set out an ecosystem-based framework that added to the original 1980 Program, new recommendations for shoreline regeneration, natural heritage targets and adoption of the Crombie Commission's vision for a waterfront that is clean, green, accessible, diverse, connected, open, affordable, attractive, and useable.

**Crombie Commission
Royal Commission on the Future of the Toronto Waterfront**

In 1988, the Federal government appointed the Honourable David Crombie to act as a one-person Royal Commission to Study the Toronto Waterfront.

The Royal Commission on the Future of the Toronto Waterfront, also known as the Crombie Commission had a mandate to “make recommendations regarding the future of the Toronto Waterfront, and to seek concurrence of affected authorities in such recommendations, in order to ensure that, in the public interest, federal lands and jurisdiction service to enhance the physical, environmental, legislative and administrative context governing the use, enjoyment and development of the Toronto Waterfront and related lands.”

The work of the Commission highlights the links that exist between the city and nature – among people, the economy, health and environmental sustainability. It promotes the ecosystem approach to achieve both environmental regeneration and economic recovery.

In 2003, TRCA adopted the Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS) with a goal of maximizing the ecological integrity of the Toronto waterfront by ensuring that waterfront revitalization incorporates aquatic habitat improvement. Aquatic Habitat Toronto (AHT) is a consensus-based group involving Fisheries and Oceans Canada (DFO), Ministry of Natural Resources and Forestry, TRCA, and in consultation with the City of Toronto. AHT is responsible for the implementation of the TWAHRS. AHT facilitates the approvals process for Waterfront Toronto and other proponents working on the Toronto waterfront. At the same time, TRCA’s waterfront monitoring program advances the science and understanding of aquatic habitats helping to inform RAP projects (see sidebar), TWAHRS projects, and TRCA waterfront works in general. Implementation of these programs and strategies occurs in a number of ways. For example, TWAHRS may inform compensation projects required under the federal *Fisheries Act*.

The Remedial Action Plan (RAP) is a process to clean up the waterfront, rivers, habitats and waters of the Toronto region. RAPs are also being implemented in 42 other areas around the Great Lakes. Initiated in 1987, the Toronto and Region RAP area includes six major watersheds (Etobicoke Creek, Mimico Creek, Humber River, Don River, Highland Creek, Rouge River) 45 kilometres of waterfront, and Toronto Bay. The Toronto and Region RAP is managed by representatives from Environment Canada, Ontario Ministry of the Environment and Climate Change, Ontario Ministry of Natural Resources and Forestry, and TRCA. The Toronto and Region RAP tracks environmental conditions, activities, and outcomes relevant to the RAP. (<http://www.torontorap.ca>)

In reviewing planning and environmental assessment applications affecting the waterfront, TRCA recognizes the need to balance waterfront revitalization/redevelopment, public access, and an open space “aesthetic” with natural heritage and natural hazard protection and management. Public ownership of waterfront lands is a key means to managing natural hazards, while providing accessible open space integrated with opportunities for public enjoyment and aquatic and natural heritage *restoration*.

Ontario's Great Lakes Strategy

In the Province's Great Lakes Strategy (2012), conservation authorities are named as essential partners in the implementation of programs and project initiatives to improve the health of the Great Lakes. For example, with CAs as partners, the Province has initiated outreach and guidance on integrated stormwater practices, environmental farm plans, habitat restoration, and environmental monitoring. Federal, provincial, municipal and private restoration projects for the Toronto region's rivers and lakes alike serve to improve the health of the Great Lakes.

7.2.4. It is the policy of TRCA:

- a) To prevent, eliminate or reduce the risk of *flood* and *erosion hazards* to life and property through:
 - i. appropriately planned *development*, *site alteration*, *recreational use*, and *infrastructure*;
 - ii. shoreline protection works that are undertaken on a comprehensive reach basis and naturalized to the extent possible; and
 - iii. the conveyance of hazard lands into public ownership, where feasible.

- b) To promote an integrated approach to revitalization of the waterfront that:
 - i. provides for increased public access, recreational opportunities and a continuous trail system;
 - ii. preserves and enhances public views of the Lake and its shoreline features;
 - iii. improves or restores the quality of water, beaches and terrestrial and aquatic natural habitats of the shoreline; and,
 - iv. connects and links waterfront habitats and amenities to *valley and stream corridors*.

- c) To continue TRCA's waterfront monitoring program that entails long-term monitoring of waterfront habitat implementation works completed through TWAHRS and the Toronto and Region Remedial Action Plan (RAP).

- d) To assess site-specific *development* and *site alteration* applications on the Lake Ontario Shoreline in accordance with all relevant policies in Sections 7 and 8.

7.2.45 Watersheds

Planning on a *watershed* basis is an effective means to implementing a locally-based ecosystem approach because it considers hydrologic and ecologic connections and inter-relationships to human communities in a broad context that enables consideration of the *cumulative impacts* of *development*. Indeed, TRCA's watersheds integrate all of the jurisdiction's landscapes with their diverse physical and human characteristics. For example, watershed planning is an ideal mechanism to integrate the inter-relationship between the Lake Ontario shoreline and the riverine systems of the watersheds. This is important given that healthy watersheds contribute to healthy Great Lakes (see Conservation Ontario's Paper – Integrated Watershed Management Approach to Great Lakes Protection, April 2012). *Watershed* planning is also promoted in provincial planning documents (Oak Ridges Moraine Conservation Plan; Provincial Policy Statement 2005; Greenbelt Plan; Growth Plan for the Greater Golden Horseshoe; *Clean Water Act*) and in regional municipal official plans.

In general, *watersheds* are biophysical units that form the geographic basis for conservation authorities. The *Conservation Authorities Act* defines the *watershed* as “an area drained by a river and its tributaries.” Within a *watershed*, the *hydrologic cycle* provides the pathways that integrate physical, chemical, and biological processes among hydrologic features such as *watercourses* and *wetlands*, and to terrestrial features like *woodlands* and valley and stream corridors.

Often described as their backbone, *valley and stream corridors* are the natural drainage system for *watersheds*, conveying groundwater and surface water flows from all lands to a downstream outlet. *Valley and stream corridors* often reflect the condition of a *watershed*, provide linkages through the landscape, and offer a diverse array of habitats. They also provide important social, economic, and cultural functions. Aboriginals settled in and adjacent to valleylands, while many early European settlements established in valleylands to take advantage of water resources. Agricultural lands are still farmed in some valleylands today, taking advantage of the flat lands and fertile soils of the *flood plain*. Recent and current generations in the Toronto region enjoy the scenic value of *valley and stream corridors* lands as an urban open space system and recreational amenity. But like all other natural features, the ecological integrity of *valley and stream corridors* cannot be maintained without effective management of the surrounding landscape in the rest of the *watershed*.

In cooperation with municipal partners and *watershed* communities, TRCA undertakes *watershed* plans. The plans describe current conditions in the watersheds such as terrestrial and aquatic resources, surface water and groundwater quantity and quality, cultural heritage, and land use, and make recommendations for improving watershed health. In addition, the most recent TRCA watershed plans modelled future urban growth scenarios to predict the watershed’s response for a range of ecosystem indicators, to scenarios of potential future *watershed* land use, climate changes, and best management practice strategies.

Urbanizing the natural and rural portions of a sub-watershed not only changes the lands to be developed, but can also affect lands up and downstream. This necessitates careful study and assessment of watershed conditions, and identification of potential singular or *cumulative impacts* of the proposal on the broader watershed. This, along with corresponding watershed management strategies, is important to address prior to the establishment of an expanded urban boundary and preliminary land use and servicing schemes.

The Watershed Report Card allows watershed alliance groups to assess the health of a watershed and provide recommendations on short- and long-term targets for improving the health of a watershed. Report cards assess the state of a watershed against generally accepted standards and guidelines, and uses methods that can be repeated at regular intervals. Each watershed report card uses a suite of indicators of health, reports on major accomplishments, and identifies key actions that are needed to meet the targets for each indicator. TRCA report cards have been completed for the Humber, Don, and Etobicoke/Mimico watersheds.

7.2.5 It is the policy of TRCA:

- (a) To recommend that the *watershed* is the most ecologically-meaningful scale for integrated and long-term planning, which can be a foundation for considering the *cumulative impacts of development*.
- (b) To advocate for, participate in, and facilitate, or lead as appropriate, the preparation and updating of *watershed* strategies, *watershed* and *sub-watershed* plans, and *watershed* report cards.
- (c) To assess *cumulative impacts* through TRCA's regional *watershed* and waterfront monitoring programs, *watershed* plans, and *watershed* report cards.
- (d) To recommend that *watershed* or *sub-watershed* plans be completed or updated prior to or concurrent with municipal approval of urban boundary expansions.
- (e) That TRCA watershed and or sub-watershed plans and their associated Implementation Guides and technical background documents, as amended from time to time, be used by:
 - i) ~~TRCA staff to inform review of planning and environmental assessment proposals;~~
~~and,~~
 - ii) TRCA and its partners as reference documents to inform and guide ongoing work and long-term planning and budget preparation.
- (f) That *valley and stream corridors* be protected as a key component of the *Natural System*, in recognition of their ecological, social, and cultural landscape values.

7.3 ENVIRONMENTAL PROTECTION POLICIES

This section contains TRCA's policies for how to define, protect, enhance, and secure a resilient, integrated *Natural System* in an urbanizing and diverse jurisdiction. TRCA's *Natural System* is comprised of the following four components:

- Water Resources
- Natural Features and Areas
- Natural Hazards
- *Potential Natural Cover and/or Buffers*

7.3.1 The Natural System

Natural heritage protection has evolved from an approach that relied upon the identification of special features, preserving them as discrete entities – the so-called “Islands of Green” approach of the 1970s and 80s. The current approach is one in which all natural heritage features and water resources are considered in relation to each other and the broader landscape in which they occur. This “systems approach”, advocated by TRCA and directed by the PPS, also takes into account the natural functions and processes occurring on the landscape. These processes include natural hazards (e.g., flooding and erosion). The system's natural functions and processes are often modified by human activities. Encompassing all of

these elements to define an integrated *Natural System* recognizes the importance of: protecting life, *infrastructure* and property from natural hazards; maintaining and restoring native *biodiversity*; and, creating a more robust *Natural System* to improve its resiliency to the projected impacts of urbanization and potential climate change conditions.

Terrestrial Natural Heritage System Strategy

To understand the terrestrial component of the *Natural System*, TRCA has collected natural heritage inventory and monitoring data on an ongoing basis since the mid-1990s. Data clearly show the declines in native *biodiversity* in the jurisdiction. In an effort to address this decline, TRCA developed the Terrestrial Natural Heritage System Strategy (TNHSS) in 2007. The TNHSS identifies the need to not only protect natural features and areas, but to expand on them through restoration and connect them within the landscape. The “target” system that is identified in the TNHSS was developed by evaluating the quality, distribution and quantity of the terrestrial natural cover in the landscape as a single functional unit, rather than as separate natural areas. Central to the system are *valley and stream corridors* as well as other existing features outside the valleys such as *wetlands, woodlands* and meadows. The TNHSS also determines targets for improving the quality, distribution and quantity of terrestrial *natural cover* needed in the landscape in order to promote *biodiversity* as one of the requirements for a sustainable city-region. TRCA continues to evaluate and monitor the *ecological functions* and *biodiversity* of the natural system as well as the connection between the health of the system and human health.

Consistency with Provincial Direction

TRCA’s natural systems approach uses a broad landscape and landform conservation perspective, as found in the Oak Ridges Moraine Conservation Plan. It incorporates both a natural heritage system and a water resources system as in the Greenbelt Plan. A natural systems approach also identifies for protection a number of discrete terrestrial and aquatic features, as found in provincial plans. And similar to the PPS and Growth Plan, TRCA’s natural systems approach promotes the linkage of natural features *and areas* into a *Natural System* that can include “lands with the potential to be restored to a natural state.” (PPS, 2014) Lastly, TRCA’s *Natural System* synthesizes these three components – natural heritage, water resources, and natural hazards – through an integrated *watershed* management approach to also address, through a PPS lens, the protection of public health and safety from natural hazards.

Natural System Refinement and Implementation

The TNHSS focused on the terrestrial system of forests, wetlands and meadows. Further, the TNHSS was developed and modelled on a jurisdictional scale, based on all nine TRCA *watersheds*. Through the preparation of watershed plans for the individual watersheds, the relationship of the TNHS with water resources was further refined. Implementation of the TNHSS, however, is not meant to be strictly prescribed based on this scale, but rather refined through further work such as individual *watershed* or *sub-watershed* plans, municipal official plan studies and policy updates, and the more detailed studies conducted through environmental assessments, block plans and/or master environmental servicing plans. TRCA’s current approach to protecting and enhancing a *Natural System* recommends further refinement of the TNHS, through the planning and development process, with the integration of water resources and natural hazard components, including the provision of *potential natural cover*, or *buffers* and *erosion access allowances*, where appropriate. For example, many municipal official plans are using the natural systems approach in their environmental protection policies, establishing schedules with their own natural heritage systems. Some municipal natural heritage

systems are based on the regional system that TRCA modelled through the TNHSS and then refined at the watershed scale.

Ultimately, the limits of the *Natural System* adjacent to development are finalized by the municipality through the planning approval process. However, as noted in TRCA's municipal planning advisory service agreements (MoUs), TRCA is in no way limited in exercising its rights under the *Planning Act*, the *Conservation Authorities Act*, or any other applicable legislation to independently appeal or advocate any position on a planning decision to the Ontario Municipal Board. This is also applicable to TRCA's delegated responsibilities from the Ministry of Municipal Affairs and Housing and the Ministry of Natural Resources and Forestry as part of the Provincial One-Window Plan Review Service to represent the provincial interest on natural hazards encompassed by Section 3.1 of the PPS.

Given the complementary nature of TRCA's natural systems approach to the provincial and municipal planning framework, the following policies are the basis for TRCA's recommendations to approval authorities.

Goal: To protect, restore, and enhance the *Natural System* for the long term.

7.3.1 It is the policy of TRCA:

- a) That the *Natural System* be comprised of the following components: Water Resources, Natural Features and Areas, Natural Hazards, and any associated *potential natural cover* and/or *buffers*.
- b) That *development* and *site alteration* not be permitted in the *Natural System*, except in accordance with the policies in Sections 7.4 and 7.5 and 8.4 to 8.13.
- c) That *infrastructure* be located outside of the *Natural System* except in accordance with the policies in Sections 7.4 and 7.5 and 8.4 to 8.13.
- d) That notwithstanding policies 7.3.1 a) through c), the following may be permitted within the *Natural System*, subject to the policies in Sections 7.4, and 7.5 and 8.4 to 8.13:
 - alterations to existing development buildings and structures, including those for agricultural use,
 - *infrastructure,*
 - *recreational uses,* and
 - conservation-projects and conservation-related accessory uses.
- e) That the limit/boundary of the *Natural System* be determined in consultation with the municipality and, where required, the Ministry of Natural Resources and Forestry, based on the outermost limits of the components of the *Natural System* identified through:
 - i. natural heritage system policies and schedules in municipal official plans;
 - ii. TRCA Terrestrial Natural Heritage System Strategy mapping;
 - iii. *technical reports* prepared by the proponent in accordance with municipal requirements, *TRCA Standards* and *Provincial Standards*; and,
 - iv. site staking and mapping (also see natural hazard policies 7.3.1.4-3 a) to e).

Appendix **BA**, Illustrative Examples of the Natural System, contains depictions of the Natural System through labelled aerial photos and cross sections. The photos include greenfield, urban, and Lake Ontario shoreline scenarios, where some, or all, of the components of the *Natural System* are layered to comprise the limits of the System, i.e., water resources, natural features and areas, *natural hazards*, and *potential natural cover and/or buffers*.

- f) That the scope of required *technical reports* in policy 7.3.1 e) be dependent on the scale of the proposal and the proximity of the components of the *Natural System*. This will be determined through pre-consultation meetings, site visits as necessary, and based on the availability of data, the policies in this document, municipal requirements, *TRCA Standards* and *Provincial Standards*.
- g) To work with municipalities, and where appropriate, neighbouring conservation authorities, to continue to establish mapping for the components of the *Natural System* in their municipal official plans in accordance with provincial direction.

Technical Reports are reports, studies or plans, typically prepared to support and implement the recommendations of a *comprehensive environmental study*, that provide detailed information regarding one or more aspects of the natural or physical sciences. For the purposes of this document, *technical reports* may include, but are not limited to, hydraulic analyses, stormwater management reports, functional servicing reports, hydrogeology reports, geomorphology studies, geotechnical reports and environmental impact studies, or similar documents. *Technical reports* must be prepared by a qualified professional in the relevant field.

TRCA Standards are the most recently approved technical guidelines and checklists in TRCA's Planning and Development Procedural Manual, as amended from time to time. **Provincial Standards** are the most recently approved policies, manuals and technical guidelines administered or prepared by the Province, as amended from time to time.

7.3.1.1 Water Resources

Water resources are an underlying and fundamental component of the *Natural System*. The movement of surface and groundwater, as well as the energy and chemicals within it, affect the size, shape, and habitat of *watercourses*, and *kettle lakes*, among other water resource features. While people depend on water resources, their activities result in changes to various aspects of the system, such as aquatic ecosystems and groundwater resources.

Aquatic ecosystems are comprised of lakes, rivers, streams, ponds, *wetlands*, seasonally flooded areas, riparian lands and the plants, animals and other organisms that live in those habitats. Aquatic ecosystems include not only the living organisms such as fish, benthic (bottom dwelling) invertebrates, and in-stream and shoreline vegetation but also all the physical and chemical components of the hydrologic regime such as water quality, quantity, temperatures, sediment loads, and seasonal and daily flow variations. There are three broad categories of

riverine aquatic ecosystems in TRCA watersheds: cold-water systems in the headwaters largely reliant on local groundwater sources; cool to warm-water systems in the middle sections; and warm-water systems in the lower reaches. Along the Lake Ontario shoreline and extending out into the lake are near-shore (lacustrine) and deep-lake aquatic (pelagic) systems.

Groundwater resources are found in *aquifers* resulting largely from *erosion* and depositional processes that have occurred over hundreds of thousands of years. *Aquifers* are inter-layered with lower permeability units called *aquitards*. These subsurface landscape features are generally comprised of layers of earth, soil and rock materials. *Aquifers* are comprised of coarse-grained materials like sand, gravel and fractured bedrock that allow for surface water to easily sink down or infiltrate into the ground to replenish these large reservoirs. In contrast, *aquitards* are made up of layers of clay or non-porous rock which restrict the movement of groundwater between *aquifers*. The fine-grained *aquitards* separating the coarse *aquifer* layers play an important role in filtering out impurities from surface water as it slowly percolates downward to recharge the *aquifers*. Both shallow and intermediate *aquifers* can intersect the land surface and express themselves in *wetlands* and *watercourses*, seepage areas and springs, providing and supporting sensitive and high quality aquatic habitats and species.

Goal: To protect, improve, and/or restore water resources in order to sustain their form and/or function, as fundamental components of a healthy *Natural System*.

7.3.1.1 -It is the policy of TRCA:

- a) That Water Resources ~~could~~ include: *watercourses*, *headwater drainage features*, lakes, *hydrologic features as per Provincial plans*, *groundwater features*, *wetlands*, and other *surface water features*.
- b) To protect, improve, and/or restore the health and diversity of native aquatic habitat, communities, and species.
- c) To undertake a watershed-based, comprehensive, integrated and long-term approach for the protection, improvement, and/or restoration of the quality and quantity of water within TRCA's watersheds and Lake Ontario.
- d) That all Water Resources be protected from development, *site alteration* and *infrastructure* in accordance with the *Natural System* policies in section 7.3.1 and the Water Resources Management policies in 7.4.1.
- e) To not support modifications to *water resources* to accommodate or facilitate *development* except in accordance with this document, and in particular the policies in Sections 7.4 and 7.5 and Sections 8.4 to 8.13.

7.3.1.2 Natural Features and Areas

Natural features and areas are the building blocks of the *Natural System*. They are largely defined in the Provincial Policy Statement 2014 (PPS), the Oak Ridges Moraine Conservation Plan, the Greenbelt Plan, and municipal plans, but may also include additional components

demonstrated through TRCA watershed plans, ~~and~~ the TNHSS, field work, and technical reports, to be important to the long term protection and ecological functioning of the *Natural System*.

~~Natural Features and Areas of TRCA's Natural System include, but are not limited to:~~

~~Valley and stream corridors; wetlands; fish habitat, woodlands, wildlife habitat, habitat of endangered and threatened species, Species of concern, Areas of Natural and Scientific Interest (ANSIs), Environmentally Significant Areas (ESAs).~~

Sidebar: For ~~Purposes~~ purposes of ~~Implementing~~ implementing TRCA's Environmental Planning policies:

- *Confined River or Stream Valleys* are considered *Valley Corridors*
- *Unconfined River or Stream Valleys* are considered *Stream Corridors*

There may be reaches where there is a combination of both types of corridors. The limits of Valley and Stream Corridors shall be defined by the greater of the long term stable top of slope/bank, toe of slope, Regulatory flood plain, meander belt and any contiguous natural features and areas plus an applicable buffer.

In general, the PPS does not permit *development* or *site alteration* in significant natural features and areas, or on their adjacent lands, unless it has been demonstrated that there will be no negative impacts on the features or their ecological functions. Of note is the fact that the PPS is strictly for those natural features and areas that are identified as "significant". In this regard, the PPS sets the standards for conservation at a provincial level, and allows and encourages municipalities to go beyond this standard to reflect the needs for conservation at the local scale. The *Natural System*, supported by an extensive inventory of local data and expertise in conservation, is TRCA's version of the finer level of detail needed in order to be effective in conservation at a watershed scale.

Goal: To protect natural features and areas in their form and function as fundamental components of a healthy *Natural System*.

7.3.1.2 -It is the policy of TRCA:

- (a) That natural features and areas ~~could~~ include: *valley and stream corridors; wetlands; fish habitat, woodlands, wildlife habitat, habitat of endangered and threatened species, Species of concern, Areas of Natural and Scientific Interest (ANSIs), key natural heritage features as per Provincial plans, Environmentally Significant Areas (ESAs).*
- (b) That all natural features and areas within the *Natural System* be protected from *development, site alteration, and infrastructure* in accordance with the *Natural System* policies in 7.3.1.
- (c) That ~~any~~ any natural features ~~or and~~ or and areas ~~isolated outside from~~ isolated outside from the *Natural System* (e.g., tableland woodlands, tableland wetlands, headwater drainage features), be assessed in accordance with federal, provincial and municipal requirements, and TRCA standards, to determine the need to protect the natural feature or area and its functions, and any potential connection to the *Natural System*.

- (d) To not support modifications to natural features and areas to accommodate or facilitate *development* except in accordance with this document, and in particular the policies in Section 7.4 (Environmental Management) and Sections 8.4 to 8.13 (*Regulation*).

7.3.1.3 Natural Hazards

Valley and stream corridors and the Lake Ontario shoreline within TRCA's jurisdiction are the base components of the aquatic and terrestrial natural heritage system and core to the broader *Natural System*. As such, natural hazards associated with these areas are another component of TRCA's *Natural System*. Risks associated with natural hazards such as flooding and erosion include the potential for loss of life, property damage, social disruption, and environmental impacts. It is imperative to consider natural hazards using a systems approach, taking into account *cumulative impacts*, rather than on a piecemeal basis, since natural hazards often extend across wide geographic areas.

Sidebar: Occurrences of natural, physical environmental processes at the earth's surface that can produce unexpected events of unusual magnitude or severity are generally regarded as natural hazards (Ministry of Natural Resources [and Forestry](#), 2001). **Natural Hazards** include:

- Lands subject to flooding and *erosion* within *valley and stream corridors* and along the Lake Ontario Shoreline
- Unstable Soils, Unstable Bedrock

The following policies apply to all natural hazards as defined in the PPS as *hazardous lands* and *hazardous sites*. *Hazardous lands* are lands that could be unsafe for development due to flooding hazards, erosion hazards, or dynamic beach hazards. *Hazardous sites* are lands that could be unsafe for development due to unstable soil or unstable bedrock.

Goal: To protect the public and reduce property damage from the risks associated with natural hazards within TRCA's watersheds and shorelines.

Conservation Authorities have a **delegated responsibility** to represent the "Provincial Interest" on Natural Hazards as part of the Provincial One-Window Plan Review Service. (see Section 3 for further description)

7.3.1.3 -It is the policy of TRCA:

- a) To implement the delegated responsibility to represent the "Provincial Interest" on natural hazards in the review of policy documents and development proposals processed under the *Planning Act* to ensure consistency with Section 3.1, Natural Hazards, of the Provincial Policy Statement.
- b) That *development* and *site alteration* be directed to areas outside *hazardous lands* (*flood hazard, erosion hazard, dynamic beach hazard*) and *hazardous sites* (unstable soils, unstable bedrock), except as may be permitted by the policies in sections 7.4 and 7.5 and 8.4 to 8.13.

- c) That the limit and extent of *hazardous lands* and *hazardous sites* be determined in a manner consistent with *Provincial standards* and *TRCA standards* and in accordance with the policies in section 7.4.3 of this document. Such limits will be based on the natural state of the area without the use of mitigation or *remediation* works, unless the proposed works are consistent with the recommendations of an approved *environmental assessment* or *comprehensive environmental study* for the area, approved by TRCA.
- d) That as components of the *Natural System*, a *buffer* be applied to the limit of *hazardous lands* and *hazardous sites*, in accordance with section 7.3.1.4. This *buffer* shall include the applicable *erosion access allowances*.
- e) That TRCA will work with member municipalities to provide and update mapping of *hazardous lands* and *hazardous sites* and recommend to municipalities that these lands be designated and zoned appropriately in municipal planning documents.
- f) That no new lots be created within *hazardous lands* and *hazardous sites*, except for dedication to a public agency for protection purposes, and except as may be permitted by the policies in sections 7.4 and 7.5 and 8.4 to 8.13.
- g) That *development*, and *site alteration* not be permitted in areas that would be rendered inaccessible to people and vehicles due to *hazardous lands* and *hazardous sites*, unless the site has *safe access* appropriate for the nature of the *development* and the natural hazard.
- h) That *development*, and *site alteration* not be permitted in *hazardous lands* and *hazardous sites* where the use is:
 - i. an institutional use including hospitals, long-term care homes, retirement homes, pre-schools, school nurseries, day cares and schools;
 - ii. an *essential emergency service* such as that provided by fire, police, and ambulance stations, and electrical substations; or
 - iii. uses associated with the disposal, manufacture, treatment, or storage of hazardous substances.

Comprehensive Environmental Studies: studies or plans undertaken by or under the direction of a public agency at a landscape scale including *watershed* plans, *subwatershed* studies, environmental implementation reports, environmental management plans, or similar documents, that have been prepared to address and document various alternatives and are part of a joint and harmonized planning process, or community plans that include comprehensive environmental impact studies.

7.3.1.4 Potential Natural Cover and Buffers

The TNHSS's evaluation resulted in the production of a "target" system that includes much of the *existing natural cover* of forests, *wetlands* and meadows (about 25 per-cent of the region) plus additional areas to be restored, or *potential natural cover*. Therefore, among the PPS "areas with the potential to be restored to a natural state" in TRCA's jurisdiction, is *potential*

natural cover. *Potential natural cover* is land within the *target natural heritage system* that is not *existing natural cover*, but is needed to achieve TRCA's targets for regional *biodiversity* and the long term health of the *Natural System*. *Potential natural cover* can improve the resilience of the *Natural System* to impacts from urbanization and the potential impacts of climate change. It is anticipated that *potential natural cover* lands will become a vegetation community of meadows, *woodlands* or *wetlands*, after being restored from their existing state. Some municipal official plans contain natural heritage policies and schedules that include restoration or enhancement areas similar to *potential natural cover*. Realizing the securement and *restoration* of *potential natural cover* through the planning and development process must be a cooperative endeavour among stakeholders (e.g., landowners/proponents, municipalities, TRCA) toward improving both *watershed* and human health. Because *potential natural cover* affects development limits its extent in a development application is ultimately determined by the municipality as the planning approval authority.

It should be noted that some natural heritage features, terrestrial, aquatic, or otherwise, may not have been captured by the TNHSS, and yet may still be ecologically important (for providing small scale/local *ecosystem services*) and/or require protection under other federal or provincial legislation and/or municipal official plans. These features are often "isolated" in that they have no apparent connection to the *Natural System*, (see policy 7.3.1.2 (c)) but may warrant protection by placing *buffers* on their outer limits and establishing a connection to the *System*. A *buffer* is a natural strip of land contiguous and parallel to natural features, that helps alleviate the negative impacts of *development* on natural features and functions. In order to best serve this function, buffers should be planted with native species and should not be stripped, filled or graded. The size of a buffer may vary depending on the feature and on municipal or provincial requirements.

Within the context of natural hazards, a *buffer* may include a non-vegetated *erosion access allowance* required to manage a natural hazard. An *erosion access allowance* is the setback needed to ensure there is a large enough safety zone for people and vehicles to enter and exit an area during an emergency, such as a slope failure, flooding, or a forest fire. Section 7.3.1.3 contains a policy on erosion access allowances as part of a buffer; the size of an erosion access allowance will vary depending on the hazard type, location, and municipal or provincial requirements. In addition, municipal zoning by-laws often stipulate structural setbacks from property lines in order to access buildings and other structures for maintenance, etc.; the area required for these setbacks should not encroach into *potential natural cover* or *buffers*.

As well, it may be that through site-specific analysis, a feature is identified that does have an above or below ground connection to the *Natural System* and therefore may be able to be incorporated into the *System*. This should be determined in consultation with TRCA and the municipality.

Goal: To protect lands with the potential to be restored in order to enhance *existing natural cover* and manage natural hazards.

7.3.1.4-It is the policy of TRCA:

- a) That all areas of *potential natural cover* be protected for *restoration* and enhancement, in accordance with the *Natural System* policies in 7.3.1.
- b) That when any of the following apply:
 - i. *potential natural cover* cannot be protected as described in policy 7.3.1.4 a); or
 - ~~ii. the outer limit of a natural feature or area and/or a natural hazard coincides with the outer limit of the *Natural System*; or~~
 - iii-ii. there exists an isolated natural feature and/or a *natural hazard* that warrants protection but it is not captured, or not entirely captured, by ~~the *Natural System*~~ 7.3.1 e) i) and ii),

~~The~~ the limit of the *Natural System* be determined by **the greater of** the outer limits of the natural feature and/or *natural hazard* to *development* or *site alteration*, as follows:

Valley or Stream Corridors – a 10-metre *buffer* from the greater of the long term *stable top of slope/bank, stable toe of slope, Regulatory flood plain, meander belt*, and any contiguous natural features or areas;

Wetlands – a 30-metre *buffer* from *provincially significant wetlands* and a 10-metre *buffer* for all other *wetlands* and any contiguous natural features or areas;

Woodlands – a 10-metre *buffer* from the *dripline* and any contiguous natural features or areas;

Lake Ontario Shoreline – a 10–metre *buffer* from the greater limit of the *flood hazard, erosion hazard* and/or *dynamic beach hazard* and any contiguous natural features or areas;

Any additional distances prescribed by federal, provincial, or municipal requirements or standards (e.g., Greenbelt).

Any additional distances demonstrated as necessary through *technical reports*.

- c) That all *buffers* be protected from stripping, filling or grading, for *restoration* and enhancement, in accordance with the *Natural System* policies in 7.3.1.
- ~~d) That with respect to policy 7.3.1.4 b) iii, a connection from the isolated feature to another natural feature or area should be considered.~~
- e)d) That municipal structural setbacks on buildings and structures that may be required for maintenance be outside of *buffers* and areas of *potential natural cover*.

Appendix B, Illustrative Examples of the Natural System, contains depictions of the *Natural System* through labelled aerial photos and cross sections. The photos include greenfield, urban, and Lake Ontario shoreline scenarios, where some, or all, of the components of the Natural System are layered to comprise the limits of the System, i.e., water resources, natural features and areas, *natural hazards*, and *potential natural cover* and/or *buffers*.

7.3.2 Conveyance of the Natural System into Public Ownership

As a “last step” in setting aside lands for environmental protection through the planning process, TRCA typically recommends that the *Natural System* blocks within a development area, be conveyed (gratuitously dedicated) into public ownership (either to TRCA or the municipality) by the landowner/developer. Most TRCA land acquisition is achieved through the planning process, but it is just one of the tools used to secure land. Other tools for acquisition are listed in TRCA’s Greenlands Acquisition Program (GAP) [2011-2015 as updated from time to time](#).

Under the provisions of the *Conservation Authorities Act*, [the](#) GAP is TRCA’s land acquisition program. The GAP is updated every five years by TRCA’s Property Division and is approved by the Minister of Natural Resources [and Forestry](#). The GAP’s aim is to acquire property, whether by *fee simple*, leasehold, easement, covenant, or stewardship agreements in hazard, conservation and environmentally sensitive lands. This is in order to protect against use that would affect the lands’ ability to perform its natural functions and to conserve the lands for the benefit of the people within TRCA’s watersheds (TRCA, 2010). The *fee simple* form of ownership is preferred for these purposes given that full property rights are assigned to the owner.

Goal: To secure the *Natural System* in public ownership for its long term protection and maintenance.

[7.3.2](#) It is the policy of TRCA:

- a) That as a recommended condition of planning approvals, TRCA may request that all lands [deemed that are identified as](#) part of the *Natural System*, be conveyed into public ownership.
- b) To proceed with acquisition of *Natural System* lands through the planning process in partnership with the landowner(s), his/her agent(s), and the municipality.
- c) To advocate that *fee simple* public ownership, free of *encumbrances*, provides the best protection of the *Natural System* for the long term, and is therefore the most preferred form of ownership.
- d) That where it is determined that *fee simple* public ownership is not feasible, TRCA will rely on TRCA’s Greenlands Acquisition Project in considering other mechanisms (e.g.,

conservation easements, stewardship agreements) to protect the *Natural System* for the long term.

- e) To generally require fencing at the boundary of *development* lands abutting the *Natural System*, in consultation with TRCA's municipal partners, or other public agencies taking ownership of *Natural System* lands.
- f) That *archaeological assessment* of lands to be dedicated to TRCA may be required where the lands are to be disturbed, e.g. for a trail or *infrastructure*, in accordance with the procedures for *archaeological assessment* in the TRCA Planning and Development Procedural Manual.
- g) That prior to the close of a transfer of lands to TRCA, Authority Board approval be required.
- h) That prior to the close of a transfer of lands to TRCA, TRCA will potentially require a number of legal and/or administrative items to be completed, as outlined in the TRCA Planning and Development Procedural Manual.
- i) To take every opportunity through the planning and development process to report on encroachments onto TRCA lands, e.g., site visits, notification to TRCA through Environmental Impact Studies, baseline condition surveys, or ecological monitoring reports.

7.4 ENVIRONMENTAL MANAGEMENT POLICIES

Meeting TRCA's strategic objectives for healthy rivers and shorelines, greenspace and *biodiversity*, and sustainable communities, is not only about setting aside lands from development and for public acquisition, it is also about sustainable design for the lands that are developed. The following policies are for developing adjacent to, and in, the *Natural System* (where permitted), while minimizing impacts to, maintaining, and enhancing the functions of the protected *Natural System*. At the same time, these policies seek to integrate the natural and built environments, maximizing opportunities for *ecosystem services* from across the entire landscape. Taking this integrated view is important for assessing and addressing the impacts of development on a cumulative as well as an incremental basis and for adapting development design to changing watershed conditions over time.

7.4.1 WATER RESOURCES MANAGEMENT

This water resources management section contains sub-sections on stormwater management and source water protection. Both sections' policies aim to manage water at its source: stormwater management for the health of streams, rivers, lakes, fisheries and terrestrial habitats, and source water protection for managing the quality and quantity of drinking water at its source. And ultimately, both sets of policies are important for human health and safety.

Readers should take note that some of these policies reference other sections in The Living City Policies such as the water resource policies (sub-section 7.3.1.1), stormwater management *infrastructure* policies (sub-section 7.5.1.3), and *Regulation* policies (Section 8.0). It should also be noted that some water management policies refer to separate TRCA technical guideline documents for more detailed requirements.

The Hydrologic Cycle

The hydrologic cycle, or water cycle, refers to the pathways and storage of water in various parts of the ecosystem, as illustrated in Figure 7.3 below. The natural water cycle begins with precipitation that infiltrates into the ground, evapotranspirates from plants into the air, and runs off onto the surface of the ground and into watercourses. The *Natural System* that TRCA is striving to protect through this policy document is dependent upon this natural cycling of water. In turn, the *Natural System* provides a water management function; natural areas can reduce erosion and offset water volume increases, among other *ecosystem services*.

7.4.1.1 Stormwater Management

Managing the *hydrologic cycle*, or the *water balance*, through stormwater management (SWM) is a vital practice in planning and designing more robust and more resilient sustainable communities. Once a previously permeable surface (e.g., agricultural field) is converted to impermeable surface through urban development (including roads, driveways, sidewalks, roofs, etc.), the hydrologic cycle is altered. SWM attempts to address the altered condition in which, generally, infiltration and *evapotranspiration* decline and surface runoff increases in both volume and flow. Large portions of some of TRCA's watersheds (e.g., the Don River watershed), were developed prior to stormwater management. These areas are generally characterized by higher levels of flooding and erosion, and poor water quality (and poorer fish habitat) as a result. When undergoing redevelopment, these areas could benefit from SWM retrofit wherein SWM controls are introduced, or any existing but inadequate SWM controls are updated.

In order for SWM to effectively mitigate the impacts of development and site alteration to the extent possible, TRCA requires that a number of criteria be met:

- i. Water Quantity,
- ii. Water Quality,
- iii. *Erosion* control, and
- iv. *Water balance* for groundwater recharge and natural features.

Prior to the policies for stormwater management in this section, each stormwater management criterion is described in summary, while their corresponding technical details are found in the TRCA Stormwater Management Criteria Document, 2012 (the SWM criteria document). The SWM criteria document is based on TRCA *watershed* plans and *hydrology* studies, therefore the criteria are subject to change based on the approval and adoption of updated studies.

Water Quantity (Flood Control)

Water quantity in stormwater management, refers to the control of flood flows created by stormwater. Development is required to address water quantity in order to protect downstream properties from flood increases due to upstream development. Typically, *watercourses* in urban watersheds are characterized by fast or “flashy” responses to rainfall events due to higher amounts of impervious area that increase the volume and frequency of stormwater surface flows. Controlling flood flows, as outlined in the SWM criteria document, seeks to ensure that development manages the flood flows it affects so that it does not increase risk to life, property and infrastructure.

It should be noted that the SWM criterion for quantity has traditionally focused on the 100-year storm level of control, but the SWM criteria document identifies the need to analyze and potentially mitigate the impacts of urbanization on Regional flood flows (Hurricane Hazel). Stormwater flows are routinely managed to the 100-year level, as impacts on *Regional Storm* flows are normally considered minor due to soil saturation and watershed hydrological timing. However, TRCA’s recent hydrological modelling has found that as urbanization continues further from Lake Ontario into the headwater areas, there is a potential that flood risks downstream can increase for the *Regional Storm* event.

Water Quality

In addition to affecting the distribution of water quantity in the different components of the *water budget*, urbanization adversely impacts the quality of the rainfall once it comes into contact with the ground surface and associated features. As storm runoff travels across roofs, parking lots, and other hardened surfaces, a variety of contaminants and pollutants accumulate, which are ultimately conveyed to receiving watercourses. Soluble contaminants may also infiltrate into the ground and reach groundwater systems. The loss of the original vegetation and topsoil eliminates an invaluable filtering mechanism for storm runoff. Therefore, meeting the water quality criterion outlined in the SWM criteria document is critical for limiting the levels of contaminants in stormwater and their impacts.

Meeting the water quality criterion is also important for the operations and maintenance requirements of flood control infrastructure. For example, the Yonge and York Mills and Stouffville flood control channels are particularly affected by sediment loading due to upstream development. *Sedimentation* leads to a decreased storage capacity and subsequent decrease

in the channels' ability to convey flood flows. This may result in the need for increased maintenance requirements for sediment removal.

Erosion Control

The urbanization of a watershed has a direct impact on the morphology, or physical shape and character, of the local receiving *watercourses*. For example, in order to accommodate the increased volume and velocity of surface runoff, widening and undercutting of the receiving watercourse can occur, in turn causing steep banks to slump and fail during severe storms. In addition, the bed of the watercourse may change due to sediment covering the natural substrate with shifting deposits of mud, silt, and sand, thereby affecting aquatic habitat; downcutting of the channel bed creates instability which can lead to increases in the velocity of stream flow and *erosion* both upstream and downstream. Finally, loss of riparian tree canopy cover results from the constant undercutting and failure of the stream banks, exposing tree roots and other woody vegetation that would otherwise serve to stabilize the banks of the watercourse. TRCA's erosion control criterion, as outlined in the SWM criteria document," details how erosion must be mitigated based on development area, size, and character of the receiving watercourse.

Water Balance (for Groundwater Recharge and Natural Features)

Alteration of the *hydrologic cycle* or *water balance* due to urbanization (and associated activities to facilitate urbanization, such as dewatering) can ~~impact cause~~ natural features, such as *watercourses, wetlands, and woodlands*. For example, these features may, to experience altered *hydroperiods* and surface and groundwater inputs, resulting in changes to the water available for ecological processes necessary for natural features' proper functioning and survival. Urbanization can also reduce the amount of rainfall available to recharge groundwater and sustain *aquifers* needed for human use.

Designing a stormwater management system that controls the volume of stormwater flows through encouraging water to infiltrate into the ground, to evapotranspire, and/or to be re-used, is critical to sustaining groundwater resources, and to managing flow to natural features that rely on the surface and groundwater flow regime. This volume control works towards replicating the volume pattern and distribution of water to natural features, to maintain *hydroperiods*, moisture regimes, and seasonal fluctuations. Managing the *water balance* for groundwater and natural features also realizes benefits for other stormwater management criteria, namely water quality and erosion control. ~~The TRCA's SWM Criteria Document"~~ requires an assessment of site-specific characteristics to determine which stormwater management practices are best suited to meeting the *water balance* criterion for groundwater recharge and/or natural features.

TRCA's Stormwater Management Criteria and Low Impact Development documents promote measures that address flooding and erosion hazards that occur when a watercourse overtops its banks. However, these same measures can also help address urban flooding. Urban flooding refers to municipal infrastructure (sewers and streets) exceeding its capacity to convey stormwater runoff. Given the complex interactions among stormwater, watercourses and infrastructure, TRCA and municipalities must work together to address the different types of flooding typical to an urban setting.

Low Impact Development and Resiliency

Some of the SWM criteria can be met through the use of *low impact development* measures (LID) to complement other conventional SWM measures; LID can include source and conveyance controls that infiltrate, re-use, or evapotranspire runoff. LID's distributed form, or *treatment train approach* to SWM infrastructure and lot level measures, offers an important consideration for SWM given that distributed systems provide more resiliency than exclusively implementing conventional, larger end-of-pipe facilities. Resilient infrastructure can be defined as infrastructure with the ability to reduce the magnitude and/or duration of disruptive events. Resilience depends upon infrastructure's ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event. The importance of having resilient infrastructure will continue to rise as the potential impacts of climate change increasingly affect water and weather patterns and test communities' ability to adapt to changing conditions. The TRCA/CVC Low Impact Development Stormwater Management Planning and Design Guide, 2010, outlines a host of best management practices, which can be used in combination with traditional SWM measures, to: manage stormwater volumes innovatively; help protect the *Natural System* over the long term; improve infrastructure resiliency; and thereby provide a higher level of *ecosystem services* within the built environment.

Goal: That stormwater management effectively mitigate the impacts of urbanization and the potential impacts of climate change on the hydrologic cycle, and to provide additional *ecosystem services* within the developed portion of the landscape.

Objectives:

- To prevent increases in flood and *erosion* risks to life, property and *infrastructure*;
- To maintain pre-development runoff volume, frequency, and duration from frequent storm events;
- To protect or improve water quality;
- To protect or improve/restore the volume, distribution and seasonal pattern of infiltration, groundwater discharge and/or runoff to natural features;
- To maintain the ecological and hydrological functions of terrestrial and aquatic systems;
- To recognize the *cumulative impacts of development* on water resources and to work with proponents and municipalities to seek out tools for avoiding, mitigating and/or compensating for *cumulative impacts*; and
- To facilitate an *adaptive management* approach to development through monitoring and the promotion of adaptable design.

7.4.1.1.1 Policies for Stormwater Management

7.4.1.1.1 -It is the policy of TRCA:

- a) That all *development* and *site alteration, infrastructure, and recreational use* meet TRCA's stormwater management criteria for water quantity, water quality, *erosion* control, and *water balance* for *groundwater recharge* and natural features, as demonstrated through technical reports, and as more specifically described in TRCA's Stormwater Management Criteria Document.

- b) That policy a) apply to all stages of the planning and development process, including: Master Plans, environmental assessments, official plan amendments, zoning by-law amendments, community/block plans, Master Environmental Servicing Plans (MESPs), draft plans of subdivision, and site plans, and that proponents submit *technical reports* in accordance with TRCA's Stormwater Management Criteria Document to the satisfaction of TRCA and the municipality.
- c) That where existing *development* or *infrastructure* has stormwater management controls that do not meet current SWM criteria, *redevelopment, intensification* or expansion of these areas be accompanied by a stormwater management retrofit plan. And furthermore, that the retrofit plan be developed in consultation with TRCA and the municipality with the goal of meeting TRCA's stormwater management criteria for the existing and new portions of *development* or *infrastructure*.
- d) That the scope of the *technical reports* referred to in policies 7.4.1.1.1 ~~ba)~~ through and c) be determined by TRCA in consultation with the municipality, and be incorporated into a Terms of Reference, prior to commencement of the studies, where applicable.
- e) That the *technical reports* referred to in policies 7.4.1.1.1 ~~ba)~~ and through c), demonstrate how TRCA SWM criteria can be met through the use of a *treatment train approach*, in accordance with the TRCA SWM Criteria Document and the Ministry of the Environment and Climate Change's SWM Planning and Design Manual. Potential SWM practices to be considered in this analysis are identified in TRCA's Low Impact Development Planning and Design Guide.
- ~~f)~~ f) That the *technical studies-reports* referred to in policies 7.4.1.1.1 ~~ba)~~ and c) meet provincial natural hazard standards in accordance with the natural hazard and regulation policies of Section 8.
- g) To work with municipalities to develop a groundwater conditions screening tool for underground development (e.g., building foundations, underground parking) and infrastructure in order to avoid continuous and extensive dewatering (also see 7.4.4.1.1 Underground Infrastructure).
- ~~f)~~
- h) To encourage coordination among municipalities and between the public and private sectors in the planning of stormwater management facilities for development and infrastructure within the same drainage area.
- ~~g)i)~~ i) To work with municipalities and proponents to monitor pre-development (existing) and post-development conditions for receiving *watercourses*, including stream flow, channel form, surface and groundwater levels, water quality, and aquatic and terrestrial habitat and species, to inform future development.
- ~~h)i)~~ i) To work with municipalities and proponents to promote development design that can adapt for the impacts identified through monitoring referred to in policy 7.4.1.1.1 ~~g)i)~~.

7.4.1.2 Source Water Protection

Various provincial legislation, plans, and policies are in place to protect clean and safe sources of drinking water. This includes the Provincial Policy Statement, the *Clean Water Act* and the Oak Ridges Moraine Conservation Plan. The *Clean Water Act* requires the preparation of Source Protection Plans. The Oak Ridges Moraine Conservation Plan has policies for land use restrictions in areas of wellhead protection and *aquifer* vulnerability. The PPS requires the protection of the quality and quantity of water by identifying water resource systems, including *groundwater features*, to maintain linkages and related functions necessary for ecological and hydrological integrity and drinking water supplies.

Through the regulatory process of the *Clean Water Act*, TRCA leads the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) ~~regional~~ Source Protection ~~Committee~~ (CTC-SPR) in preparing and updating assessment reports and ~~a~~-source protection plans. The overall intent of source water protection planning is to establish policies and actions to protect both the quality and quantity of sources of drinking water within a watershed. The legislation is designed to protect existing and future sources of drinking water from activities that are determined to be significant drinking water threats. This is accomplished through the preparation of an assessment report where both existing and future significant drinking water threats are identified. A source protection plan contains policies and actions intended to ensure that existing significant drinking water threats cease to be significant threats and prevent future significant drinking water threats. TRCA, as part of the CTC Source Protection Region ~~SPR~~, has prepared the Source Protection Plan and accompanying technical documents, which may be updated from time to time. Once the Plan has been approved by the Province, municipal official plans will be amended to conform with the Plan.

The *aquifer* system of the Oak Ridges Moraine is vitally important in providing a source of drinking water for several hundred thousand people within TRCA's jurisdiction and beyond. It is generally accepted that there are three major *aquifer* systems under the ORM: a shallow system from which most private wells take their water supply; an intermediate *aquifer*, and a deep *aquifer* system that is the source for most municipal well water supplies serving town and village populations. The ORM also feeds the *headwaters* of rivers that eventually make their way to Lake Ontario, the source of drinking water for the majority of people within TRCA watersheds.

Goal: To support our municipal partners in protecting the quality and quantity of sources of drinking water for human health.

Objectives:

- To sustain water supplies available for human use; and
- To protect existing and future drinking water sources in the source protection area.

7.4.1.2.1 Source Water Protection Policies

7.4.1.2.1 -It is the policy of TRCA:

- a) To support the legislated protection of municipal drinking water sources through the *Clean Water Act* and to continue to participate as a partner in:

- i.) the formulation and updating of Source Protection Plans and Assessment Reports, and monitoring the implementation of such plans.
- ii.) undertaking stewardship, education and outreach to landowners in *designated vulnerable areas*.

b) To support the *Clean Water Act* and the Oak Ridges Moraine Conservation Plan in the protection of drinking water sources, and continue to participate as a partner in the implementation of the York-Peel–Durham- Toronto Groundwater Management Program and other watershed, groundwater, and monitoring programs that advance the science and understanding of drinking water sources.

The York- Peel- Durham-Toronto (YPDT) and Conservation Authorities Moraine Coalition (CAMC) Groundwater Management Program - Established in 2001, the YPDT - CAMC program is focused on compiling and managing groundwater resource information, including the long-term management of groundwater-related data, maps, reports and resource knowledge for the purposes of effective resource stewardship and management. The program builds, maintains and provides partner agencies with the regional geological and hydrogeological context for ongoing groundwater studies and management initiatives within the partnership area.

7.4.2 NATURAL FEATURES AND AREAS MANAGEMENT

The Environmental Protection Policies of Chapter 7 identify and describe the need for a *Natural System* made up of protected components of water resources, natural features and areas and natural hazards, and *potential natural cover*, and *buffers* where applicable. However, if during the early stages of the planning and development process, it is determined that it is not feasible to protect the full *Natural System* from *development*, management tools may be appropriate. For example, where existing *development* precludes the protection of an area of *potential natural cover* or the minimum *buffer*, TRCA, in consultation with the municipality, may support a reduced *buffer*, on the condition that the feature and the *buffer* are enhanced with plantings of trees and shrubs as appropriate. In general, the use of these tools is subject to –federal, provincial or municipal requirements applicable in the planning process.

Further, if a natural feature itself cannot be protected, TRCA may recommend *compensation*. However, *compensation* is a management tool that should only be used as a “last resort”, being an option only where federal, provincial and municipal requirements do not protect the feature, and only after all other options for protecting the feature have been evaluated. ~~TRCA’s Compensation Protocol will outline a process for defining an appropriate compensation value.~~

~~TRCA’s Compensation Protocol is still in draft and will be undergoing stakeholder consultation.~~

TRCA will always advocate first for the protection of natural features and the full *Natural System*. However, when the planning or environmental assessment approval process es permits losses to the *Natural System*, compensation can be is a mechanism for replicating *ecosystem services*. ~~Criteria for compensation will be outlined in TRCA’s draft Compensation Protocol, which should be used to determine an appropriate compensation value once the decision has~~

~~been made through the planning or environmental assessment process(es) to proceed with compensation.~~

Compensation should:

- Only be considered once the protection hierarchy has been applied – avoid/minimize/mitigate first;
- Where feasible, take place in proximity to where the loss occurs;
- Be informed by current ~~scientific-ecological~~ knowledge of TRCA's ecosystems and watershed strategies and any applicable municipal strategies in watershed management;
- Strive for no loss of *ecosystem services* ;
- Be carried out in a transparent and timely manner;
- Be based on an *adaptive management* approach incorporating monitoring and evaluation, where appropriate.

Goal: To manage natural features and areas and *adjacent lands* consistent with protecting, restoring and enhancing the *Natural System* for the long term.

Objectives:

- To advocate first that natural features and areas be protected insitu;
- To achieve an improvement to the *Natural System* through natural features and areas management; and
- To enhance *ecosystem services* from both non-developable (the *Natural System*) and developable lands through natural features and areas management.

7.4.2.1 Natural Features and Areas Management Policies

7.4.2.1 -It is the policy of TRCA:

- a) That notwithstanding ~~policy-policies~~ 7.3.1.4 a) and (b), for properties undergoing *redevelopment*, a *buffer* of less than 10 metres (or less than 30 metres from a provincially significant *wetland*) may be considered, subject to all of the following:
 - i) ~~the~~ federal, provincial, or municipal requirements for *buffers*;
 - ii) ~~the~~ the natural hazard policies in section 7.4.3;
 - iii) ~~no~~ no further loss of *buffer* than what currently exists;
 - iv) ~~consistency~~ consistency with *buffers* in the same corridor reach; and may be subject to:
 - v) ~~the~~ the proponent submitting an Environmental Impact Study (EIS) in accordance that meets with Provincial standards, and TRCA standards, and any applicable municipal standards. The EIS should contain recommendations for the enhancement and management of both the feature and the *buffer*.
- b) That in general, the distance of *adjacent lands* for the purpose of conducting studies to demonstrate no negative impacts will be 120 meters from natural features and areas, in keeping with provincial directions. This distance may vary depending on the scale and scope of an application for *development* or *site alteration*, the anticipated sensitivity of

the natural features and areas, and any intervening lands uses, as determined through pre-consultation meetings, municipal requirements and site visits.

- c) To recommend that when *development* or *infrastructure* cannot fully protect a *natural feature* or any other component of the *Natural System*, *compensation* for lost *ecosystem services* be provided.
- d) To recommend that the decision to pursue *compensation* referred to in policy 7.4.2.1 (c) be subject to:
 - i) ~~the~~ *Natural System* not being protected by any other applicable federal, provincial, or municipal requirement(s);
 - ii) ~~all~~ other efforts to protect the *Natural System* being exhausted first;
 - iii) ~~it~~ taking place in consultation with the municipality and the landowner;
 - iv) ~~it~~ taking place at the appropriate level of the planning and development process for maximizing options for enhancement to the *Natural System*, e.g. MESP, Environmental Assessment.
- e) To recommend that *development and infrastructure* adjacent to the *Natural System* maintain existing topography to the maximum extent possible, therefore reducing or eliminating the need for the use of structural measures such as retaining walls to meet or maintain existing grades.
- f) To recommend a natural approach to the landscaping of *adjacent lands* through the use of native, non-invasive and locally appropriate species.
- g) To not support a boundary adjustment to recognize any component of the *Natural System* that has been altered, damaged, or destroyed by unauthorized activities; such activities will require replacement or *rehabilitation* of the feature(s) and its functions.
- h) That where *fish habitat* is deemed to be lost as a result of *development* or *site alteration*, that *fish habitat* be mitigated and compensated for in accordance with provincial and federal requirements, and applicable municipal requirements or TRCA standards.
- i) To recommend, with respect to policy 7.4.2.1 ih), that fisheries management plans and/or watershed management plans for TRCA watersheds (and for the Toronto Waterfront, the Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS)) be used as guidance documents in the process of mitigation and compensation.

7.4.3 Natural Hazard Management

Historically, due to resource needs and aesthetic appeal, valley and stream corridors and the Lake Ontario shoreline are among the most attractive locales in which to live or work, despite their being prone to natural hazards. Since it is impossible to completely eliminate the threat of natural hazards, a risk management approach is taken through planning to contend with development in or near these naturally occurring processes. Managing the risks associated with natural hazards is a long-term development issue. This approach recognizes that there is always risk associated with natural hazards and establishes an appropriate level of risk to which the general public may be exposed. The minimum standards for acceptable levels of risk are set by the Province through the Ministry of Natural Resources [and Forestry](#).

Goal: To prevent, eliminate or minimize the risk to life and property from the risks associated with natural hazards (*hazardous lands and hazardous sites*).

Objectives:

- To ensure that no new hazards are created or that existing natural hazards are not aggravated through *development* and *site alteration*;
- To assess the impacts of *development* on *natural hazards* on an incremental and cumulative basis;
- To manage *development* and *site alteration* in order to prevent negative impacts to natural features, areas and landforms within the *Natural System*, including their *ecological functions* and *hydrological functions*; and
- To promote the integration of municipal and environmental assessment planning, *remediation*, risk management and emergency services planning.

7.4.3.1 General Natural Hazard Management Policies

These general policies apply to all *hazardous lands* and *hazardous sites*. While all policies in Section 7 should be read comprehensively, the policies for Natural Hazard Management – Section 7.4.3 have a distinct connection with the other policies in Section 7 (Natural Features and Areas, Water Resources, etc.) and Section 8 (*Regulation Policies*).

[7.4.3.1](#) -It is the policy of TRCA:

- a) That natural hazards within TRCA's *watersheds* and along the Lake Ontario Shoreline be managed using a comprehensive risk-based approach that considers, but is not limited to, the following factors:
 - i. risk to life and property;
 - ii. upstream and downstream flood and erosion impacts;
 - iii. impacts to coastal processes on a shoreline reach basis;
 - iv. *cumulative impacts*;
 - v. impacts to water resources, natural features and areas, and *natural systems*, including their *ecological functions* and *hydrological functions*;
 - vi. impacts to the control of flooding, *erosion*, *dynamic beaches*, *pollution* or the *conservation of land*;
 - vii. climate change;
 - viii. economic feasibility;
 - ix. social impacts;

- x. *mitigation* and *remediation* opportunities; and
 - xi. acquisition.
- b) To promote *mitigation* and *remediation* works for existing development and *infrastructure* within *hazardous lands* and *hazardous sites* through the preparation and review of an environmental assessment or *comprehensive environmental study* or *technical study*, to the satisfaction of TRCA.
 - c) To not support modifications to *hazardous lands* and *hazardous sites*, such as filling, enclosure or channelization, to create additional area to accommodate or facilitate new development or intensification.
 - d) That notwithstanding 7.4.3.1(c), in circumstances where TRCA agrees that the modifications to *hazardous lands* and *hazardous sites* will result in permanent *remediation* and reduction of risk to existing development, serve to improve public safety or significantly improve existing hydrological or ecological conditions, such modifications may be considered where it can be demonstrated to the satisfaction of TRCA that:
 - i. the modifications have been evaluated on a valley or stream corridor or shoreline reach basis;
 - ii. acceptable justification has been provided through a subwatershed plan, an environmental assessment or *comprehensive environmental study*; and
 - iii. all applicable policies in Section 7 and 8 (Regulation Policies) have been satisfied.
 - e) To recognize that certain types of *development* and *site alteration* by their nature must locate within *hazardous lands* and *hazardous sites*, and the associated *buffer*. TRCA may support such works where they have been addressed through an environmental assessment, *comprehensive environmental study* or *technical report*, completed to the satisfaction of TRCA in accordance with the policies of this section and Section 8.0 (*Regulation*). This may include, but is not limited to, *infrastructure*, passive or low intensity outdoor recreation and education, conservation or *restoration* projects and *remediation* or *mitigation* works to protect existing development.
 - f) To work with member municipalities and other partners to advance climate change science and research to better understand potential impacts on natural hazard management.

7.4.3.2 Valley and Stream Flood Hazard

As directed by the Province, the flood event standard adopted by TRCA is the greater of the Hurricane Hazel storm event (the Regional Storm) or the 100-year storm event. The flood produced through these calculations is referred to as the *Regulatory Flood*. Under *Regulatory Flood* conditions, the *flood plain* may be divided into two sections – the *floodway* and the *flood fringe*. The *floodway* is the area of the *flood plain* that passes the flows of greatest depth and velocity. The *flood fringe* lies between the *floodway* and the outer edge of the *flood plain*. Depths and velocities in the *flood fringe* are less severe than those in the *floodway*. Based on this division, TRCA implements three approaches, in accordance with Provincial policies and

standards, for managing river or stream valley flood hazards: *One Zone Concept*, *Two-Zone Concept*, and *Special Policy Areas*.

One Zone Concept:

The majority of valley and stream corridors within TRCA's jurisdiction are subject to the *One Zone Concept* to *flood plain* management. In this approach, the entire area within the flood hazard limit, (i.e., the *Regulatory Flood Plain*), is considered to be one management unit (i.e., "one zone") and is referred to as the *floodway*. The *One Zone Concept* is the most restrictive and effective way to manage flood hazards from a risk management perspective.

(One Zone Concept, Flooding Hazard Limit – See also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNRE, 2001))

Two Zone Concept:

Exceptions to the *One Zone Concept* exist where the *Two Zone Concept* has been applied in accordance with Provincial standards and approval by the relevant agencies. The *Two Zone Concept* is only considered where TRCA, in cooperation with the member municipality and the Province, after due consideration of local circumstances, agrees that the adoption of the concept is suitable. The application of this approach is on a *subwatershed* or major reach basis, not a lot-by-lot basis. The *Two Zone Concept* separates the *flood plain* into the *floodway* and *flood fringe*. *Development* and *site alteration* in the *flood fringe* may be permitted, subject to specific conditions, including floodproofing to the Regulatory Flood. The feasibility of a Two Zone Area requires the examination of a number of factors and implementation necessitates the assurance that various conditions will be adhered to. Where TRCA and the member municipality agree to adopt a Two Zone Area, appropriate official plan designations and zoning must be put into place. Within TRCA's jurisdiction, the *Two Zone Concept* has been applied to existing floodprone communities or portions thereof as illustrated in Map #3.

(Two Zone Concept, Flooding Hazard Limit – See also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNRE, 2001))

Special Policy Areas:

Exceptions to the One Zone and Two Zone approaches exist where *Special Policy Areas* have been applied. The *Special Policy Area* approach is employed by the Province in appropriate cases where it has been demonstrated that the One-Zone or Two-Zone approaches are too restrictive and would not allow for the continued social and economic viability and revitalization of historical communities located within the *flood plain*. Where a *Special Policy Area* is adopted, TRCA, the member municipality, and the Province agree to relax provincial flood proofing and technical standards and accept a higher level of risk. Area-specific policies in the municipal official plan are intended to provide for the continued viability of existing land uses while being sufficiently protective against flood hazards. As stated in the Provincial Policy Statement, *Special Policy Areas* are not intended to allow for new or intensified development and site

alteration, if a community has feasible opportunities outside the *flood plain*. Application of a *Special Policy Area* requires the approval of the Province (Minister of Natural Resources and Forestry and Minister of Municipal Affairs and Housing) and suitable policies and standards must be incorporated into the member municipality's official plan and zoning regulations. Approval of new *Special Policy Areas* and modifications to the boundaries or policies of existing *Special Policy Areas* must be in accordance with the procedures established by the Province.

The maps in Appendix AB: Municipal Policies for Approved Special Policy Areas and Two-Zone Areas, illustrate the location of *Special Policy Areas* and Two Zone Areas within TRCA's jurisdiction.

Flood Plain Spill Areas:

A *flood plain spill area* exists where flood waters are not physically contained within the valley or stream corridor and exit into surrounding lands. As a consequence, the limit and depth of flooding are difficult to determine. Flood spill areas occur naturally or can occur as a result of downstream barriers to the passage of flood flows such as undersized bridges or culverts. TRCA will determine on a technical basis where flood spill zone policies are applicable in consultation with the affected municipality.

7.4.3.2.1 General Policies

7.4.3.2.1 -It is the policy of TRCA:

- a) That the limits of the *flood hazard* will be determined through TRCA's flood plain mapping program in accordance with *Provincial* and *TRCA standards*. Where flood plain limits are required and not available, or where existing flood plain information does not meet current *Provincial* or *TRCA standards*, TRCA may require the *Regulatory flood plain* to be mapped by a qualified professional, at the expense of the proponent, to the satisfaction of TRCA.
- b) To work with member municipalities to comprehensively review *Flood Vulnerable Areas* through an environmental assessment, flood risk management assessment or *comprehensive environmental study* which is harmonized as part of planning process, and seek flood mitigation and *remediation* opportunities to protect existing *development*. This review shall include but not be limited to:
 - i. upstream and downstream impacts;
 - ii. *cumulative impacts*;
 - iii. impacts to natural features and areas, including their ecological and hydrologic functions;
 - iv. restoration and enhancement of terrestrial and aquatic habitat;
 - v. integration with community planning and site design; and
 - vi. municipal long range planning for the area.
- c) To encourage member municipalities to update their Flood Emergency Management and Response Plans, or equivalent component of their overall Municipal Emergency Plan, on a regular basis and reflect best practices for disaster response. TRCA will provide technical information and flood forecasting and warning expertise to assist municipalities with this process.

7.4.3.2.2 One Zone Policy Areas

7.4.3.2.2 -It is the policy of TRCA:

- a) That the *One Zone Concept* to flood plain management, based on the Regulatory Flood in accordance with Provincial standards and policies, will be implemented as the primary method of flood hazard management within TRCA's jurisdiction, except in circumstances where a *Two Zone Concept* or *Special Policy Area* have been designated and approved by the relevant agencies and planning authority.
- b) That *development* and *site alteration* not be permitted within the floodway (i.e., the *flood hazard*) regardless of whether the area of inundation contains high points of land not subject to flooding.
- c) Despite 7.4.3.2.2(b), and subject to the policies in section 7.3.1(Natural System), section 7.4.3.1(General Natural Hazard Policies) and section 8.0 (*Regulation*), *development* and *site alteration* may be permitted in those portions of the *flood hazard* (i.e., the *floodway*) where the *development* and *site alteration* is limited to uses which by their nature must locate in the *floodway*, including flood and/or erosion control works or *minor additions, reconstruction/replacements*, or passive non-structural uses which do not affect flood flows.

7.4.3.2.3 Two Zone Policy Areas

7.4.3.2.3 -It is the policy of TRCA:

- a) That within TRCA's jurisdiction, the *Two Zone Concept* to *flood plain* management will be applied to existing floodprone communities, or portions thereof, where approved and designated by the relevant agencies and affected planning authorities, pursuant to Provincial procedures, standards and requirements.
- b) That municipal requests for any new Two Zone Policy Area within existing floodprone communities of TRCA's jurisdiction, or portions thereof, shall be evaluated in accordance with Provincial procedures, standards and requirements.
- c) That the need for and the boundaries of a Two Zone Policy Area be determined by the municipality and TRCA through a comprehensive study undertaken on a subwatershed or on a major reach basis, in accordance with Provincial standards and requirements.
- d) That municipal requests for final approval of a Two Zone Policy Area designation must be supported by:
 - i. Official Plan policies specific to the review and approval of *development* and *site alteration* applications within the proposed Two Zone Policy Area, including *development* control criteria and, if applicable, the implementation program for any remedial works in relation to the timing and phasing of *development*;
 - ii. A Zoning By-law that will implement the Official Plan policies; and
 - iii. A Flood Emergency Management **and Response** Plan.

- e) That *development* and *site alteration* not be permitted within the *floodway*, except as may be permitted under approved site-specific Two Zone policies (Appendix [AB](#)).
- f) That *development* and *site alteration* may be permitted within the *flood fringe* in accordance with the approved site specific policies for the Two Zone Policy Area (Appendix [AB](#)) addressing but not limited to floodproofing, vehicular and pedestrian access, land use permissions, flood emergency management plans; the policies in Sections 7.3.1 (Natural System), 7.4.3.1 (General Natural Hazard policies), and Section 8 (*Regulation*).
- g) That notwithstanding the above, the preparation and implementation of a flood remediation strategy, an erosion control and/or slope stabilization strategy may be required to support large scale urban renewal development projects within approved Two Zone Policy Areas, prior to TRCA's technical clearance of the proposed development project.
- h) To recommend to municipalities that as part of any comprehensive update or review of municipal planning documents, the boundaries and policies of approved Two Zone Policy Areas be assessed in the context of current technical information and legislative requirements and updated accordingly. This process may warrant a comprehensive update to studies undertaken in the support of this designation.

7.4.3.2.4 Special Policy Areas

7.4.3.2.4 -It is the policy of TRCA:

- a) That within TRCA's jurisdiction, the *Special Policy Area* approach to flood plain management will be applied to existing flood prone communities, or portions thereof, where approved by the Ministers of Municipal Affairs and Housing and Natural Resources and Forestry. A *Special Policy Area* is not intended to allow for new or intensified *development* and *site alteration* if a community has feasible opportunities for development outside the flood plain.
- b) That any change or modification to the ~~site-specific~~official plan policies, land use designations or boundaries ~~applying to aof provincially approved~~ *Special Policy Area*, must be approved by the Ministers of Municipal Affairs and Housing and Natural Resources and Forestry prior to the *approval authority* approving such changes or modifications.
- c) That municipal requests for any new *Special Policy Areas* within existing flood prone communities of TRCA's jurisdiction, or portions thereof, or any change or modification to ~~the site-specific~~official plan policies, land use designations or boundaries of provincially approved *Special Policy Areas* shall be evaluated in accordance with Provincial procedures, standards and requirements.
- d) That new or intensified development that exceeds the provincially approved official plan policies or land use designations of the *Special Policy Area* must be approved by the

Ministers of Municipal Affairs and Housing and Natural Resources and Forestry prior to the *approval authority* approving such works.

- e) That *development* and *site alteration* may be permitted within the *flood plain* in accordance with the provincially approved site specific *Special Policy Area* policies (Appendix AB) addressing but not limited to *floodproofing*, vehicular and pedestrian access, land use permissions and flood emergency management plans; the policies in section 7.3.1 (Natural System), section 7.4.3.1 (General Natural Hazard Policies), and Section 8 (*Regulation*).
- f) Notwithstanding the above, the preparation and implementation of a flood *remediation* strategy, erosion control and/or slope stabilization strategy may be required to support large scale urban renewal development projects within approved *Special Policy Areas*, prior to TRCA's technical clearance of the proposed development project.
- g) To recommend to municipalities that as part of any comprehensive update or review of municipal planning documents, the boundaries, ~~and~~ policies and land use designations of approved *Special Policy Areas* be assessed in the context of current technical information and legislative requirements and updated accordingly. This process may warrant a comprehensive update to studies undertaken in the support of this designation.

Provincially Designated Special Policy Areas in TRCA's Jurisdiction:

- Notion Road/Pickering Village, Town of Ajax
- Central Core, City of Brampton
- Avondale, City of Brampton
- Brampton East, City of Brampton
- Bolton Core Area, Town of Caledon
- Unionville, City of Markham
- Dixie/Applewood, City of Mississauga
- Etobicoke Creek, City of Mississauga
- Pickering (Village East), City of Pickering
- Lake Wilcox, Town of Richmond Hill
- Lower Don, City of Toronto
- Rockcliffe, City of Toronto
- Hoggs Hollow, City of Toronto
- Black Creek (Jane-Wilson), City of Toronto
- Woodbridge, City of Vaughan

7.4.3.2.5 Flood Plain Spill Areas

7.4.3.2.5 -It is the policy of TRCA:

- a) That within TRCA's jurisdiction, TRCA will determine where *flood plain spill area* policies apply in consultation with the affected municipality.
- b) That subject to the policies in Section 7.3.1 (The Natural System) and Section 8 (*Regulation*), *development* and *site alteration* may be permitted within *flood plain spill*

areas where it can be demonstrated on a reach basis, through a comprehensive environmental study to the satisfaction of TRCA, that:

- i. measures to remediate the *flood plain* spill area to the *Regulatory Flood*, either through a revised *valley or stream corridor* or through remedial measures that are permanent as determined by TRCA, can be implemented with no upstream or downstream impacts or impacts to natural features, areas and natural systems, including their *ecological functions* and *hydrological functions*;
- ii. remediation to eliminate the flood plain spill area is completed prior to any new development;
- iii. alternatives to 7.4.3.2.5 (b) i., (e.g., floodproofing of site specific developments) may only be permitted where complete *remediation* is not feasible. Specific criteria shall be determined on a site by site basis but shall provide *Regulatory Flood* protection and be in accordance with policy 7.4.3.2.2; and
- iv. safe ingress/egress are available.

7.4.3.3 Valley and Stream Erosion Hazard

Erosion hazards within *River or Stream Valleys* include both the *erosion* potential of the actual river or stream bank, as well as the potential for *erosion* or slope stability issues associated with the *valley walls*. The risks associated with River or Stream Valley Erosion Hazards are managed by planning for the 100-year erosion rate (the average annual rate of recession extended over a one hundred year time span). Ultimately, the identification of the hazard depends on whether there is well defined *valley corridor* that is part of a confined system or a relatively flat landscape that is not bounded by *valley walls* and is part of an unconfined system.

Sidebar: For Purposes of Implementing TRCA's Environmental Management Policies:

- Confined River or Stream Valleys are considered Valley Corridors
 - Unconfined River or Stream Valleys are considered Stream Corridors
- There may be reaches where there is a combination of both types of corridors.

Confined River or Stream Valleys (Valley Corridors)(Confined River or Stream Valleys):

Confined systems, regardless of whether or not they contain a *watercourse*, are those depressional features associated with a river or stream that are well defined by *valley walls* (generally greater than 3 metres in height). *Confined River or Stream Valleys* can exhibit three different conditions within which erosion hazards exist or may develop: valley slopes that are steep but stable, valley slopes that are over steepened and potentially unstable, and valley slopes that are subject to active toe erosion. Accordingly, the extent of the erosion hazard within a confined system includes the combined effect of the *toe erosion allowance*, *stable slope allowance*, *top of stable slope* and *erosion access allowance*.

(Confined System, Erosion Hazard Limit See also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNRE, 2001))

~~Unconfined River or Stream Valleys~~ (~~Stream Corridors~~Unconfined River or Stream Valleys):

Unconfined systems, regardless of whether or not they contain a watercourse, are depressional features without discernible slopes or *valley walls*, characterized by relatively flat to gently rolling terrain. Where there is an unconfined river or stream valley, the flow of water is free to shift across the shallower land. While toe erosion and slope stability are not deemed potential hazards, consideration for the meandering tendencies of the system must be provided. Accordingly, the extent of the erosion hazard within an unconfined system includes the combined effect of the *meander belt allowance* and an *erosion access allowance*.

(Unconfined System, Erosion Hazard Limit see also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNRE, 2001))

7.4.3.3.1 General Policies

7.4.3.3.1 -It is the policy of TRCA:

- a) To work with member municipalities to comprehensively review existing developed areas along *valley and stream corridors* that are vulnerable to *erosion* through an environmental assessment (EA) or *comprehensive environmental study*. *The EA or study should be* –harmonized as part of the planning process, and seek *mitigation* and *remediation* opportunities to protect existing *development* and infrastructure. This review shall include but not be limited to:
 - i. upstream and downstream impacts along the corridor reach;
 - ii. natural stream forming processes on a reach basis;
 - iii. *cumulative impacts*;
 - iv. impacts to natural features and areas, including their *ecological* and *hydrologic functions*;
 - v. *restoration* and enhancement of terrestrial and aquatic habitats;
 - vi. integration with community and site design; and
 - vii. municipal long range planning for the area.
- b) That *erosion hazard* limits will be determined through site specific field investigations and technical reports where required, in accordance with the text of TRCA's Regulation, Provincial and *TRCA standards*. Where *erosion hazard* limits are required and not available, or where existing *erosion hazard* information does not meet current Provincial or TRCA standards, TRCA may require the *erosion hazard* to be determined by a qualified professional, at the expense of the proponent, to the satisfaction of TRCA.
- c) That the limit of the *erosion hazard* be based on the natural state of the area without the use of *mitigation* or *remediation* works, unless the proposed works are consistent with

the recommendations of an approved environmental assessment or *comprehensive environmental study* for the area, completed to the satisfaction of TRCA.

- d) That *erosion protection works* be designed to protect existing *development* on a comprehensive basis and not to facilitate the creation of additional —area to accommodate or facilitate *development* intensification, or *site alteration*.
- e) That *development* and *site alteration* not be permitted within the *erosion hazard* or *erosion access allowance*, except in accordance with this document and in particular the policies in Section 7.3.1 (The Natural System) and Section 8 (*Regulation*).

7.4.3.4 Lake Ontario Shoreline Hazards

Hazardous lands along the Lake Ontario shoreline are defined by delineating the farthest combined landward extent of three key shoreline hazards: *flood hazard*, *erosion hazard* and *dynamic beach hazard*.

Lake Ontario Flood Hazard:

The extent of the *flood hazard* for the Lake Ontario shoreline includes the combined effect of the following:

- a) the *100-year Flood level*;
- b) the appropriate *wave uprush allowance*; and
- c) the appropriate *allowance for other water related hazards*.

(Flood Hazard Limit see also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNRE, 2001))

Lake Ontario Shoreline Erosion Hazard:

The extent of the erosion hazard along the Lake Ontario Shoreline includes the combined effect of the following:

- a) a *stable slope allowance* projected from the *stable toe of slope*; and
- b) the *100 year recession rate* or an *erosion allowance* of 30 metres.

(Erosion Hazard Limit see also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNRE, 2001))
To fulfill TRCA's Regulatory Responsibilities, the erosion hazard limit shall be established in accordance with the text of TRCA's Regulation (Refer to Figure C.7 in Appendix C).

Lake Ontario Shoreline Dynamic Beach Hazard:

When beaches have the potential to be shaped and reshaped on a range of timescales that extend from either hours or days to years and decades in response to changing wave, wind, water level, and sediment supply conditions, they are aptly named dynamic beaches. Since the elevation at any point on these beaches changes, it is impossible to define the hazard associated with dynamic beaches in terms of a single elevation, as would be possible on a stable shoreline. Instead, the extent of a *dynamic beach hazard* along the Lake Ontario shoreline includes the combined effect of the following:

- a) the Lake Ontario Shoreline Flood Hazard; and
- b) a *dynamic beach allowance* of 30 metres.

(Dynamic Beach Hazard Limit see also Understanding Natural Hazards – Great Lakes – St. Lawrence River System and large inland lakes, rivers and stream system and hazardous sites (MNR, 2001))

7.4.3.4.1 Lake Ontario Shoreline Flood, Erosion and Dynamic Beach Hazard Policies

7.4.3.4.1 -It is the policy of TRCA:

- a) That the limits of the Lake Ontario Shoreline *flood hazard, erosion hazard* and *dynamic beach hazard* be determined through site specific field investigations and *technical reports*, where required, in accordance with the text of TRCA's Regulation and Provincial and TRCA standards. Where hazard limits are required and not available, or where existing hazard information is does not meet current *Provincial* or *TRCA standards*, TRCA may require the *flood hazard, erosion hazard, and dynamic beach hazard* be determined by a qualified professional, at the expense of the proponent, to the satisfaction of TRCA.
- b) To work with member municipalities to comprehensively review existing developed reaches along the Lake Ontario shoreline that are vulnerable to flooding and erosion through an environmental assessment, risk management assessment or *comprehensive environmental study* which is harmonized as part of planning process, and seek mitigation and *remediation* opportunities to protect existing *development and infrastructure*. This review shall include but not be limited to:
 - i. impacts to coastal processes on a shoreline reach basis;
 - ii. *cumulative impacts*;
 - iii. impacts to natural features and areas, including their *ecological* and *hydrologic functions*;
 - iv. restoration and enhancement of terrestrial and aquatic habitats;
 - v. integration with community and site design; and
 - vi. municipal long range planning for the area.

- c) That the limit of the *erosion hazard* be based on the natural state of the area without the use of *shoreline protection works*, unless the proposed works are consistent with the recommendations of an approved environmental assessment or *comprehensive environmental study* for the area, completed to satisfaction of TRCA.
- d) That *shoreline protection works* be designed to protect *existing development* on a reach basis consistent with TRCA's Lake Ontario Waterfront program and not to facilitate the creation of additional area to accommodate or facilitate *development* and *site alteration*.
- e) That *development* and *site alteration* not be permitted within the *dynamic beach hazard*.
- f) That *development* and *site alteration* not be permitted within the *Lake Ontario flood hazard* and *erosion hazard*, except in accordance with this document and in particular the policies in section 7.3.1 (The Natural System) and section 8 (*Regulation*).

7.4.3.5 Hazardous Sites – Unstable Soils and Unstable Bedrock

Hazardous sites are lands that could be unsafe for development and *site alteration* due to naturally occurring hazards including unstable soils (e.g. organic soils) or unstable bedrock (e.g. karst topography). Due to the specific nature of organic soils and karst topography, specific *technical studies* are required to determine the existence, extent and limit of these hazards.

7.4.3.5.1 Hazardous Sites Policies

7.4.3.5.1 -It is the policy of TRCA:

- a) That the limit of the *hazardous sites* (unstable soils and unstable bedrock) be determined through site specific field investigations and technical reports, where required, in accordance with *Provincial standards*. Where the *hazardous site* limit is required and not available, or where existing information does not meet current *Provincial* or *TRCA standards*, TRCA may require the limit of *hazardous site* to be determined by a qualified professional, at the expense of the proponent, to the satisfaction of TRCA.
- b) That *development* and *site alteration* not be permitted within *hazardous sites*, except in accordance with this document and in particular the policies in Section 7.3.1 (The Natural System) and Section 8 (*Regulation*).

7.4.4 INFRASTRUCTURE

While crossings of the *Natural System* can be disruptive to TRCA watersheds, connections for roads, public transit, water, storm and sanitary sewers, utilities, and other types of *infrastructure* are a necessity in an urbanizing region. TRCA's *infrastructure* policies seek to first avoid, then mitigate, remediate natural hazards where possible, and where appropriate, compensate for the impacts of *infrastructure* on the *Natural System*.

The Provincial Policy Statement's (PPS) Section 1.6 on Infrastructure and Public Service Facilities states that *infrastructure* should be efficient, integrated with growth planning, and (for corridors and rights-of-way for significant transportation and *infrastructure* facilities) should consider the significant resources in Section 2 of the PPS. However, when *infrastructure* is reviewed under the Canadian or Ontario Environmental Assessment Acts, the PPS defers all review to the environmental assessment (EA) process (see the PPS definition of *development*). For public *infrastructure* and large private *infrastructure* projects, Ontario's *Environmental Assessment Act* is the principal review mechanism. Given that TRCA is a commenting body under both the planning and EA processes and an advisor to our municipal partners on their Master Plans, the Authority has the opportunity to review many types of *infrastructure* proposals from both public and private proponents. This is important for consideration of the *cumulative impacts* that come from multiple *infrastructure* projects being proposed in TRCA watersheds. Further, aging *infrastructure* in need of renewal is prevalent in the heavily urbanized parts of TRCA's jurisdiction; where exposed, at-risk *infrastructure* is proposed for replacement, repair, or expansion, TRCA works with proponents to improve conditions. This is often accomplished through adapting and retrofitting *infrastructure* and remediating hazards that reduces the risk to public safety and enhances the long term functioning of *infrastructure*.

Goal: That *infrastructure* avoids, mitigates, and/or compensates for impacts to the *Natural System*.

Objectives:

- To coordinate with municipalities and proponents to find mechanisms for avoiding, mitigating, remediating, and compensating for the *cumulative impacts* of *infrastructure*;
- To assist in the coordination of various *infrastructure* projects by different proponents for consideration of *cumulative impacts*;
- To coordinate with municipalities and proponents to identify opportunities for implementing *adaptive management* in *infrastructure* projects; and
- To work with municipalities and proponents to achieve natural heritage *restoration* and natural hazard *remediation* through the planning and design of new, replacement, or expanded *infrastructure*.

7.4.4.1 General Policies for Infrastructure

The policies in Section 7.4.4 must be considered in their entirety. The general policies that apply to all *infrastructure* projects are followed by policies tailored to different types of *infrastructure*: Underground, Transportation and Stormwater Management Facilities. All of the *infrastructure* policies apply to *infrastructure* projects proposed under a Master Plan and/or an environmental assessment (EA), and to *infrastructure* projects proposed through the planning process where an EA is not required, e.g., private servicing installations for subdivision *development* such as road crossings and stormwater management facilities. The policies are for *infrastructure* that is new, a replacement, repair, or an expansion. Further detailed design-related policies for *infrastructure* in Section 8.0 should also be referenced.

7.4.4.1 -It is the policy of TRCA:

- a) To recommend the coordination of *Planning Act*, *Environmental Assessment Act*, Master Plans and Master Environmental Servicing Plans (MESPs) planning processes take place to facilitate strategic *infrastructure* placement and design that avoids cumulative impacts and seeks opportunities for improvements to the *Natural System*.
- b) That *infrastructure* avoid locating within the *Natural System*.
- c) That generally, linear *infrastructure* cross perpendicular to the *Natural System* and at its most narrow point, or where it would have the least impact on the *Natural System*.
- d) That baseline environmental conditions be established early in the planning stages of municipal Master Plans (Transportation and Servicing), the *environmental assessment* process, or equivalent planning process.
- e) That the conditions established through policy 7.4.4.1 d) be used to make informed decisions among alternatives, with preference given to alternative(s) using siting, design, and construction technologies that avoid or minimize impacts to the *Natural System*.
- f) That the area of the *Natural System* to be occupied and/or traversed by *infrastructure* be minimized (including for access, construction, operations and maintenance).
- g) That *infrastructure* not create new natural hazards or aggravate existing natural hazards.
- h) That where natural hazards exist, *infrastructure* consider options for *remediation*.
- i) That where *infrastructure* is permitted within *valley or stream corridors, wetlands, woodlands, and/or hazardous lands or hazardous sites*, an environmental monitoring and contingency plan in accordance with *TRCA Standards*, may be required to address potential emergencies during construction and operation.
- j) That the aggregate number of *infrastructure* projects within or crossing the *Natural System* (within the context of a subwatershed or *Lake Ontario shoreline reach*) be minimized.
- k) That the co-location of utilities, or common utility corridors, be considered, where they can facilitate the safe integration of utilities to minimize disturbance from multiple *infrastructure* projects in the same area.
- l) To recommend that when *infrastructure* cannot protect a *natural feature*, or part of a *natural feature*, *compensation* for loss of *ecosystem services* be provided.

~~TRCA's Compensation Protocol is still in draft and will be undergoing stakeholder consultation.~~

- m) To recommend that the decision to pursue *compensation* referred to in policy 7.4.4.1 (l) be subject to:
- i) all efforts to protect the feature being exhausted first;
 - ii) the feature is not protected by any other applicable federal, provincial or municipal requirement(s);
 - iii) it taking place in consultation with the municipality or the proponent; and
 - iv) it taking place at the appropriate level of the planning and development process for maximizing options for enhancement to the *Natural System*, e.g. MESP, Environmental Assessment.

Compensation should:

- Only be considered once the protection hierarchy has been applied – avoid/minimize/*mitigate* first;
- Where feasible, take place in proximity to where the loss occurs;
- Be informed by scientific-ecological current knowledge of TRCA's ecosystems and watershed strategies and any applicable municipal strategies in watershed management;
- Strive for no loss of *ecosystem services*;
- Be carried out in a transparent and timely manner;
- Be based on an *adaptive management* approach incorporating monitoring and evaluation, where appropriate.

- n) That *infrastructure* projects meet all of TRCA's stormwater management criteria, (water quantity, water quality, erosion control, and *water balance* – for groundwater and natural features), as outlined in Section 7.4.1 (Water Management) and TRCA's Stormwater Management Criteria Document.
- o) That *infrastructure* projects on TRCA-owned lands be avoided, unless it is the only location technically compliant with the Infrastructure policies of Section 7.4.4.
- p) That notwithstanding policy 7.4.4.1 (o), where *infrastructure* projects are permitted to occur on TRCA-owned land, they take place in accordance with the requirements in TRCA's Planning and Development Procedural Manual for working on TRCA-owned lands dealing with archaeology, permission to enter, and registered property interests.

In addition to the general policies for all *infrastructure* provided above, the following *infrastructure* policies are applicable by servicing type: Underground Infrastructure, Transportation Infrastructure, and Stormwater Management Facilities.

7.4.4.1.1 Underground Infrastructure Policies

Infrastructure installed underground includes, but is not limited to: subways, sanitary sewers, septic systems, watermains, gas and oil pipelines, geothermal energy systems, and cable, electricity and telecommunication lines. For the tunneling of roads or public transit rights-of-way (e.g., subways), the policies for transportation *infrastructure* (7.4.4.1.2) also apply.

7.4.4.1.1 -It is the policy of TRCA:

- a) That the location, design and installation of underground infrastructure, including new, replacements, or upgrades, consider the following through applicable field and technical assessments in accordance with *TRCA Standards*:
- i. Installation method(s) that create the least impact (short and long term) to the *Natural System*;
 - ii. Installation placement(s) that avoid impacts to *watercourses*;
 - iii. All options for horizontal and vertical alignments to avoid, minimize and/or mitigate impacts on *aquifers* and surface water receptors (e.g., *watercourses, wetlands, and woodlands*);
 - iv. Minimizing and mitigating impacts on groundwater flow and discharge; and
 - v. Managing *dewatering* and/or *dewatering discharge* during construction and post-construction in accordance with the policies in sub-section 8.11.

7.4.4.1.2 Transportation Infrastructure Policies

Transportation *infrastructure* includes, but is not limited to: new road crossings, new crossings for trails, railway lines, subways and other transit rights-of-way, their associated facilities, or alterations to existing transportation *infrastructure* such as extension, widening, repair to, upgrades of, or replacements. For the tunneling of roads or public transit rights-of-way (e.g., subways), the policies for underground *infrastructure* (7.4.4.1.1) also apply.

7.4.4.1.2 -It is the policy of TRCA:

- a) That the location and design of transportation *infrastructure* crossing *valley* and *stream corridors*, including new, replacements or upgrades:
- i. Cause no upstream or downstream impacts to flooding and *erosion*;
 - ii. Ensure safe conveyance of flood flows;
 - ~~iii.~~ Be situated at appropriate locations to avoid natural hazards;
 - ~~iv.~~ Maintain the *ecological and hydrological functions* of the *valley or stream corridor* by considering the following in accordance with *TRCA Standards*:
 - iv. Physical characteristics of the *watercourse*;
 - v. Geomorphic processes of the *watercourse*;
 - vi. Aquatic and terrestrial habitat;
 - vii. *Valley or stream corridor* form;
 - viii. Aquatic and terrestrial wildlife passage; and
 - ix. Pedestrian passage (e.g. trails).

~~b) And further that the mitigation employed in a crossing project used to address a) ii. to viii. reflect the quality of the *ecological function* of the *valley or stream corridor*, as identified in *TRCA standards*.~~

TRCA is currently updating its technical guidelines for watercourse crossings. The guidelines will provide direction as to how the quality of ecological functions is to be assessed.

e)b) That for road widenings, the surface area of both the adjacent existing road and the new road portion ~~be treated to~~ meet TRCA stormwater management criteria, in accordance with policy policies 7.4.1.1.1 a) through d) for stormwater management.

7.4.4.1.3 Stormwater Management (SWM) Facilities Infrastructure Policies

SWM facilities *infrastructure* includes new facilities and alterations to existing facilities designed to manage stormwater, and include but are not limited to: SWM ponds, infiltration trenches, bioretention facilities, enhanced swales, and oil and grit separators.

7.4.4.1.3-It is the policy of TRCA:

- a) That the general location and function of SWM facilities be described and assessed in a subwatershed study, a Master Environmental Servicing Plan (MESP), an *environmental assessment* process, or equivalent. The specific location, sizing and preliminary design of each facility shall be addressed in a Stormwater Management Report, or equivalent, completed prior to approval of the *development* or *site alteration* for which the facilities serve; and that the report also demonstrates how the TRCA SWM Criteria can be met in accordance with policies 7.4.1.1.1 a) through ~~h)~~.
- b) Where a subwatershed study, an MESP, an *environmental assessment* process, or equivalent, determines that a *Regional Flood control facility* is required, the facility be designed to ensure public safety and to reduce risk associated with failure.
- c) That SWM facilities be sited and designed so that they ensure public safety, and where appropriate and in consultation with the municipality, integrated into the developing or redeveloping community, as attractive amenities for safe, passive use and enjoyment.

d) That *subwatershed drainage diversion* be avoided in order to maintain existing *watershed* boundaries and drainage patterns.

e) That notwithstanding policy 7.4.4.1 b), which states that *infrastructure* avoid locating within the *Natural System*), for SWM facilities permitted to be located within the *Natural System*:

- i. They generally be located outside of *valley and stream corridors*.
- ii. They generally be located outside of the *regional storm flood plain*.
- iii. They not be permitted on a *valley wall* subject to *erosion*, within the *meander belt*, the 100-year erosion limit, or the 100-year flood plain of a *watercourse*, whichever is greater;
- iv. They not be permitted within the *stable slope allowance* or *dynamic beach hazard* along the Lake Ontario shoreline.
- v. They not be permitted within *watercourses* (on-line), *wetlands*, or *woodlands*;

- vi. They be situated in areas where vegetation removal, grading and soil compaction, sediment erosion, and impervious surfaces are avoided or minimized; and,
 - vii. They be naturalized/planted to complement adjacent natural areas.
- f) That notwithstanding policy 7.4.4.1.3 e), where it has been demonstrated to the satisfaction of the Ministry of Natural Resources and Forestry, TRCA and the municipality, a *Regional Flood Control Facility* may be permitted within a *valley or stream corridor*.
 - g) That SWM outfalls, or other supporting SWM infrastructure, be sited and designed in accordance with the policies in policy 8.9.8 in Section 8.0.
 - h) That maintenance plans for SWM facilities be developed and implemented to ensure their long term performance, in accordance with municipal and provincial requirements.

7.4.5 RECREATIONAL USE

Perhaps “receiving” *ecosystem services* from nature is most obvious when the services are associated with recreational use. Many can appreciate the calmness that comes with walking or cycling through a quiet forest or ravine in contrast to fighting traffic on a noisy street. Access to a natural setting can bring a calmer, less stressful lifestyle; wooded areas offer shade and temper urban noise, making heavily populated areas feel less overpowering. Natural areas also provide an excellent environment for physical activity and exercise – usually free to visit, they are an accessible and vital health resource. Studies from the medical profession have verified these linkages, reporting that close contact with nature, and the more active lifestyle that it can encourage, reduces stress levels and helps prevent obesity and heart disease (Frumkin, 2011).

But while providing opportunities for nature-based recreation experiences is key to building healthy communities, over-use and subsequent degradation of an urban open space system is a risk inherent in rapidly urbanizing centres. There is a need to manage recreational use so that natural areas can be enjoyed without exacerbating natural hazards or threatening the integrity of natural features and functions. To this end, provincial plans such as the Greenbelt Plan and Oak Ridges Moraine Conservation Plan, distinguish between the intensity and impacts of various types of recreational activities to determine appropriate locations where different activities should occur. This can be generally identified as major or minor recreational uses, with major use being the most intrusive.

TRCA Watershed Plans contain a vision for an integrated system of nature-based recreation areas and experiences, taking advantage of, and caring for, the unique landscapes throughout the watersheds. TRCA and its municipal partners own and manage trails and conservation areas and parks within communities, continuously linked along the river/ravine system, and ultimately linked with trails on the Lake Ontario shoreline. Large “urban wilderness” parks like Rouge Park or Tommy Thompson Park offer outdoor activities such as hiking, cross country skiing, bird-watching and nature appreciation. While TRCA-owned and -managed lands provide many opportunities for *minor recreational use* or passive non-intrusive uses, there are some areas with *major recreational uses* such as campgrounds, educational facilities, sustainable community demonstration sites (Kortright Centre), and a (tableland) golf course (Bathurst Glen). TRCA employs best management practices and environmental stewardship in order to mitigate

for the impacts of *major recreational use* and encourages other managers of large public recreational facilities within or adjacent to the *Natural System* to employ the same.

Major Recreational Uses are recreational facilities that require large scale modification of terrain, vegetation or both, and usually also require large scale buildings or structures and extensive parking areas. Examples include but are not limited to: golf courses, serviced sports/playing fields, serviced campgrounds and ski hills. Extensive planning, environmental studies, mitigation measures, restoration efforts and ongoing best management practices will be required to minimize impacts to the ecological and hydrological integrity and functions of the *Natural System*.

Minor Recreational Uses are recreational facilities that require very little modification of terrain or vegetation and few if any, buildings, structures and limited parking. They are of low intensity and a non-intrusive nature. Examples include but are not limited to: non-motorized trails, boardwalks, small scale picnic facilities, natural heritage appreciation. Proper site planning, scoped environmental studies and the incorporation of best management practices for site construction and future maintenance can generally minimize impacts to negligible levels.

Goal: That the siting design and operation of *recreational use* avoid, mitigate, and/or compensate for impacts to the *Natural System*.

Objectives:

- To coordinate with municipalities and proponents through the planning and development process to develop location and design strategies for avoiding, mitigating, and compensating for the *cumulative impacts of recreational uses*;
- To promote and monitor the use and enjoyment of the *Natural System* for *recreational use* that minimizes impact to the natural environment by striving for a balance between conservation and appropriate public uses;
- To develop awareness and form partnerships among all stakeholders that will enhance stewardship of *recreational use* lands in or adjacent to the *Natural System*; and
- To promote the recognition and linkages between natural heritage and cultural heritage on *recreational use* lands in or adjacent to the *Natural System*.

7.4.5.1 Policies for Recreational Use

7.4.5.1 -It is the policy of TRCA:

- a) To collaborate with municipal partners, private interests, community groups and the general public to realize a linked regional open space system, as identified in TRCA board-approved plans and strategies, which provides the basis for:
 - i. A coordinated network of landscape and nature-based publicly accessible recreation areas;
 - ii. Experiencing the distinctive natural and cultural heritage attributes of the watersheds;
 - iii. Compatible employment opportunities for small scale home-based businesses and local residents;
 - iv. The consideration of *cumulative impacts* and how to avoid them;
 - v. Undertaking comprehensive management plans to restore and enhance the *Natural System*;
 - vi. Trail networks that connect communities, parks and greenspace through landscapes and landforms like the river valleys, the Lake Ontario waterfront and the Oak Ridges Moraine.

- b) To recommend that lands within the *Natural System* not be considered for municipal parkland dedication.
- c) That *minor recreational uses* may be permitted in the *Natural System*, in accordance with the policies in this document.
- d) That *major recreational uses* not be permitted in the *Natural System*, except as permitted by provincial plans.
- e) That *minor expansions* to existing *major recreational uses* may be permitted within the *Natural System* in accordance with the policies of this document.

Minor Expansions require very little modification of terrain or vegetation and few if any, buildings, structures and limited parking. Proper site planning, *comprehensive environmental studies*, or equivalent technical reports, to the satisfaction of TRCA, and the incorporation of best management practices for site construction and future maintenance can generally minimize impacts to negligible levels.

- f) That when *minor recreational uses* or *minor expansions* to existing *major recreational uses* remove a natural feature, or part of a natural feature, that *compensation* be provided in accordance with policies 7.4.2.1 c) and d) of this document.
- g) To adopt and implement best management practices and *TRCA Standards* for recreational uses on TRCA-owned lands and to recommend their use on recreational lands owned by others, including but not limited to such practices and standards as:
 - i. Integrated Pest Management and Audubon certification for golf courses;
 - ~~ii. Environmental Farm Plans for agricultural lands and agri-tourism businesses;~~
 - ~~iii.~~ii. Landform Conservation Plans and the minimizing of disturbed area and impervious surface of a site in accordance with directions contained in Provincial Plans;
 - ~~iv.~~iii. Conservation Plans for water, nutrients, pesticides and similar products in accordance with directions contained in Provincial Plans;
 - ~~v.~~iv. Safety and accessibility of trails in accordance with *TRCA Standards*;
 - ~~vi.~~v. Planning, design and construction practices that minimize impervious surfaces, implement erosion and sediment control guidelines, employ native plant species, maintain or enhance visual landscape character and the size, diversity and connectivity of adjacent components of the *Natural System*;
 - ~~vii.~~vi. Monitoring for negative impacts and *remediation* as necessary (*adaptive management*).
- h) To recommend that trail alignments and other *minor recreational uses* as applicable:
 - i. Be established conceptually as early in the planning and development process as possible in order for future residents to be aware of where public trails will be situated;
 - ii. follow existing linear disturbances (where ecologically appropriate) such as existing informal trails, sanitary easements, gas pipelines, and other *infrastructure*, rather than through undisturbed areas;
 - iii. avoid sensitive habitats, floral and/or faunal species;
 - iv. avoid the riparian zone of *watercourses*;

- v. not increase risk to public safety from natural hazards by avoiding active *erosion* zones, such as outside meander bends and *valley walls* where banks are eroding; and,
 - vi. avoid incompatible topography, so that grading or filling is avoided or minimized.
- i) To recommend that trails be connected and accessible to the community or communities which they serve.
 - j) To recommend that the number of *watercourse* crossings for trails be minimized.
 - k) To recommend that all *major* and *minor recreational use* projects, where applicable, meet all of TRCA's stormwater management criteria as outlined in Section 7.4.1 (Water Resources Management) and TRCA's Stormwater Management Criteria Document.
 - l) To require *archaeological assessments* on any ground disturbance for any *minor* or *major recreational uses* proposed for TRCA-owned lands, in accordance with the procedures for *archaeological assessment* in accordance with *TRCA Standards*.

7.4.6 Conservation Use

As of ~~2011~~2014, TRCA held approximately ~~41,079~~44,347 acres (~~16,625~~17,947 ha) of land in public ownership. Many of these properties are actively managed for conservation projects for purposes such as flood control reservoirs and channels, riverside erosion control, shoreline protection on the Lake Ontario waterfront, habitat creation and enhancement projects and the planting of millions of trees and shrubs. Additionally, TRCA lands form large portions of the parks and open space systems of our municipal partners, and support more than 700 kilometres of recreational trails. TRCA also operates many conservation parks such as the Glen Haffy and Bruce's Mill Conservation Areas, Kortright Centre for Conservation and Black Creek Pioneer Village, and education field centres such as Lake St. George, Albion Hills and Claremont.

Many operations on TRCA lands serve the community while generating revenue to offset their costs or to support additional programs. However, the cost of caring for its lands is greater than the funds TRCA generates from its current revenue sources such as park admission fees, permit fees, rental and lease revenues and management agreements. This has required much innovative thinking on the part of TRCA staff to generate additional revenues to support the care and management of these lands. Examples include the addition of a historic brewery at Black Creek Pioneer Village to increase visitation and sales revenues; working with school boards to deliver hands-on training for the new provincially required environmental literacy curriculum at a renovated and repurposed building on a newly acquired environmentally significant property; and partnering with the building and development industry to showcase and monitor the latest energy-saving devices and sustainable construction techniques for new homes. TRCA needs to continue to innovate to raise revenues for the management of conservation lands and requires flexibility in the conservation-related accessory uses it can undertake on its properties.

Conservation Project - activities, buildings or structures for conservation and hazard management purposes such as, but not limited to: flood and erosion control works, land securement, habitat creation and enhancement, tree and shrub planting, environmental education, trails and low intensity recreation activities, cultural heritage and archaeological preservation and interpretation and conservation parks.

Conservation-related Accessory Uses - a use of land, buildings or structures and associated activities that is incidental or subordinate to the principal conservation project use, building, structure or activity located on the same lot, and may include activities such as, but not limited to: farmers markets, demonstration or pilot projects and facility rentals for environmentally-themed recreational activities, meetings, conferences and social events.

Goal: To support the long term maintenance, enhancement and financial viability of public conservation lands and projects by allowing for compatible on-site revenue-generating accessory uses and activities.

Objectives:

- To allow a variety of *conservation-related accessory uses* and activities on publicly owned lands in order to generate revenues for the operations, maintenance, restoration and enhancement of conservation lands and projects.

7.4.6. It is the policy of TRCA:

- a) To advocate for the inclusion in municipal official plans and zoning by-laws of appropriate policies, permitted uses, activities and standards with sufficient flexibility to allow for the undertaking of a variety of compatible *conservation-related accessory uses* on public conservation lands.
- b) That the development of new facilities and *conservation-related accessory uses* on publicly-owned conservation lands be undertaken through a comprehensive management plan process, integrated with the broader social needs of the community and based on appropriate environmental studies, provincial and municipal requirements, and opportunities for public consultation.

7.5 PLAN INPUT AND PLAN REVIEW (IMPLEMENTATION)

7.5.1 Introduction

As outlined in Section 3 of this document, Legislative Framework, TRCA provides review and comments from a number of perspectives – a watershed-based resource management agency, a watershed planning advisor, a proponent and landowner, or a regulator. TRCA provides technical advice and/or clearance related to legislative requirements that fall under the *Conservation Authorities Act*, the *Planning Act*, the (Ontario) *Environmental Assessment Act*, the *Niagara Escarpment Planning and Development Act*, the *Oak Ridges Moraine Conservation Act*, the *Greenbelt Act*, and others. For details on any of TRCA's responsibilities under legislation and agreements, TRCA's Planning and Development Procedural Manual should be referenced.

Plan input refers to TRCA's review or "input" into municipal official plan reviews and updates and municipal Master Plans. Plan review refers to TRCA's review of development proposals under various pieces of legislation as described above. Typically, municipalities circulate the following types of *Planning Act* applications to TRCA for review: official plan and zoning by-law amendments, secondary plans (block plans/MESPs), draft plans of subdivision and condominium, site plans, and committee of adjustment applications; municipal building departments also refer applicants to TRCA for clearance. In addition, under provincial and federal *environmental assessment* legislation, proponents are required to seek comments from conservation authorities on environmental assessments, including individual and class environmental assessments and any associated master plans that occur within a CA's jurisdiction.

Goal: To fulfill the responsibilities of our legislative mandate and strive to meet TRCA's strategic objectives for The Living City in plan input and plan review.

7.5.2 General Policies for Plan Input and Review

7.5.2 -It is the policy of TRCA:

- a) That TRCA comments and recommendations in plan input and plan review be in accordance with the policies in this document.
- b) To promote the coordination of *Planning Act* and *Environmental Assessment Act* planning processes to facilitate strategic and sustainable design, including the consideration of *cumulative impacts*.
- c) To recommend that applications received through plan input and plan review include the appropriate *technical reports* to assess consistency with the policies in this document.
- d) That TRCA comments and recommendations in plan input and plan review be consistent with the Provincial Policy Statement and conform with provincial plans where applicable.
- e) That TRCA comments and recommendations in plan input and plan review fulfill our delegated responsibility for representing the provincial interest on natural hazards.
- f) To be consistent with MNR's "Policies and Procedures for Conservation Authority Plan Review and Permitting Activities" and to make clear in our comments in plan input and plan review, which role TRCA is representing (e.g., service provider, resource manager, regulator, landowner).
- g) That TRCA comments and recommendations in plan input and plan review fulfill the requested services outlined in memorandums of understanding and service delivery agreements with municipalities, and other partnership agreements (e.g., with Ministry of Natural Resources and Forestry, etc.).
- h) That TRCA watershed plans and implementation guides, as well as fisheries management plans, conservation land management plans, and other TRCA technical documents be used, as appropriate, to guide and inform plan input and plan review.

- i) That where appropriate, TRCA will complement the comments related to its mandated plan input, plan review and regulatory responsibilities with additional comments reflecting the sustainable communities policies in Section 6. In this regard, such comments and recommendations will clearly reflect TRCA's advocacy role that promotes and encourages the planning and development of complete and sustainable communities.
- j) That baseline environmental conditions be established early in the planning stages of municipal Master Plans (Transportation and Servicing), the environmental assessment process, or equivalent planning process.
- k) To promote, where appropriate, *adaptive management* through performance monitoring and evaluation of measures to avoid, mitigate, and compensate for the impacts of *development* and *infrastructure* on the *Natural System*. And further that this process inform the subsequent improvement of these measures on future projects and past projects where feasible.
- l) That TRCA comments in plan input and plan review recommend a *Natural System* that incorporates natural heritage, natural hazards, and supporting lands necessary for *biodiversity* and appropriate water management and hazard land management.
- m) That TRCA comments and recommendations in plan input and plan review recognize that the components of the *Natural System* are:
 - i. identified and protected through appropriate official plan designations, policies, and zoning; and
 - ii. gratuitously dedicated to an appropriate public agency for conservation and risk management purposes as appropriate.
- n) To recommend that planning authorities adopt plans and policies for the protection, restoration, enhancement, and potential acquisition of the *Natural System*.
- o) To recommend to approval authorities that proposals for development and *infrastructure* be considered for their *cumulative impacts* on the *Natural System* as early in the planning and development process as possible.
- p) That TRCA staff obtain authorization from TRCA's Authority Board/Executive Committee to appear before tribunals on planning and development matters.
- q) To streamline administrative processes and improve service delivery in the implementation of TRCA's planning and regulatory programs, in accordance with TRCA's Business Excellence objective, for the benefit of all municipal partners, the development community and other stakeholders."
- r) To strive for 100% cost recovery for planning, environmental assessment, and permit review services through the charging of fees, in accordance with MNRF's Policies and Procedures for Charging of Conservation Authority Fees, and TRCA's Board-approved fee schedules (Authority Resolution A237/13).
- s) To continue to build and strengthen partnerships with municipal, provincial and federal governments, and other funding partners, to ensure sustainable financing for TRCA

resource management agency programs that support TRCA planning and regulatory programs.

7.5.2.1 Master Plans ~~(Transportation and Servicing)~~ and Environmental Assessments

A master plan is a long range plan that ties together the various servicing needs of an overall system, such as a water distribution system or road network. Typically, a master plan is comprised of many separate projects that are dispersed geographically over a broad study area and are to be implemented separately through the environmental assessment process over an extended period of time. There are multiple types of infrastructure projects that go through the Master Plan process at the provincial and municipal levels that are circulated to TRCA, including public transit systems, roads networks, sewer and water networks, hydroelectricity projects, telecommunication lines and other pipelines.

Master plans allow for the individual needs of a system to be defined in the broader context. Detailing the overall strategy for implementing all of these requirements, a master plan is likely to entail a number of individual, yet related, projects. For example, a water distribution system may require a treatment plant expansion at one location, a reservoir expansion at another location, and the construction of a watermain at yet another location.

Municipal master plans are generally prepared as part of the growth management and long range planning process undertaken by a municipality. Municipalities have the option to subject their master plans to the rigors of the Municipal Class Environmental Assessment process (phases 1 and 2, at a minimum). If this is done, the work of the master plan can be applied when the municipality conducts the environmental assessment for a specific project that is included within the master plan. Typically, master plans are approved by the municipality following a public and agency consultation process that is outlined in the Ontario *Environmental Assessment Act*.

7.5.2.1 -It is the policy of TRCA:

- a) That TRCA comments on Master Plans and environmental assessments are in accordance with the policies in this document, specifically Section 7.4.4, Infrastructure and Section 7.4.5, Recreational Use.
- b) That TRCA Watershed Plans and their associated Implementation Guides, and other TRCA technical background documents, as amended from time to time, be used to inform and guide TRCA comments on Master Plans and environmental assessments.
- c) To recommend that the aggregate number of projects proposed under a Master Plan or environmental assessment within or crossing the *Natural System* (within the context of a subwatershed or *Lake Ontario shoreline reach*) be minimized.

7.5.2.2 Official Plans, Official Plan Amendments, Secondary Plans

As a public commenting body, TRCA reviews official plans, official plan amendments and secondary plans in relation to matters that affect policy, program or regulatory interests. These planning documents range in scale and complexity and may address a single small individual parcel of land to entire neighbourhoods or new communities.

Expanding the urban boundary of a municipality through a municipal comprehensive review and official plan amendment is one of the most significant undertakings in the planning and development process. Urbanizing the natural and rural portions of a sub-watershed not only changes the lands to be developed, but can also affect lands up and downstream. This necessitates careful study and assessment of watershed conditions, and identification of potential singular or *cumulative impacts* of the proposal on the broader watershed. This, along with corresponding watershed management strategies, is important to address prior to the establishment of an expanded urban boundary and preliminary land use and servicing schemes.

7.5.2.2 -It is the policy of TRCA:

- a) That TRCA watershed and/or sub-watershed plans and their associated Implementation Guides, and other relevant TRCA programs, policies, plans, and technical documents, as amended from time to time, be used to inform and guide TRCA comments on Official Plans, Official Plan Amendments, and Secondary Plans, including ~~and~~ urban boundary expansions.
- b) That lands containing the *Natural System* (natural features, *natural hazards*, *buffers*, and any *potential natural cover*) not form part of the area to be designated for *development*, under a *Planning Act* application, but rather, be designated in an appropriate environmental protection category.

7.5.2.3 Master Environmental Servicing Plans (MESPs)

Traditionally in the Toronto region, large scale urban development has included the preparation of Master Environmental Servicing Plans (MESPs), or an equivalent document, that defines how a new or redeveloping community will affect the natural environment, including natural hazards, and what specific servicing needs and constraints exist. A watershed management perspective should be considered at this level as well. TRCA routinely reviews MESPs for new urban development from natural heritage, natural hazard and water management perspectives critical to creating sustainable new communities. Given provincial direction for intensification, TRCA sees advantage to also applying the MESP concept to large redevelopment or "urban MESP" areas. The secondary planning process for large areas of existing development undergoing urban revitalization is often challenged by disparate land ownership and timing of development and site alteration, the need to remediate flooding and erosion hazards, and to restore degraded natural areas. These lands could especially benefit from a municipally-led MESP process that advances ecological design and a systems approach to natural heritage restoration and natural hazard remediation on a comprehensive (sub)watershed basis.

7.5.2.3 -It is the policy of TRCA:

- a) That ~~the TRCA Checklist~~TRCA Standards for: Master Environmental Servicing Plans Requirements, from the Planning and Development Procedural Manual, be used as the foundation for preparing a site-specific MESP Terms of Reference with the municipality to TRCA's satisfaction, prior to the municipality's approval of the Terms of Reference.
- b) That the MESP items relating to TRCA's requirements from policy 7.5.2.3 a), be completed by the proponent to TRCA's satisfaction, in advance of municipal conditional approval of any zoning by-law amendments, draft plans of subdivision, or site plan control applications within the MESP area.
- c) That lands within the MESP study area containing the *Natural System* not form part of the blocks to be *developed*, but rather, be identified for environmental protection, enhancement and conveyance into public ownership.
- d) That MESP's be undertaken with a focus on *restoration* and enhancement of the *Natural System*, including *remediation* of natural hazards, especially MESP's for *redevelopment* areas.

7.5.2.4 Zoning By-law Amendments, Draft Plans of Subdivision and Condominium, Severances/Consents

7.5.2.4 -It is the policy of TRCA:

- a) That lands containing the *Natural System* (natural features, *natural hazards*, *buffers*, and any *potential natural cover*) not be zoned for *development*, and not form part of the lots to be created or developed, but rather, be zoned for environmental protection and be set aside for dedication into public ownership in accordance with Section 6.4, Dedication Into Public Ownership.
- b) That the creation of a new lot(s) not be supported unless a suitable building envelope exists outside the *Natural System* in accordance with the policies in Sections 7 and 8 and municipal requirements. This would include sufficient space within the building envelope for required municipal setbacks and infrastructure including, but not limited to, private septic systems, wells, driveways, and parking and outdoor amenity areas.
- c) That draft plans of subdivision and condominium be constructed in accordance with the checklists and guidelines in TRCA's Planning and Development Procedural Manual.
- d) That draft plans of subdivision and condominium affecting the *Natural System* provide erosion and sediment control plans in accordance with the Erosion and Sediment Control Guideline for Urban Construction (December 2006).

7.5.2.5 Existing Vacant Lots of Record

Historic planning approval decisions may result in the existence of vacant lots “of record”, which refer to undeveloped lots with zoning rights for some form of development (e.g., a single family dwelling, a single commercial use). When a Planning Act application is submitted to a municipality for building on a lot of record (e.g., rezoning or minor variance), and the lot lies wholly or partially within the Natural System, municipalities typically circulate these applications to TRCA for review. TRCA’s planning and regulation policies do not support development and site alteration within the Natural System, regardless of the zoning rights ascribed to these lots under the Planning Act. However, when these applications are circulated, TRCA endeavours to work with applicants to meet TRCA policies while recognizing that if any part of the application falls within a TRCA Regulated Area, the proposed development would also have to meet the five tests of TRCA’s regulation. Section 8.1 of the LCP describes these scenarios further in the paragraphs entitled “Relationship to Section 7.”

7.5.2.5 -It is the policy of TRCA:

- a) That where there is an *existing vacant lot of record* (including an *infill lot*) located within the *Natural System*, to not support the designation, rezoning, or *development* of the lot, where the lot has no *safe access*, or is located entirely within:
 - i. the *flood hazard* (One Zone Policy Area) or *erosion hazard* of a *valley and stream corridor*, or
 - ii. the *flood, erosion* or *dynamic beach hazards* of the Lake Ontario; or
 - iii. a *provincially significant wetland* or *wetland* on the Oak Ridges Moraine or *other wetlands* greater than 0.5 ha; or
 - iv. any natural features and areas, *hydrologic functions* or *ecological functions* ~~contributing where the development would adversely affect~~ the conservation of land.
- b) That where an *existing vacant lot of record* (including an *infill lot*) has *safe access* and is only partially located within i), ii), iii), or iv) above, TRCA may support the *development* of the lot, subject to the policies in Sections 7 and 8.

7.5.2.6 Site Plans

7.5.2.6 -It is the policy of TRCA:

- a) That lands containing the *Natural System* not comprise the *developed* portions of the subject property, but rather, be set aside for environmental protection.
- b) That site plan applications required for *infrastructure* projects that may need to be located within the *Natural System* be reviewed under the policies in Sections 7 and 8 of this document.
- c) The *development* or *site alteration* approved under a site plan be constructed in accordance with the checklists and guidelines in TRCA’s Planning and Development Procedural Manual.

- d) That site plan applications affecting the *Natural System* provide erosion and sediment control plans in accordance with the Erosion and Sediment Control Guideline for Urban Construction (December 2006).

7.5.2.7 Minor Variances

7.5.2.7 -It is the policy of TRCA:

- a) That *development* or *site alteration*, proposed under a minor variance, remain outside of the *Natural System*.
- b) That where *alterations to existing development* are proposed under a minor variance, and the existing *development* is located within the *Natural System*, that the alterations minimize impacts to the *Natural System* and be in accordance with the policies in Sections 7 and 8 of this document.
- c) The *development* or *site alteration* approved under a minor variance be constructed in accordance with the checklists and guidelines in TRCA's Planning and Development Procedural Manual.
- d) That minor variances entailing construction affecting the *Natural System* provide erosion and sediment control plans in accordance with the Erosion and Sediment Control Guideline for Urban Construction (December 2006).