EXECUTIVE SUMMARY
FOR THE DRAFT ENVIRONMENTAL POLICY REVIEW
FOR THE TOWN OF RICHMOND HILL BACKGROUND REPORT

BACKGROUND

The Town of Richmond Hill (the Town) is in the process of developing a new Official Plan to prepare for a more mature growth pattern as the Town evolves towards a more compact, urban community. The foundation of the Official Plan process involves understanding the existing spatial framework of the Town and developing future urban structure options through the Town’s Urban Structure Study. This study is being informed by public consultation and a series of background studies that define the existing conditions and future options for the Town’s environment, economy, housing, infrastructure, urban design, built heritage, the Downtown and the Regional Centre. The Environmental Policy Review is one of these background studies, which will research applicable policies and best practices, update environmental mapping, develop options and recommendations on environmental protection, as well as recommend innovative ideas on sustainable techniques for new development and redevelopment within the Town’s urbanizing landscape.

Through the People Plan Richmond Hill process, the Town heard that Richmond Hill should continue to protect, restore, and enhance the Town’s environment while implementing projects and programs that foster clean air, energy conservation, and waste reduction. During the next 25 years, Richmond Hill is anticipated to experience continued growth pressure, growing from a Town of approximately 181,000 people to a Town of just over 243,000 people. In order to protect and enhance the environment over the long-term while accommodating this anticipated growth, the Town will need to make some tough choices in terms of how and where the anticipated growth will be accommodated. People Plan participants spoke about a need to change the way the Town interacts with the environment by adapting the way that the Town approaches water flows, emissions to the air, maintenance of soil productivity, the diversity and movement of plant and animal populations, the processing of waste, and the use of energy.

Today the Town can be described as a predominately urban municipality with over 65% of its area occupied by urban land uses. Natural areas occupy 35% of the Town’s land area, with 14% of the Town forested (17% forested if when street trees are included). Most of the Town’s natural areas are concentrated in the northern portion of the Town in areas protected under the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan. The proportion of the Town’s natural areas is within the local watershed plans’ recommendations of 25-31%. Some of the healthy significant natural features include:

- Seven Areas of Natural and Scientific Interest (ANSI’s):
  - Philips Lake, Lake St. George, Bond Lake and Bog, Wilcox Lake Wetlands and Uplands, Jefferson Forest, Oak Ridges Bog, and Simeon Lakes.
Six kettle lakes:
  - Bond Lake, Philips Lakes, Haynes Lake, Lake St George, Simeon Lake and Wilcox Lake.

Four Provincially Significant Wetland Complexes and approximately thirty Provincially Significant Wetland areas;

Over 120 flora and fauna species of local concern;

Five species of provincial or national concern, listed under the Species at Risk Act (1990) or the Endangered Species Act (2007);

Variable topography that ranges from 164 to 325 metres above sea level;

Mature trees within the Town’s older built-up area;

A large concentration of natural forests, wetlands and healthy headwater streams and recharge areas within the Oak Ridges Moraine; and

Three large stream systems, including tributaries of the Don, Humber and Rouge River systems.

These natural areas represent important building blocks that can help the Town build a larger, healthier and more connected Greenway system in the future.

STUDY PROCESS

The Background Report was completed in three phases outlined below:

Phase 1: Data Collection- Materials were gathered from a wide range of sources to describe the Town’s environment in the context of policy and the current character and health of the natural environment.

Phase 2: Analysis – Existing materials were reviewed in order to identify gaps in information, policy and environmental management approaches and trends that need to be considered by the Town in the development of its new Official Plan. This comprised five specific components:

- Information and data needs;
- Policy gap analysis;
- Innovative approaches analysis; and
- Town characterization analysis.

Phase 3: Synthesis – Based on the findings in Phase 2, themes were identified that should be considered by the Town in the development of the new Official Plan to meet the objectives of protecting and where possible enhancing the benefits provided by a healthy natural environment. Each of these themes are discussed in detail in terms of how they could be applied from a land use policy perspective in the Town. As the conclusion of this work, a framework is proposed consisting of seven environmental themes for which Official Plan policy options will be considered for updating current policies to protect and enhance the natural environment within the Town.
KEY FINDINGS OF THE GAP ANALYSIS

The policy gap analysis included a review of relevant Provincial and Regional policies and plans including (but not limited to) the York Region Official Plan, the Provincial Policy Statement, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Growth Plan for the Greater Golden Horseshoe Area.

The gap analysis revealed several policy directions that the Town needs to address in the new Official Plan. The policy directions generally fall within the following subject areas:

- Natural heritage system definition and management that results in a viable and connected system, beyond municipal boundaries and integrated with recreational features;
- Application of a watershed planning approach;
- Water resource management that protects vulnerable water sources, and manages stormwater quantity and quality while providing overall sustainable water management;
- Identification and protection of agricultural lands; and
- Implementation of community sustainability that reduces the overall resource use and human impact on the surrounding environment.

It should be noted that several policy gaps identified within the Town’s Official Plan are addressed through area-specific Official Plan amendments, such as OPA 218 (Oak Ridges Moraine Conservation Plan conformity amendment). However, because these amendments are area-specific, inconsistencies exist in terms of the environmental policy approach across the entire Town.

INNOVATIVE APPROACHES

A literature review was conducted on innovative approaches proposed or implemented in other jurisdictions. A large number of innovative approaches were identified with potential for application in the Town. These approaches were classified under eight themes, including:

- Green Space
- Use of Native Species
- Wildlife Management and Connectivity
- Sustainable Community Planning
- Green Building and Business
- Water Resources
- Low Impact Development Design
- Transportation, Energy and Waste Management

These themes will be used to inform the development of environmental policies in later stages of the Environmental Policy Review.
KEY DIRECTIONS IN THE DEVELOPMENT OF THE TOWN’S NEW ENVIRONMENTAL POLICIES

This report outlines a framework to update the Town’s environmental policies to meet the objectives of consistency in application throughout the Town and to incorporate relevant directions from applicable Provincial and Regional plans and policies.

Application of these strategies will result in a comprehensive environmental policy framework that will provide the authority and direction for the Town to actively manage for the protection and enhancement of its natural environment system. The key strategies are:

1. Revising the focus of the Town’s environmental policy approach;
2. Identification of a comprehensive Greenway System, comprised of a linked system of natural and recreational resources that extend throughout the Town and to neighbouring municipalities;
3. Adapting the Town’s approach to water resource management;
4. Opportunities to better integrate natural and man-made systems;
5. Promotion of urban and near-urban agriculture;
6. Reducing waste, emissions, and energy use; and
7. Opportunities to build a more sustainable Richmond Hill.

This report defines the existing physical environment, community characteristics and policy framework for protecting the natural environment within the Town. Combined with ongoing public consultation through People Plan Richmond Hill, this report will form the basis for developing environmental policy options for the Town. These options will be integrated with other essential social and economic aspects of the Official Plan being developed in other background studies including the Urban Structure Study, Housing and Residential Intensification Study, Economic Policy Review, Regional Centre Study and the Downtown Study.

NOTE ABOUT MAPPING

The maps presented in this report were created based on available information and should be considered a work in progress. The maps will be further refined as the project continues and more information becomes available to produce an updated set of maps for the Town that are based on current best available information.
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1. INTRODUCTION

The Town of Richmond Hill (the Town) is located in the centre of the Regional Municipality of York and within the Greater Golden Horseshoe. The Town covers an area of approximately 102 square kilometres. Richmond Hill is one of the fastest growing municipalities in Ontario and is anticipated to grow to a community of over 243,000 people by 2031.

The Town is in the process of developing a new Official Plan. This process is being undertaken to bring the Town’s land use policies up to date including:

- Incorporation of new federal, provincial and regional policy and regulatory directions;
- Emergence of new trends and approaches including identification and protection of greenway systems and promotion of sustainability;
- Accommodation of major new growth in a way that contributes to the economic and social health of the community; and
- Addressing the needs and aspirations of the community as expressed through the People Plan Richmond Hill consultation process.

As part of this process, a series of background studies are being conducted. The Environmental Policy Review is one of these background studies, which will provide research, updated mapping, policy review, options and recommendations on environmental protection, as well as innovative ideas on sustainable techniques for new development and redevelopment within the context of the Town’s urbanizing landscape.

The Town of Richmond Hill is the first municipality in York Region to have effectively built out to the limit of lands identified for urban land use. Any additional development will need to be accommodated through greater intensification within existing urban areas. Notwithstanding this high level of growth, the Town boasts one of the most diverse assemblies of large healthy natural areas in York Region and through People Plan Richmond Hill the Town has heard that participants would like new development to occur in a way that protects and where possible enhances the benefits provided by a healthy natural environment. The Environmental Policy Review will focus on identifying options and approaches that need to be adopted in the new Official Plan in order to achieve this objective.

1.1 PURPOSE OF THE STUDY

The Environmental Policy Review is one of the background studies being undertaken to develop the Town’s new Official Plan. Through research, policy gap analysis, environmental mapping, and development of options and recommendations the study will:

- Consolidate and update the Town’s existing environmental policies;
• Identify environmental policy directions that must be incorporated in the new OP from relevant Federal, Provincial, Regional, and Conservation Authority regulations, plans and policies; and
• Identify sustainable development practices/protocols that can be implemented through the new Official Plan.

The overall goal of the resulting new environmental policies is to provide for the long-term protection and enhancement of the natural features and functions of the Town’s urbanizing landscape.

1.2 STUDY PROCESS

Through the People Plan Richmond Hill process, the Town is preparing a new Strategic Plan and a new Official Plan to set a future vision for the community. The Strategic Plan will confirm the overall community vision and goals for the Town’s future and will guide the development of all other policies, including those of the Official Plan. The resulting Official Plan policies will guide future land use decisions in such areas housing, employment, parks, schools, hospitals, infrastructure and servicing, transportation, and the environment. The development of the new Official Plan will involve public consultation, research, analysis and refinement of recommendations through public and stakeholder discussions.

This study fulfills the collection and documentation of the environmental policy background research and analysis. This stage will be complete upon presentation of this report to the Official Plan Task Force. The remaining three study stages involve agency, stakeholder and public consultation on the identified key environmental issues, followed by a collaborative multi-stakeholder development of the preferred urban structure option and the future land use vision for the Town at the Official Plan Summit, and ultimately the preparation of the draft Official Plan policies.

The following presents the stages in the Official Plan process for all of the studies underway, with Step 4 to be completed by the late 2009:

**Stage 1A** – Preliminary background research and analysis, preparation of study terms of reference and establishment of study teams – complete.

**Stage 1B** – Background research and analysis completed and documented, report to Official Plan Task Force – **This report fulfills this stage of the Environmental Policy Review.**

**Step 2A** – Preparation of policy options to address gaps in existing policies, consultation with other Town departments, Provincial and Regional agencies and Conservation Authorities.

**Step 2B** – Preparation of Discussion Paper and consultation with stakeholders, committees and the public.
Stage 2C – Presentation of Discussion Paper on the preferred environmental option and principles at the OP Summit, formulation of collaborative land use vision at the OP Summit (by Town staff, expert consultants, public and stakeholders).

Stage 3 – Preparation of Recommendations Report and presentation to the OP Task Force.

Stage 4 – Preparation of draft Official Plan policies with presentation of draft policies to the Official Plan Task Force.

The process for completion of this background report included:

1. **Data Collection:** Materials were gathered from a wide range of sources to describe the Town’s environment in the context of policy and the current character and health of the current natural systems.

   This includes collection and collation of existing inventories, relevant policy documents and relevant literature on the current state of natural environment management science underway in North America.

2. **Analysis:** Existing material was reviewed in order to identify gaps in information, policy and environmental management approaches and trends that need to be considered by the Town in the development of its new Official Plan.

   This comprised five specific components:
   - Information and data needs;
   - Policy gap analysis;
   - Innovative approaches analysis; and
   - Town characterization analysis.

3. **Synthesis:** Based on the findings in Phase 2, themes were identified that should be considered by the Town in the development of the new Official Plan to meet the objectives of protecting and where possible enhancing the benefits provided by a healthy natural environment. Each of these themes are discussed in detail in terms of how they could be applied from a land use policy perspective in the Town. As the conclusion of this work, a framework is proposed consisting of seven environmental themes for which Official Plan policy options will be considered for updating current policies to protect and enhance the natural environment within the Town.
2. WHAT ARE ENVIRONMENTAL POLICIES?

Policy is defined as a course of action proposed by an agency, such as government, to accomplish a stated objective. Environmental policies are developed and designed to meet environmental health objectives such as protection of natural spaces (forests, wetlands, wildlife habitats and fisheries) or to encourage changes in human behaviour such as reduced energy use, less production of solid waste or use of materials that are non-toxic. Policies may take the form of statements within individual documents, plans or legislation.

Governments set out environmental policies for protection, restoration and/or recovery of natural features, processes or systems that surround us and provide benefits such as clean air, clean and abundant water, productive soils and healthy and diverse native plants, animals and their associated habitats. These policies not only provide benefits to plant and animal populations, but to human populations as well since our quality of life and health depend on the quality of our surrounding environment. Provinces hold the majority of responsibility for environmental management through their constitutional role in conservation and management of natural resources. In Ontario, the Province delegates much of its responsibility for protection of natural areas and their supporting systems to municipalities, mainly through management of land uses under the Planning Act and the Municipal Act.

In general, municipal environmental policy is implemented though the official plans which identify and protect sensitive natural areas and require that land use change and development applications provide background studies and undertake planning, design and construction approaches that ensure the protection of adjacent natural areas. They also develop policies that identify actions and programs that the municipality will undertake to directly protect natural areas such as land acquisition, restoration works and stewardship.

Municipal environmental policies of recent years are evolving to include the development and implementation of comprehensive natural system approaches such as the establishment of greenways, natural heritage systems and watershed plans.
3. COMPONENTS OF THE TOWN’S EXISTING ENVIRONMENT

3.1 REGIONAL CONTEXT

The Town of Richmond Hill is located in the southern portion of the Regional Municipality of York, one of nine area municipalities which comprise the Region. The Regional Municipality of York is located in the Greater Toronto Area and is one of the fastest growing urban areas in North America. Currently home to one million people, the Region is expected to add another 300,000 people by 2026. Richmond Hill has been identified as a growth center within York Region and will be expected to accommodate 17% of this anticipated growth.

The Town covers an area of approximately 100 square kilometres. As shown in Map 3-1, it is located along Yonge Street, one of the major transportation and development corridors within the Greater Toronto Area.

Physical land features provide the foundation for the Town. The northern half is located within the Oak Ridges Moraine (ORM), a large ridge of land of mixed and coarse soils with occasionally steep topography that stretches from the Niagara Escarpment in the west close to the Trent River in the east. The ORM forms the watershed divide between the Lake Simcoe and the Lake Ontario watersheds (see Map 3-2) and plays a major role in the recharge of both stream and groundwater systems due to its high relief and granular soil characteristics. This recharge function is essential to maintaining base water flows in the stream systems that traverse the Town.

Northern portions of the Town of Richmond Hill are included within the Greenbelt Plan identified by the Province to protect significant natural areas and agricultural lands within Ontario’s Golden Horseshoe Area. The Greenbelt Plan area extends from the Niagara Peninsula in the south to Lake Simcoe in the north and eastward to Northumberland County. In Richmond Hill, these areas include the Oak Ridges Moraine Area and headwater portions of the Rouge River (see Map 3-3).

The Town is located mainly within three watershed systems that drain into Lake Ontario. They are the Humber River, Rouge River, and Don River watersheds. A small area along the northern boundary of the Town drains north into the East Branch of Holland River and ultimately into Lake Simcoe.

Forest cover in the northern section of the Town is considered to be part of the Great Lakes St. Lawrence Forest Region. The dominant species in this area include Sugar Maple, Beech, Ashes, Oaks, and others. The southern part of the Town is located in the Deciduous Forest Region (Rowe 1972) and also contains many of the same tree species as the Great Lake St. Lawrence Forest Region, except that conifer trees become much less common.
MAP 3-3
REGIONAL ENVIRONMENTAL SYSTEMS IN RICHMOND HILL

LEGEND:
- Roads
- Streams
- Lakes/Fonds
- Wetlands
- Greenbelt Plan Area
- CRM boundaries
- Rouge River Watershed
- Humber River Watershed
- Don River Watershed
- Holland Watershed
- Subwatersheds

References:
- Road and Richmond Hill boundaries: Town of Richmond Hill (2006)
- Streams and Lakes/Fonds: Town of Richmond Hill (2008)
- Lakes/Fonds and Wetlands were modified based on the aerial photo and map of Wetlands in Richmond Hill (MNR 2004)
- CRM and Greenbelt Plan areas: MAAA (2008)

Disclaimer:
The information is provided as a public service of general information for the Town of Richmond Hill. The information is provided for convenience only, and the Town of Richmond Hill disclaims any responsibility for errors, omissions, or completeness. This is not a Plan of Survey.
The Town of Richmond Hill, like the rest of Southern Ontario, is located within a Temperate Climatic Zone. Such areas are found in mid-latitudes of the world where nearly half of the months of the year have mean temperatures above 10 degrees Celsius. These areas all experience 4 distinct seasons and precipitation is generally evenly and abundantly distributed throughout the year. The climate of Southern Ontario is described as a modified continental climate that is much milder than climates in Northern Ontario and other parts of eastern and central Canada due to the effects of the Great Lakes.

Brown et al. (1974) placed the Town within the South Slopes Climatic Region where, due to its southerly location and proximity to Lake Ontario, residents experience one of the mildest climates in Ontario. It has an average total precipitation of 80 cm per year of which approximately one quarter falls as snow in the winter (i.e. 16 cm of water that translates into 160 cm of snow-cover). The Town has a mean July temperature of 20.5 degrees Celsius, a January mean temperature of -6 degrees Celsius and 140 to 150 frost free days per year.

3.2 Evolution of the Town's Existing Environment

3.2.1 The Past

The physical features of the Town were initially developed through retreat of the glacier that covered much of Ontario approximately 12,000 years ago. Much of the northern land features were formed between two lobes of melting ice to the north and south. A mixture of unsorted coarse to fine soils and some layered deposits of gravel, sand and silt were deposited by meltwaters from the two ice lobes. This left behind a complex landform including a mixture of hummocky topography, rolling lands and a large number of depressional areas that are occupied today by kettle lakes and wetlands. Advancement and retreat of the glacier in the southern portion of the Town left behind finer textured silt and clay soils of the Peel Plain in a gently rolling topography.

The natural cover located in Richmond Hill somewhat reflects the different geologies of the north and south half of the Town, however vegetative communities are mostly similar. Some differences occur within the natural communities of the kettle lakes and wetlands in the northern half of the Town that often contain plant and animal species more typical of ecosystems further north. The bog communities adjacent to Bond Lake and Philips Lake are good examples of wetlands that are typically found in northern Ontario.

A more significant north-south differentiation is the amount of natural cover. In northern Richmond Hill, natural vegetation occurs on steep slopes, droughty soils and wet depression areas characteristic of this complex landscape. In southern Richmond Hill, much of the original natural vegetation was cleared in the nineteenth century to accommodate agriculture; more recently some additional smaller areas have been cleared for urban development. Natural cover in the south occurs mainly along stream systems.
Prior to the arrival of European settlers in the late 1800s, the Town and surrounding areas were covered by forests, mostly mixed deciduous and coniferous forest types of the Great Lakes–St. Lawrence Forest Region and the Deciduous Forest Region. A few scattered openings likely existed, cleared for growing of crops such as corn by native North Americans and from natural disturbances such as wind throw, fire or disease. With the arrival of the Europeans, substantial clearing of the forests in this area began, initially to harvest the White Pines needed by the British Navy followed by removal of larger tracts to establish farmland. By the end of the 19th century the Town was almost entirely cleared of forest cover except for those areas where poor drainage or steep slopes rendered agricultural use impossible.

The Town’s resources of gentle topography and rich soils were rapidly converted to farming use with over 90 percent of the land base in agricultural use by the turn of the 20th century. This rapid land conversion resulted in a decline in the size, diversity, and connectivity of natural areas and degradation of many of the stream systems in the area due to accelerated erosion and sedimentation resulting from land clearance.

The trend of loss of natural cover to agricultural use was reversed somewhat around the mid 1900s when agricultural economies required that marginal farmlands in low, wet, droughty or steeply sloping soils be taken out of production. At this time, however, the area’s forests were impacted by an increase in urbanization to accommodate the steady arrival of immigrants to communities in the Toronto area.

Richmond Hill as a distinct community took form between 1810 and 1830 as a small service area along Yonge Street. By 1830 it contained two inns, two blacksmith shops, a general store, a chair maker, a bakery shop, a school, a church and a cemetery.

An interesting aspect of the Town roots is its emergence in the early 1900s as the “Rose Capital of Canada”. This stemmed from the establishment in 1912 of two greenhouses by William J. Lawrence who also encouraged other florists to locate in the area. In fact the Duke of Richmond’s motto “En la rose, je fleuris” was adopted as the motto of Village Council.

Up to the end of World War II, the population of Richmond Hill was fairly modest in size with much of the population either directly or indirectly engaged in the agricultural economy or in servicing of the people that travelled along Yonge Street. In 1951 the population of the Richmond Hill was a mere 1,264 people.

In the years following the war, Richmond Hill, like much of the rest of the area saw an unprecedented surge in urban growth so that by 1971, about 33,000 people lived in the Town. By 2006, the population had grown to over 181,000 people.

This rapid growth intensified the negative impacts on ecological features and functions that had started through the conversion to farmland. For watercourses in particular, the introduction of hard surfaces and additional pollutants associated with urban growth reduced base flows and water quality within many of the streams. It also increased erosion and destabilization of stream banks, caused flooding through increased runoff associated with storm events and lowered water
quality through introducing toxins and other deleterious substances. Some of these effects were mitigated, however, through re-vegetation efforts that saw the planting of trees along Bayview Avenue and on the David Dunlop Observatory lands after World War II.

3.2.2 The Present

Today the Town of Richmond Hill can be described as a predominately urban municipality with over 65% of its area occupied by urban land uses. Richmond Hill was the fastest growing large urban municipality in Ontario during the 1990s. During this period, the number of households and population doubled. Although this trend has slowed in recent years, the Town is still growing steadily. The Town population as of 2006 is 181,000 people and is expected to grow to 243,000 by 2031.

The majority of the Town’s households are currently large multi-family units, with a declining trend towards smaller household sizes. With the steady growth rate projected for the Town, the demand for new household units will continue to grow as well. The residents of Richmond Hill are generally highly educated and have higher-paid jobs than the national average. The lower income community is also growing, making affordable housing and higher density developments a priority. Areas of intensification will be defined in the new Official Plan based on Provincial and Regional policies and input from the community. It is expected that the majority of intensification will occur in Regional and Local Centers and Corridors, e.g. Richmond Hill/Langstaff Gateway (Town of Richmond Hill 2008).

Historically, urbanization and farming practices in the Town of Richmond Hill have impacted the natural heritage features and functions through removal of natural vegetation, reduced air, water and land quality, introduction of invasive plants and animals and over-harvest of native plants and animals. Future growth can further exacerbate these impacts if proper measures are not taken for protection and enhancement of the natural environment.

While increases in urban growth often place additional pressure on the natural areas and the general environmental quality, the Town’s objectives towards more compact and intense form of development provide opportunities to expand and enhance the quality of natural areas and to improve overall environmental quality through revised urban design. Conversion of existing built up areas to new housing forms will provide further opportunities to apply innovative approaches to urban design to increase the size of individual open space blocks, to integrate green standards into new housing forms and to reconfigure open space blocks and stream corridors to create continuous or linked greenway system corridors.

Woodlands comprise approximately 14% of the total Town land area with most of these concentrated in the northern portion of the Town in areas protected under the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan.

The proportion of the Town’s natural areas is within the local watershed plans’ recommendations of 25-31%. Some of the healthy significant natural features include:
Seven Areas of Natural and Scientific Interest (ANSI’s):
- Philips Lake, Lake St. George, Bond Lake and Bog, Wilcox Lake Wetlands and Uplands, Jefferson Forest, Oak Ridges Bog, and Simeon Lakes.

Six kettle lakes:
- Bond Lake, Philips Lakes, Haynes Lake, Lake St George, Simeon Lake and Wilcox Lake.

Four Provincially Significant Wetland Complexes and approximately thirty Provincially Significant Wetlands areas, many of which are linked within these complexes;
Over 120 flora and fauna species of local concern;
Five species of provincial or national concern, listed under the Species at Risk Act (1990) or the Endangered Species Act (2007);
Variable topography that ranges from 195 to 325 metres above sea level;
Mature trees within the Town’s older built-up area;
A large concentration of natural forests, wetlands and healthy headwater streams and recharge areas within the Oak Ridges Moraine; and
Three large stream systems, including tributaries of the Don, Humber and Rouge River systems.

These natural areas represent important building blocks that can help the Town build larger healthier and more connected Greenway system in the future.

3.3 CHARACTER OF THE TOWN’S EXISTING ENVIRONMENT

The natural environment of the Town of Richmond is the product of its unique vegetation, soil, geology, topography, climate and human disturbance patterns. Understanding this information and its relationship to land use and development is helpful in defining the planning, design and management approaches needed to effectively protect and enhance the benefits provided by the natural environment.

3.3.1 Geology, Soils and Topography

The Town is divided in half in terms of its geological character, soil patterns and topography. The northern half is dominated by the soil and landform patterns developed on top of a physiographic unit termed the Oak Ridges Moraine Area. It represents a small portion of a large ridge feature that runs east west through south-central Ontario. It is a moraine feature developed by glacial action that occurred between two opposing lobes of ice approximately 12,000 years ago. Geologically, the area comprises thick layers of glacial materials ranging from clay to sand based till deposits created directly by glacial ice or stratified gravels, sands and silts deposited by meltwaters flowing off the edge of glacial ice lobes.

The Oak Ridges Moraine can be divided into a number of landform sub-units, as described below and as illustrated in Map 3-4:
**Hummocky Kame** - This is the rolling, often steeply sloping terrain often considered as synonymous with the Oak Ridges Moraine landform. It is underlain mainly by stratified gravel, and silt materials but does contain some areas of till. This landform area contains distinct ridges, depressions, kames and small valleys normally associated with moraine landscapes. Also included in this category are areas located along the south slope of the Moraine where erosive action of headwater streams have extensively dissected the topography. Due to the presence of droughty and steeply sloped soil types, this area is generally ill suited for intensive forms of farming. The land surface has been allowed in many areas to remain in or return to forest cover.

**Hummocky Till Plain** - this is a highly variable portion of the area underlain by silt to clay rich tills. It is gently rolling in some areas and highly irregular or hummocky in others. It displays classic kame and kettle topography in some areas. Because of its impermeable soil types, numerous wetland and kettle lake pockets have formed in the depressional areas including Wilcox Lake, Bond Lake, Haynes Lake, Philips Lake and Swan Lake. Significant wetland and forest cover types also remain in some of the steeply sloping and depressional areas.

**Oak Ridges Plain** - A sizable area of relatively flat to gently rolling topography occurs along the East Branch of the Humber River. It is underlain by stratified sand, silt and clay deposits associated with meltwater and lake ponding that occurred at the terminus of the retreating ice lobes in this area. Some wetlands and forested areas are found in parts of this landform but it is largely cleared to accommodate agricultural and urban uses.

**South Slope** - A small portion of the flatter lands to the south have been included in the Oak Ridges Moraine Unit because they contain several large tracts of forested land on the poorly to imperfectly drained soils at the base of the south slope of the Oak Ridges Moraine.

Although topographically the Oak Ridge Moraine can be described as a Ridge, the Moraine within the Town displays a great deal of variability in slope and form and possesses a range of features such as valleys, hummocks, ridges and depressional areas. The elevation in this area varies from 245 to 325 metres above sea level. The lowest areas are located along the southern boundary of the Area and the highest areas are found in the vicinity of Bond Lake and Philips Lake.

**Peel Plain** - South of the Oak Ridges Moraine is the much flatter Peel Plain. The Peel Plain consists of clay tills, thin sand and thin clay deposits left by the rapidly retreating Lake Ontario Ice lobe and associated meltwaters as it retreated southward out of this area. The Peel Plain’s gentle topography is occasionally interrupted by streams that have carved valleys in the landscape through erosion during the last 12,000 years.
The south half of the Town is underlain by the relatively flat to gently rolling topography of the Peel Plain that formed by the northerly advance and then retreat of the Lake Ontario Ice Lobe approximately 12,000 to 10,000 years ago. The area is underlain by silt to clay rich till. In some areas a thin veneer of clay, silt or sand deposits have been laid down on top of these till plains from lakes formed at the terminus of the retreating ice sheet. These areas are flat to gently rolling with the only steep slopes confined largely to valley walls associated with streams in the area.

The topography of the Peel Plain can be characterized as gentle slope descending from an elevation of 245 metres above sea level in the north down to an elevation of just under 164 meters above sea level along the southern boundary of the Town. These areas of good quality soils and gentle slopes have been used for agricultural and urban uses since European settlers first arrived in the late 1800 and early 1900s.

### 3.3.2 Water Resource Features and Functions

Map 3-5 shows the existing surface waters (streams, lakes and wetlands) and the sensitive hydrological features of the Town, such as:

- Areas within 120 metres of a stream, lake or wetland with high potential for surface water contamination. These are areas which have a high potential to transmit contaminants to surface waters and/or to degrade stream flow or water storage functions. Introduction of land uses in these areas can result in the introduction of contaminants into surface waters and the degradation of riparian and aquatic environments.
- Areas with high potential for groundwater contamination or disruption due to the presence of highly permeable soils or high water table. Land uses and activities in these areas can degrade groundwater quality.
- Areas functioning as a major recharge area replenishing groundwater and/or surface water supplies. Land uses and activities in these areas can both introduce contaminants into groundwater supplies and affect groundwater recharge rates by decreasing effective permeable surface areas.
- Areas sensitive to groundwater depletion due to presence of artesian flow conditions. An Artesian aquifer is a confined source of groundwater which is under natural pressure. Breaching can result in surface erosion and the depletion of the confined groundwater source.

These represent areas possessing important hydrogeological functions or sensitivity to contamination or disruption requiring management to ensure land use change does not adversely affect the quality or abundance of water resources within the Town. The Toronto and Region Conservation Authority in partnership with York Region is currently in the process of developing a more accurate description of hydrological features and functions. This material should be available in time for the development of policy options. Map 3-5 describes the hydrological features of concern in the Town, which were identified through the mapping and policy gap analysis.
MAP 3-5
SENSITIVE HYDROLOGICAL FEATURES IN RICHMOND HILL

Legend:
- Roads
- Streams
- Lakes/Ponds
- Wetlands
- Riperian Zone
- Major Recharge Areas:
  - High
  - Medium
- Known Major Area of Potential Artesian Flow
- Area of Influence for Stream Corridors

References:
- Fixed and Richmond Hill boundaries
- Town of Richmond Hill (2008)
- Streams and Lakes/Ponds Town of Richmond Hill (2008)
- Waterways GRCA (2002) and Town of Richmond Hill (2008)
- Lakes/Ponds and Wetlands were modified based on the Aerial photo and map of Wetlands in Richmond Hill (MOE 2004)
- Watersheds: TRCA (2009) and LRCA (2005)
- Major recharge areas digitized from TRCA’s Rouge River watershed plan (TRCA 2007)
- Potential Artesian Flow areas digitized based on York Interceptor Sewer Project (York Region 2005); this map does not cover all the Richmond Hill.
- Areas of Influence for Stream Corridors include a 120 m buffer around streams, lakes, and wetlands (which is defined as Area of Influence by ORMCP)
- Riperian Zone includes a 30 m buffer around the stream and the Recharge Areas

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The information is provided for information only, and the Town of Richmond Hill does not assume any responsibility for accuracy, accuracy, or completeness.
This is not a Plan or Survey.
3.3.3 Forest Cover

The northern portions of the Town are located within the Huron-Ontario section of the Great Lakes St-Lawrence Forest Region. Upland forests in this forest association are dominated by Sugar Maple and Beech along with other species such as ashes, oaks, white pine, eastern hemlock and birches. Trees with more northerly affinities such as balsam fir, aspen and balsam poplar also occur to a lesser degree. Species with more southerly affinities such as hickories, ironwood, black cherry, and butternut also occur. Poorly drained soils support a number of tree species adapted to saturated soil conditions including white cedar, silver maple and black ash.

The southern portion of the Town is located within the Niagara Section of the Deciduous Forest Region. It contains many of the same tree species as the Great Lakes St Lawrence Forest except that conifer trees become much less common and species with southern affinities such as sycamore, black walnut and several oak species reach their northern limits in this area.

Today approximately 1500 ha (14%) of the Towns area is covered in forest. Most of this is concentrated in the Oak Ridges Moraine where 1100 hectares or 21% of the moraine is forested.

As shown on Map 3-6, forest cover is still well represented in areas that correspond to steep slopes and droughty or poorly drained soils. In the southern half of the Town remaining natural forests occur mainly along stream valleys and adjacent to wetland areas.

In terms of overall health, ecologists recommend that landscape needs to maintain a forest cover of 30% to fully provide the attributes needed to maintain the health and diversity of plants and animal populations using that forest.

Although forest cover in the Town is still below ideal levels, the existing forest cover continues to provide excellent habitat for a diversity of native plant and animal species. Several large forested tracts provide habitat for interior sensitive plant and animal species. In addition, the forest cover continues to provide a number of other important benefits including reduction of erosion and sedimentation, climate amelioration, high quality recreational opportunities and carbon sequestration.
MAP 3-6
EXISTING NATURAL COVER IN RICHMOND HILL

LEGEND:

- Roads
- Streams
- Lakes/Ponds
- Wetlands
- Oak Ridges Moraine
- Forest
- Successional Forest

References:
- Town of Richmond Hill (2003)
- Streams and Lakes/Ponds:
  Town of Richmond Hill (2003)
  TRCA (2002) and
  Town of Richmond Hill (2003)
- Lakes/Ponds and Wetlands were modified based on
  the aerial photo and map of Wetlands in Richmond Hill
  (MOP, 2004)
- ORMA Area: MIMA (2009)
- Forest, Meadow and Successional
  Forest from TRCA Natural Cover (TRCA 2002)

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corrections, cassity or completeness. This is not a Plan of Survey.
3.3.4 Impact of Growth on the Natural Systems

The effects of over two hundred years of intensive use of the land base in the Town of Richmond Hill initially for farming and more recently for urban development has affected the size and diversity of the natural environment by:

- Removal of over 80% of the natural vegetation cover to accommodate farming and urban use;
- Increased stress on remaining natural areas through impacts from nearby human land uses that can reduce the quality of water, air and soil and quantity of water supporting these areas;
- Increased contacts and conflicts between humans and nature through human population growth;
- Introduction of exotic plants and animals that directly compete with native species; and
- Over-harvest of native plants and animals.

If these trends are reversed, the natural systems will gain their ability for long-term health and survival. This will result in enhanced species abundance and diversity, the availability of natural areas and improved quality of life for Town residents.

3.4 The Town’s Existing Environmental Policies

3.4.1 Richmond Hill Official Plan

The Town of Richmond Hill Official is a document adopted in accordance to the provisions of the Planning Act to provide long term direction to growth and development within the Town. It defines policies for the physical, social and economic growth of Richmond Hill and is intended to ensure that development meets the needs of its inhabitants.

At present, the Official Plan sets environmental policies to create “a safe, healthy living environment” and for “the protection of Richmond Hill’s natural and built environment”. The range of policies provide direction on reducing of impacts from intrusive human activities, such as aggregate extraction, restrictions to land uses allowable within defined hazard lands, environmentally sensitive areas and agricultural lands and provisions for encouragement of energy efficiency planning.

3.4.2 Richmond Hill Secondary Plans

Secondary Plans apply to specific planning districts in the Town of Richmond Hill. They provide supplemental policies intended for and relevant to the specific area. They include detailed direction on topics such as land use, urban design and transportation.

The Town has implemented twenty-three Official Plan Amendments (OPA) which create Secondary Plans to the OP. The Secondary Plan policies are intended to complement, refine, and
add specifics to the RHOP policies for a defined planning district. The OPA numbers and planning districts are listed in Table 3-1. A map of these planning districts is presented in Map 3-7.

**TABLE 3-1**

**LIST OF OFFICIAL PLAN AMENDMENTS**

<table>
<thead>
<tr>
<th>Official Plan Amendment #</th>
<th>Affected Planning District</th>
<th>Year of Adoption / Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leslie Industrial Area</td>
<td>1982</td>
</tr>
<tr>
<td>2</td>
<td>Observatory Lane</td>
<td>1982</td>
</tr>
<tr>
<td>18</td>
<td>Doncrest</td>
<td>1985</td>
</tr>
<tr>
<td>21</td>
<td>Elgin East</td>
<td>1986</td>
</tr>
<tr>
<td>29</td>
<td>Bayview Hill</td>
<td>1985</td>
</tr>
<tr>
<td>30</td>
<td>Elgin West</td>
<td>1987 / 1992</td>
</tr>
<tr>
<td>32</td>
<td>Central Business District</td>
<td>1986</td>
</tr>
<tr>
<td>37</td>
<td>Langstaff</td>
<td>1989/1987</td>
</tr>
<tr>
<td>38</td>
<td>The Headford Business Park</td>
<td>1987</td>
</tr>
<tr>
<td>41</td>
<td>Business Park</td>
<td>1987</td>
</tr>
<tr>
<td>74</td>
<td>Yonge-Crosby</td>
<td>1994</td>
</tr>
<tr>
<td>120</td>
<td>Bayview North-East Business Park</td>
<td>1994</td>
</tr>
<tr>
<td>121</td>
<td>Bayview North-West</td>
<td>1994</td>
</tr>
<tr>
<td>129</td>
<td>North Urban</td>
<td>1995</td>
</tr>
<tr>
<td>130</td>
<td>Yonge-Weldrick</td>
<td>1995</td>
</tr>
<tr>
<td>135</td>
<td>Elgin-Leslie</td>
<td>1994</td>
</tr>
<tr>
<td>138</td>
<td>Jefferson</td>
<td>1997</td>
</tr>
<tr>
<td>155</td>
<td>Bayview Glen</td>
<td>1996</td>
</tr>
<tr>
<td>156</td>
<td>16th Avenue/Duncan Road</td>
<td>1997</td>
</tr>
<tr>
<td>199</td>
<td>Yonge-West</td>
<td>2002</td>
</tr>
<tr>
<td>204</td>
<td>Yonge East</td>
<td>2002</td>
</tr>
<tr>
<td>218</td>
<td>Oak Ridges Moraine</td>
<td>2006</td>
</tr>
<tr>
<td>237</td>
<td>West Gormley</td>
<td>2006</td>
</tr>
<tr>
<td>249</td>
<td>Richmond Hill</td>
<td></td>
</tr>
<tr>
<td>Proposed BELG Secondary Plan</td>
<td></td>
<td>North Leslie</td>
</tr>
</tbody>
</table>
3.4.3 Other Official Plan Amendments

3.4.3.1 OPA 218 – ORMCP conformity amendment

Official Plan Amendment #218 brought the Richmond Hill Official Plan into conformity with the Oak Ridges Moraine Conservation Plan on March 9th, 2006. Strict environmental protection policies for the Oak Ridges Moraine lands resulted through this OPA. These policies included establishment of designations and associated protection policies for lands delineated as ORM Natural Areas, hydologically sensitive features, landform conservation areas and high vulnerability aquifer areas. Specification of planning, design and development requirements were provided to guide development and site alteration that could impact upon these designated areas.

3.4.3.2 OPA 249 - Parkland Dedication Policy amendment

The purpose of Official Plan Amendment #249 was to add policies concerning Parkland Dedication across the Town. Parkland dedication was established as a condition of land development, with specified amounts for various development types.

The policy allows for a cash-in-lieu payment for an equivalent value of lands required for the parkland dedication and it excludes the inclusion of Environmental and Open Space lands as part of the land area dedication.

3.4.4 Other Town Policies and Programs

3.4.4.1 Site Alteration By-Law

In 2007, the Town passed a site alteration by-law to require individuals to seek a permit in advance of any proposed site alteration, including the placement or dumping of fill, removal of topsoil and alternation of the grade of land in any way (removal of vegetation, soil compaction and/or creation of impervious surfaces). This by-law assists the Town in maintaining the ecological health of its land and water system by including provisions for stop orders, correction or restoration of contraventions or direct restoration and cost recovery of the works through property taxes. In this way the Town can reduce deleterious effects that occur during the construction phases of development such as improper storage of topsoil materials, unprotected exposure of mineral soils to erosion and improper land disturbance occurring without the proper planning and design measure being put in place, first.

3.4.4.2 Tree Protection Resolution and Tree Preservation By-Law

In 2006, the Town passed a resolution to protect its urban forest through the adoption of the Tree Preservation Strategy and the Tree Protection Resolution. The resolutions provide council direction for:
Continued ecological restoration,
- Public awareness and stewardship,
- No net loss of trees through municipal works,
- Continued promotion of planting of native vegetation, and
- Consideration of retaining existing trees in the site design and development approvals processes.

This resolution was implemented by adopting a Tree Preservation By-Law, passed in 2007. The Tree Preservation By-Law specifies the required situations within which a permit is required in advance of injury or destruction of trees.

3.4.4.3 Policy for the Establishment and Acceptance of Conservation Easements (2004)

Council adopted the Policy for the Establishment and Acceptance of Conservation Easements in 2004 to define the situations in which the Town will establish and accept conservation easements through the draft plan of subdivision process. The policy notes a preference for accepting conservation easements on lands that are adjacent to municipal or TRCA lands with documentation on the natural heritage value and a tree inventory for the lands submitted by the applicant. The lands within a conservation easement remain private property with a stated long-term protection of their natural state registered on title. At the time of formal establishment of this policy in 2004, the Town retained an inventory of 319 conservation easements.

3.4.4.4 Encroachments onto Town Park and Open Space Lands

In 2004, Council passed the Zero-Tolerance (Encroachment) Policy to establish a zero tolerance policy for any private encroachment onto Town owned or managed parks and open space lands. Town staff were authorized and directed to immediately investigate and act on existing encroachments.

3.4.4.5 Council Resolution for Conveyance of Valleylands (1995)

Building upon existing Town policies that encouraged conveyance of environmentally sensitive and recreational lands, valleylands associated with stream corridors were targeted for conveyance to a public authority for long term management as part the development application process.

3.4.4.6 Environmental Stewardship Initiatives

The Town has implemented a number of environmental programs that support and promote sustainable actions by the Town and its residents. The benefits of these programs range from increasing plant diversity, restoring sensitive areas and increasing environmental protection awareness to the reduction of energy use, generation of waste and potential release of contaminants into the Town’s environment. The programs include:
- **Walk on the Wild Side** – establishment of recreational trails through natural areas with interpretative signage that highlight feature characteristics, inhabitants and sensitivity to human activities;
- **Healthy Yards** – encouragement of the use of native species and of ecological methods for lawn care;
- **Going Green** - A comprehensive solid waste management program that encourages 3R’s (reduce, reuse, recycle) composting and recycling of large items;
- **Energy Efficiency** - Encouragement of alternatives to vehicle use (walking, cycling and transit) and provision of suggestions for home energy efficiency;
- **Water Conservation** – suggestions for methods to reduce water use indoors and outdoors, with connection to York Region’s Water for Tomorrow program;
- **Tree Planting and Stewardship** – planting of trees by the Town and promotion and facilitation of native tree planting and stewardship by residents; and
- **Wildlife Management Policies** – educational materials are provided to the community to provide practical suggestions for living in harmony with wildlife in the Town (Keeping our Wildlife Wild), including the provision of approaches for specific issues such as a documented policy for beaver management, and recommendations for protection of the Jefferson Salamander and management of European Fire Ants.

As well, the Engineering and Public Works Department within the Town has certified their services under ISO 14001, setting up an environmental management system through which they have defined a comprehensive environmental policy to guide service delivery and have put in place the procedures to follow and report upon policy implementation and environmental improvements.

Municipal facilities will also demonstrate environmental leadership through the Town Council’s approval of its sustainable building policy, in 2007. This policy is applicable to all new and large Town Facilities, requiring that a minimum sustainable building design and construction standard of LEED Silver be achieved. This standard would also apply to major retrofit and renovation projects. LEED is the Canadian Leadership in Energy and Environmental Design Green Building Rating System that provides a standard against which building design and construction is evaluated by a third party for sustainable practices with regard to the site selection, water efficiency, energy efficiency, materials and indoor environmental quality.
4. PROVINCIAL AND REGIONAL POLICY DIRECTION FOR THE ENVIRONMENT

The Town is subject to a number of Provincial and Regional policies and plans that affect the way that the environment is planned and managed. The direction for the Town from Provincial and Regional environmental policies, and the highlights of the gap analysis conducted to compare the Town’s Official Plan policies to these guiding documents are provided in the following sections.

The Province, Conservation Authorities and Regional Municipality of York have developed classification systems so as to identify natural areas that should be protected for their value or sensitivity to impact from other land uses. These natural areas, as depicted on Map 4-1, include:

- Natural areas that must be protected as identified in the PPS as Provincially Significant which include:
  - Significant Areas of Natural and Scientific Interest (ANSI)
  - Significant Wetlands
  - Habitat of Endangered species and Threatened Species
  - Fish Habitat

- Natural areas that must be protected as identified in the ORMCP and the GBP as Key Natural Heritage Features, which include:
  - Wetlands
  - Woodlands
  - Habitat of Endangered Species, Threatened Species and Rare Species
  - Sand Barrens, Alvars and Tall grass Prairies
  - Significant Natural Area identified by York Region as Significant Woodlands

The above elements comprise the Town’s existing Greenway or natural heritage system, representing the natural and open space landscape features and functions within the Town. The above natural area designations, Regional Greenlands System, the open space and Oak Ridges Moraine designations as well as the stream corridors all contribute to a linked system of ‘green’ areas and ways that contribute to the Town’s environmental and community health.

Lands identified by the Province under the PPS, ORMCP and the GBP must be identified and protected in the Official Plan whereas the other natural areas identified by the Conservation Authority and York Region are eligible for protection under the PPS if the Town chooses to do so.
4.1 **PROVINCIAL POLICY DIRECTION FOR THE ENVIRONMENT**

This review compared Town Official Plan policies to the directions provided through provincial plans and policies. The following sections provide a summary of the applicable provincial policies and the areas identified as policy areas to be updated in the Town’s new Official Plan.

The most significant areas identified for inclusion in updating the Town’s environmental policies are presented below. For ease of connection to the Town’s Official Plan, the main policy direction update recommendations are organized by themes. In incorporating these policies into the Town’s new official plan, however, their collective contribution to the natural environment will be considered within the overall ecological system within the Town’s jurisdiction and surrounding connected areas.

Main provincial policy directions for the Town’s Official Plan (OP) include:

**Natural Heritage**

- Strengthening of existing natural heritage policies through establishment of criteria / best practices for new and existing development, enhancement of buffer zones for significant features and provision of protection for diversity and long-term health of natural areas;
- Setting of agricultural policies in relation to natural heritage features;
- Reconciliation of the OP’s Environmentally Significant Area (ESA) designation with the land area of the Protected Countryside from the Greenbelt Plan;
- Conservation of the rural character of Protected Countryside;
- Inclusion of the environmental designation of Greenbelt Area from the Growth Plan;
- Enhancing the connection of recreation to natural heritage features;
- Upgrading the existing natural heritage system for increased protection, connectivity, area and diversity; and
- Minor changes to hazard land policies could be considered such as restriction for specific uses and inclusion of the two-zone concept within the Special Policy Area.

**Water**

- Preparation, support for and use of watershed plans;
- Protection of overall water quality and quantity, implementation of water conservation;
- Definition and designation of key hydrological functions for protection and requirement for hydrogeological studies for development proposed in groundwater recharge areas;
- Establishment of vegetation protection zones;
- Prevention of alteration or fill within watercourses, floodplains; and
- Requirement that wells and boreholes are properly abandoned.
Agricultural Policies

- Build upon the current recognition and protection of agricultural lands in OPA 218 through:
  - Restriction of non-farm development; and
  - Setting of specific conditions for lot creation;
- Ensure MDS requirements are met.

4.1.1 The 2005 Provincial Policy Statement (PPS)

The PPS is adopted under section 3 of the Planning Act to provide policy direction on matters of provincial interest related to land use planning and development. Municipalities must ensure their Official Plans and decisions on land use policies are consistent with the PPS which:

- Directs municipalities to protect natural heritage features and functions of provincial significance such as significant wetlands, significant areas of scientific and natural interest and fisheries habitat;
- Provides the municipality with a strong policy basis to plan for the establishment of natural heritage systems and to protect significant woodlands, valleylands and wildlife habitat;
- Directs protection, improvement or restoration of the quality and / or quantity of water in their jurisdiction; and
- Provides strong policy support for municipalities to use watershed planning, identify and protect water related features and functions, promote sustainable water use practices and support the use of innovative stormwater approaches.

4.1.2 The Oak Ridges Moraine Conservation Plan (ORMCP, 2002)

Approximately 52% of the Town’s area is subject to the policies of the ORMCP. This plan provides direction on land use and resource management planning to municipalities such as how to protect the moraine’s ecological and hydrological features and functions.

Large parts of the moraine are designated as Natural Core, Natural Linkage and Countryside Protection whereby urban development beyond existing or approved land uses is effectively curtailed. In addition, Key Natural Heritage Features and Hydrologically Sensitive Features are protected throughout the ORMCP area.

The environmental policies of the ORMCP are stronger than those in the RHOP and overlap with policies in the other provincial and regional plans. The Town has therefore introduced and approved Official Plan Amendment 218, which is in complete conformity with the ORMCP. These policies are only applicable to the northern section of Richmond Hill which falls within the Oak Ridges Moraine (see Map 3-2 for the spatial coverage). OPA 218 environmental policies do not apply to natural heritage and hydrological features throughout the Town, i.e. in the southern portion outside of the moraine.
4.1.3 The Greenbelt Plan (GBP, 2005)

This Plan is established under the Greenbelt Act to frame urban growth and development patterns in the Golden Horseshoe Area of Ontario. The GBP identifies where urbanization should not occur in order to provide for permanent protection of the agricultural land base and ecological features and functions occurring on this landscape. A portion of the Town in the vicinity of the community of Gormley is located within the Natural Heritage System portion of the GBP. In this area, uses are limited to agricultural natural resource and some forms of recreation provided that key natural heritage and hydrological features and related connections are maintained.

The GBP area corresponds to that of the ORMCP. As with the ORMCP, long-term protection of the natural environment seems assured in these areas with the main challenge being to provide for appropriate future land use options. As well, lands designated as Protected Countryside, areas with similar protection to the Town’s ESA’s, occur only within the North Leslie Secondary Plan area.


This plan provides a framework for accommodating anticipated growth in the Greater Golden Horseshoe Area of Ontario. Growth targets are allocated to counties, regions and cities and growth is directed into designated areas and specified to occur through more compact forms of development and through intensification within existing built up areas.

This Plan identifies the Town as a major growth area within York Region. The GGH also utilizes the environmental designation of “Greenbelt Area” from the Greenbelt Plan.

4.1.5 Ontario Water Resources Act (1990)

The overall purpose of the OWRA is to provide for conservation, protection and management of Ontario’s waters and for their efficient and sustainable use in order to promote Ontario’s long-term environmental, social and economic well-being. The water resource conservation, protection and management provisions of this legislation can support water resource policies within the RHOP.

4.1.6 Clean Water Act and Municipal Guide to the Clean Water Act (CWA, 2006)

This reference guide describes Clean Water Act requirements regarding preparation, amendment and review of and other matters related to the source water protection plans. Section 39 of the CWA provides direction on how to address potential conflicts of water resources policies between official plans and by-laws or other policies, requiring that the more protective policy prevail. Once a source water protection plan is prepared, Sections 40-44 require that official
plans, zoning by-laws and prescribed instruments for significant drinking water threats conform to the plan.

Direction from the CWA and technical guide will be useful in updating water resource policies for the identified wellhead protection area for the Town of Aurora in the northern section of Richmond Hill. This is the only expected application of the CWA because the Town does not source its drinking water (Town drinking water comes from Lake Ontario) nor do any other municipal water systems occur within its boundaries. Once source protection plans are prepared for the watersheds areas within the Town’s boundaries, the RHOP will need to conform to directions that the plan identifies.

4.1.7 Provincial Technical Guidelines

Several Ontario Ministries have developed technical guidelines that are useful in developing policies for the official plan and any associated guidance materials. Guidelines are also planned for the Greenbelt Plan with a release date that is not yet known.

The most relevant guide is likely the Natural Heritage Reference Manual prepared to provide technical data to assist in the implementation of the Provincial Policy Statement. As well, the Ministries of the Environment and Natural Resources have released 17 technical papers, the Oak Ridges Moraine Conservation Plan –Technical Paper Series, that provide assistance addressing natural heritage, water resources and landform conservation policies in the official plan. Although designed specifically for use with the ORMCP, they contain useful information applicable to all parts of the Town.

4.1.8 Species at Risk Act (2003)

The federal Species at Risk (SARA) legislation was proclaimed to:

- Prevent Canada’s Wildlife from becoming extinct or extirpated,
- Secure the recovery of extirpated, endangered and threatened species on the SARA list, and
- Manage species of special concern to prevent them from becoming endangered or threatened.

Delays in implementation of recovery plans have made applicability of this legislation to the Town unclear at this time. Direction for OP policies may not be feasible within the current OP update process.

This federal legislation is implemented by building an accord with the Provinces and other stakeholders to protect species at risk through fostering complementary stewardship programs with its partners and by developing recovery plans in partnership with its partners. Assistance for the Town in implementing SARA is expected through renewed direction from the Province once developed.
As stated in the Act, the responsibility for the conservation of wildlife in Canada is shared amongst the federal, provincial and municipal governments. The Act also clearly imposes obligations that apply to all levels of government as well as private landowners.

**4.1.9 Lake Simcoe Protection Act (2008)**

The Lake Simcoe Protection Act responds to ecosystem health concerns of the Lake Simcoe basin. This Act will specifically address excessive phosphorus and other pollutant source loadings to Lake Simcoe that include:

- Setting interim phosphorus loading limits for existing municipal stormwater and sewage treatment facilities;
- Prohibition of new sewage treatment facilities if there will be additional phosphorus loading to the basin; and
- Specified standards for new stormwater management facilities.

The phosphorus standard requirement for new facilities will have little change to OP policies with the majority of consideration applicable to facility design and operation.

**4.1.10 Endangered Species Act (2007)**

The Endangered Species Act aims to identify and protect species that are at risk and to encourage stewardship for the protection and recovery of these species. Section 10 specifies that “no person shall damage or destroy the habitat of any species that is listed as an endangered or threatened species in a schedule to the Act.

Several species found in the Town are designated by this Act. The Act also provides for the development of recovery strategies for each endangered and threatened species.

**4.1.11 Fisheries Act (1985)**

The Fisheries Act is one of the most important pieces of legislation for managing aquatic resources in Canada by:

- Management and monitoring of fisheries;
- Conservation and protection of fish and fish habitat; and
- Pollution prevention.

Although this legislation is administered by the federal government, the authority for its on-the-ground application and enforcement is delegated to either the Ministry of Natural Resources or Conservation Authorities within most jurisdictions of Ontario. Projects that may affect fish habitat require authorization permitting the modification of fish habitat under conditions applicable to the specific project.

The protection and conservation provisions of the Fisheries Act can support and complement the provisions of Fisheries Management Plans prepared by Conservation Authorities. This legislation is applied, for example:
Through establishment of the 120 metre area of influence defined by TRCA and depicted as a sensitive hydrological feature on Map 3-6; and

Requirement for a fisheries authorization from the Federal Department of Fisheries and Oceans or designated CA where a development application may impact fish habitat.

4.2 Regional Policy Direction for the Environment

In addition to the preceding provincial guidance, several regional plans, strategies and policies provide direction for the Town environmental policies. The directions from relevant documents are summarized below. As can be expected, the main policy directions from the provincial policies are reflected in the regional documents from the Regional Municipality of York, the Conservation Authorities and Greater Toronto Area based groups.

Building upon the main provincial directions of section 4.1, the following are the highlights of the regionally unique policy considerations for inclusion in updating the Town’s environmental policies:

**Natural Heritage**

- Consider a 25 to 31% forest cover target;
- Increase green cover through street tree planting and reforestation programs;
- Encouragement and use of land stewardship measures; and
- Requirement of a net gain, or no net loss, of natural heritage system lands.

**Water**

- Identify and protect fish habitat areas for the entire Town;
- Control hard surfacing in defined watershed areas; and
- Require cumulative environmental effects assessment of development.

**Agricultural Policies**

- Protect priority agricultural areas and discourage their fragmentation;
- Allow compatible secondary uses on farms;
- Encourage agriculture through favourable taxation policies;
- Promote local farms – their products, as recreation and tourist destinations and as educational opportunities; and
- Promote and advise on natural areas protection.

4.2.1 York Region Official Plan (YROP, 2008)

The Region’s Plan, consolidated in June 2008 and currently close to completing an update, sets policies to guide economic, environmental and community-building decisions that affect land use planning. The YROP provides a framework to coordinate planning with adjacent municipalities and other jurisdictions in the GTA.
The YROP introduces environmental designations of a Greenland System for management of the natural environment. The Regional Greenland system is based on unique functions, attributes and linkages with different sensitivities or critical elements. The policies for these areas are:

- To protect and encourage restoration;
- To require area municipalities to develop protection policies and encourage them to establish the systems as an integral part of community design;
- To prepare guidelines or implementation of initiatives;
- To require area municipalities to identify locally significant Greenlands;
- To encourage area municipalities to establish comprehensive Greenlands systems as an integral part of community design; and
- To cooperate with municipalities in developing a database on the system.

The YROP has environmental designations for Greenlands, Environmental Protection Areas (EPA), and Environmentally Sensitive Areas (ESA). The policies of RHOP, especially its ESA policies, are comparable to the YROP policies, with some differences such as:

- Identification of techniques to reduce the impact of new developments on the environment;
- Protection of lands with natural heritage and hydrological features under private ownership applies both within ORM and hazard lands and beyond.
- Encouragement of land stewardship options, i.e. through easements, tax incentives, cooperation amongst agencies and the public;
- Specified restrictions to development for lands adjacent to all ESAs;
- Provision for buffer areas adjacent to natural heritage systems;
- Maintenance of tree inventories and promotion of tree planting;
- Requirement for hydrogeological study for development proposals in groundwater recharge areas;
- Encouragement of watershed planning throughout the municipality;
- Direction to maintain and restore water quality;
- Protection of aquatic habitats;
- Consideration of socioeconomic impacts of development;
- Prevention of the alteration or fill of existing watercourses or floodplains;
- Identification and protection of headwater areas;
- Designation of Regionally Significant Forests, support for protection of Locally Significant Forests;
- Policies regarding energy conservation through the promotion of transit for improvement of air quality are not included
- Specified restriction of non-farm development within agricultural and rural lands and their protection from activities of existing development;
- Definition of allowable conditions for consents on agricultural lands.
4.2.2 York Region Sustainability Strategy (2007)

The Region created this strategy through extensive consultation with its community stakeholders. Its purpose is to provide a long-term framework for municipal decision-making that well balances economical, environmental and community considerations. More sustainable decision-making is seen as necessary to manage the continued growth in the Region, expected to grow from the current population of over 950,000 to 1.5 million by 2031, and to maintain long-term economic viability, natural environment integrity and community quality of life. The strategy identifies over 100 actions to achieve long-term sustainability according to the themes of:

- Corporate culture
- Healthy communities
- Economic vitality
- Sustainable natural environment
- Education, engagement and partnerships
- Sustainability implementation and monitoring

The proposed natural heritage activities are consistent with the combined directions from other reviewed directions from Provincial, Regional, Town and Conservation Authority policies.

Sustainability actions of relevance to natural heritage protection within the Town include:

- Integrate land use planning with urban design and infrastructure planning;
- Update and integrate Master Plans and the Growth Management Strategy with the Natural Heritage System;
- Require that all new residential development be compact in nature and incorporate a mix and range of housing options;
- Continue to investigate innovative and creative strategies to promote intensification and compact development in centres and corridors;
- Promote the economic and environmental benefits of intensification;
- Collaborate with stakeholders to identify an updated linked natural heritage system and consider updating of the Greening Strategy, Land Securement Initiative and 25% regional forest cover target;
- Investigate and adopt principles for sustainable green communities in order to create more liveable, energy efficient communities with smaller ecological footprints;
- Require completion of triple bottom line assessments of all infrastructure initiatives;
- Investigate and promote community energy planning that involve alternative and renewable energy sources and energy efficiency techniques;
- Work with Conservation Authorities to improve the quality and quantity of storm water through implementation of best management practices (e.g. permeable surfaces, green roofs, constructed wetlands);
- Improve the quantity and quality of the Region’s subsurface and surface water systems; and
- Increase green cover through street tree planting and reforestation programs.

**4.2.3 Significant Woodlands Study (2005)**

This study established the criteria for identifying significant woodlands and mapped these from existing datasets on the Region’s forests. The study also mapped forest cover for the region, including all forest areas greater than 0.5 acre, and identified strategic restoration locations and priorities to help direct securement, stewardship and naturalization initiatives.

The current regional forest cover is approximately 23% with a target to increase to 25% cover.

Of the 39,973 ha of significant woodlands and 41,014 ha of woodlands (all) within the Region, 1360 ha of significant woodlands and 1401 ha of woodlands occur within the Town of Richmond Hill with an overall forest cover of 13.8% and an average woodland size of 6.1 to 7.3 ha. The average woodland size across the Region is 10.1-12.3 ha.

**4.2.4 Natural Heritage Strategic Directions Report (2007)**

This study included an assessment of existing conditions, noting significant progress in strengthening the Region’s natural heritage system with implementation of the 2001-approved Greening Strategy. Even with successes in protection, securement, restoration, reforestation, education and community engagement in stewardship, the approach to natural heritage planning must be refreshed to face upcoming challenges (i.e. further human impacts, growth pressures and ecosystem / climate change) and to achieve ecological sustainability.

This report integrated existing knowledge and initiatives (such as the actions from the Sustainability Strategy, direction from the 2005 PPS and Greenbelt Plan), built upon the natural heritage system strategies of the TRCA and LSRCA and community input on natural heritage.

Key consultation messages include:
- Strong support for a linked natural heritage system;
- Municipal and CA collaboration to develop the system;
- Coordination of the Regional Strategy with existing Local Natural Heritage Strategies;
- Strong support for a Regional trail network; and
- Establishment of investments in Green Infrastructure similar to levels of other infrastructure such as transit, roads, water, sewers.

**4.2.5 York Region Forest Conservation By-law (2005)**

This By-Law requires individuals to obtain a permit in advance of “the injuring or destruction of a tree growing in woodlands or a woodlot”. Permit requirements specify the conditions under which tree injury or destruction may be undertaken, and encourage the use of good forestry practices to maintain the viability of existing woodlots and woodlands. Permits also specify that municipal agricultural and natural environment policies must be followed.
This by-law applies to all woodlands and woodlots within local municipalities which have formally designated the authority for tree protection to the Region. The Town has established its own Tree By-Law that is similar in process and outcomes to that of the Region.

4.2.6 York Region Water and Wastewater Sustainability Strategy (2008)

This strategy is part of the update to the Region’s water and wastewater master plan. The update approach will include:

- Ways to provide sustainable services;
- Integration of the policies from other plans for protection of the Region’s Natural Heritage System;
- Incorporation of current regulatory requirements (Safe Drinking Water Act, Clean Water Act and Environmental Protection Act); and
- Integration of recent programs for water efficiency, reduction of inflow and infiltration to the sewage collection system and incorporation of lessons learned by others through conduct of an international best practices review.

The master plan update has identified ten themes that will inform development of the Region’s water and wastewater sustainability strategy. Themes related to natural heritage include:

- Respect for Natural and Cultural Heritage, including development and implementation of a natural heritage policy;
- Healthy Watersheds through development of comprehensive watershed and subwatershed strategies to address all aspects of water quality and quantity and development of specific monitoring strategies and reporting requirements for each wastewater treatment facility;
- Wise Use of Water through refinement and implementation of water efficiency, inflow/infiltration reduction and wastewater recycling initiatives; and
- Climate Change and Energy Efficiency through leadership at wastewater plants, and other facilities, on energy efficiency and greenhouse gas emission reduction, incorporation of climate change impacts into design of wastewater infrastructure and analysis of climate change impacts upon water resources and development of appropriate mitigation measures.

4.2.7 Climate Change in York Region Discussion Paper

This paper explores the general expected impacts of climate change upon York Region, particularly to the delivery of municipal services. Actions within the Sustainability Strategy are cited as means whereby the Region will reduce its contribution to greenhouse gases and other emissions as well as reduce the community’s overall ecological footprint.

Next steps involve further analysis of the expected impacts of climate change on the Region and identification of measures to adapt and become more resilient to climate change.

4.2.8 TRCA Terrestrial Natural Heritage System Strategy (2007) and Valley and Stream Corridors Policy
The Terrestrial Natural Heritage System strategy supports implementation of the defined natural heritage system through working with other stakeholders such as local and regional municipalities. This system was developed by TRCA in response to the observation of “an alarming reduction in vegetation communities and species populations, and their distributions within TRCA’s area of jurisdiction”.

The strategy redefines TRCA’s approach to biodiversity conservation so as to better reflect how ecosystems work, that the distribution and quantity of natural cover and species are “intricately linked to water, air quality, and climate regulation” as well as the quality of life and sustainability for residents.

The study of the existing system resulted in the conclusion that conservation efforts should extend beyond a focus on conventional protection of rare species and special natural areas to establish a better linked and more comprehensive natural heritage system. The identified target system consists of the existing natural cover areas of forests, wetlands and meadows that comprise approximately 25% of the watershed as well as specifying additional areas to be restored to reach a target of at least 30% natural cover. The 30% target would sustain the existing distribution and populations of species of concern as well as help sustain the environmental and social benefits of the existing natural system.

To address stream systems, the TRCA approved their Valley and Stream Corridor Management Program in 1994. This program consolidated existing polices for the protection of valley and stream corridors from development. The policies define valley and stream boundaries and promote the conservation of valleyland features and functions which include conveyance and storage of stormwater, groundwater recharge and discharge areas, nutrient and sediment transport, fish and wildlife habitat and natural corridor linkages. When valleyland and stream corridors are the subject of a development proposal, the TRCA seeks to place these areas within hazard or open space land use designations and to negotiate the lands for transfer to public ownership.

4.2.9 TRCA Sustainable Near-Urban Agriculture Policy (2008)

This policy applies to the TRCA’s own lands. The defined vision for sustainable near-urban agriculture involves the use of new crops and innovative and sustainable agricultural production methods - such as new technology, consideration of ecological goods and services, best management practices, community shared agriculture and community gardens – which may be on a smaller scale than average agricultural operations and which will be aligned with TRCA’s natural heritage and conservation objectives.

The policy defines the permitted approaches and land uses for agricultural activities on appropriate TRCA lands, supported by monitoring of results and enforcement of any non-compliance. These sustainable best practices and promotion of urban-integrated food production can inform the Town’s update of agricultural policies.
4.2.10 Area Watershed Plans

Area watershed plans have been prepared by Conservation Authorities and their partners for the four watersheds within the Town – the Don (1994 / under review), Rouge (2007) and Humber (2008) River Watersheds and the East Holland River Subwatershed.

Just under one-half of the Town’s area is located within the Rouge River Watershed. The 2007 watershed plan for the Rouge concludes that the watershed is at a critical crossroads in that it continues to support many unique natural and cultural heritage values, and yet a number of present and anticipated stresses will challenge the ability to sustain this remarkable condition.

The Don River Watershed comprises approximately one-third of the Town’s area, located within the south-westerly corner of the municipality. The Town’s segment of the watershed is similar to the average in that it consists of urban land with a small percentage of natural cover (16% of the entire Don River Watershed is natural cover) concentrated along the East Don River and German Mills Creek watercourses. Habitat quality within the watershed is described in the 2007 existing conditions report as poor overall due to their small size, narrow shapes and influence from the predominantly urban adjacent land use impacts upon aquatic and terrestrial habitats, altered hydrology and stream forms, and human use of watershed resources.

Approximately one-fifth of the Town falls within the Humber River Watershed. The Humber River watershed is described as an extraordinary resource that is under considerable stress from human activities, earning an overall C grade in the 2007 watershed health report card. Successes have occurred in recent years through re-naturalization, tree planting, and fisheries habitat restoration.

A very small proportion (less than 1% of the Town’s area) of the East Holland River Watershed falls within the Town close to the north-easterly municipal boundary. Overall, this watershed differs from the others in that much of its area lies north of the Town and is more rural in nature.

The following summary of various watershed plans’ recommendations focus upon policy approaches relevant to natural heritage management. These policy directions are consistent with those articulated through other documents such as the PPS, the YROP, the GBP, and the ORMCP.

The Rouge River watershed plan identifies three integral actions for the protection and enhancement of the watershed

- Expand Terrestrial Natural Cover;
- Build More Sustainable New Communities and Retrofit Older Ones to Improve Their Sustainability; and
- Recognize and Develop a Regional Open Space System.

The Rouge Park Alliance updated their plan for Rouge Park to create the Rouge North Management Plan in 2001. This plan sets out a system of linear park corridors extending along the Rouge River and its tributaries along with identified corridors that link east and west between
the tributary corridors and adjacent watersheds. The natural, scenic and cultural features of the park are to be protected, enhanced and restored through this plan. The stream corridors within the Rouge North Park area, north of Steeles Avenue to the Oak Ridges Moraine, have been assessed for their health and contribution to the overall Rouge River system with land designations and policies set out accordingly to meet plan objectives for long term system health and community contribution.

Within the Town of Richmond Hill, segments of East Beaver Creek and the Rouge River have been designated as natural area zones identified for protection, attention for enhancement of ecosystem function appropriate to the surrounding community with allowed uses of low impact activities such as trails and interpretation.

This Plan also promotes the incorporation of municipal parks as part of the Rouge Park system.

Priorities identified within the 2003 Don River report card include:

- Increase baseflow and stabilize surface water flow patterns;
- Increase species abundance and diversity for aquatic invertebrates, amphibians, fish; and
- Protect natural habitats.

The plan update for the Don will be completed in 2009.

Ecosystem health issues that the East Holland River plan aims to address include water quality issues such as excessive nutrient loadings, presence of pesticides, erosion and sedimentation and water temperature.

The recommendations of the Humber River Watershed Plan are very similar to those of the Rouge River; both of these plans follow the policy management approaches of the York-Peel-Durham-Toronto Groundwater Study, described below.

4.2.11 GTA Wide Watershed Planning - Watershed Planning from Recommendations to Municipal Policies (2005)

As a response to addressing the challenge of translating watershed and subwatershed plan recommendations into Official Plan policies, representatives from the nine Conservation Authorities covering the Oak Ridges Moraine and the Regional Municipalities of York, Durham and Peel and the City of Toronto commissioned this study to formulate relevant Official Plan policy options to reflect the common recommendations, targets and objectives from watershed plans.

The longer term intent of this study is an adaptive management approach whereby the implementation of the policies will be evaluated with the statements revised, as needed, to achieve the desired watershed plan outcomes.

The types of policies developed for incorporation into Official Plans that could assist in strengthening natural heritage protection within the Town’s Official Plan include:
Water:
- Define and identify important ground and surface water areas;
- Protect these important areas (e.g. wellheads, stream corridors, wetlands, water bodies, vulnerable aquifers, recharge, discharge, headwaters) by controlling or restricting development (new lot creation, high threat land uses, site alteration, ponds, facilities) according to the sensitivity of the feature and the potential impact of the development;
- Identify and restrict development in important surface water adjacent lands such as stream corridors, wetlands, floodplains, water bodies;
- Minimize groundwater flow alteration by controlling development in discharge areas, headwaters of cold water streams, stream corridors, wetlands and lakes;
- Require that wells and boreholes are properly abandoned;
- Minimize hard surfacing by capping the cumulative percentage of hard surfaces in a defined watershed area, limiting growth of hard surfaces or requiring compensation offsite for effects from hard surfaces;
- Require development setbacks from streams and water bodies according to watershed plan distance recommendations and require naturalized restoration of disturbed riparian areas;
- Restrict significant water takings in headwaters of cold water streams; require urban stormwater management best practices that adhere to natural hydrological principles; and
- Require cumulative effects assessment by monitoring and the impacts of and phasing of urban development across the watershed and by monitoring the performance of individual developments.

Terrestrial heritage:
- Define and map the present and future natural heritage system, incorporating new information on qualifying features as they become known;
- Restrict development within the identified natural heritage system;
- Apply a net-gain or no net loss principle for the natural heritage system when considering new land uses and development;
- Define and restrict development on lands/waters adjacent to the natural heritage system; and
- Secure lands for the natural heritage system through conveyance of added lands to an appropriate public authority or land trust and acquire threatened natural heritage system lands on a priority basis.

Infrastructure:
- Avoid infrastructure development within or near important features or systems by requiring adherence to water and natural heritage policies and justification for removal through completion of environmental assessment;
- Require planning, design, construction and operational best practices that minimize the crossing and area footprint upon natural heritage features; and
- Require a net gain or no net loss of natural heritage system lands through such measures as site restoration, a long-term stewardship agreement and/or offsite compensation.
4.2.12 GTA Regional Councils – GTA Agricultural Action Plan (2005)

GTA regional municipalities compiled an agricultural action plan endorsed by their Councils and with support and commitment to its implementation from the Federation of Agriculture, the Ontario Ministries of Agriculture and Food and Municipal Affairs and Housing and Agriculture and Agri-Food Canada. This plan identifies “practical and strategic directions” to keep the GTA agricultural industry competitive and able to withstand current economic, land use and environmental pressures.

This plan provides a summary profile of agriculture within the GTA, its characteristics and contributions, including gross revenue sales of approximately $1.3 billion annually and 34,760 jobs (1999 data) through 3870 census farms on 291,000 ha (2001 data). To maintain the viability of GTA agriculture, actions are identified according to the themes of economic development, education and marketing, land use policy and accountability and responsibility.

Although the area of agricultural lands within the Town is relatively small, it has the potential to contribute to local agriculture in a role such as provision of niche market products and potential hosting of farm education activities. The area is not large enough to support conventional crop or livestock production. As well, the Town’s residents provide a market for the local products recommended for promotion and support through the Council’s Action Plan.

4.3 APPROACH TO GAP ANALYSIS

Policies regarding the protection and enhancement of natural heritage and hydrological features and functions currently in the Town of Richmond Hill Official Plan (Consolidation date December 31, 1998) and in the 23 Official Plan Amendments that comprise the complementary Secondary Plans were compared to relevant provincial and regional policies that apply to the Town of Richmond Hill, as described above. A summary of the gap analysis results is outlined below.

4.3.1 Analysis of the Town Official Plan

The gap analysis results for the 1998 consolidation of the RHOP along with any amendments other than Secondary Plans are included in this section. Policies from OPA 218 cover some of the gaps identified in this section, but these policies only apply to lands within the ORM. For this discussion of the results these findings are omitted to illustrate where the RHOP does not conform for all lands within Richmond Hill.

The RHOP uses the designation of “Environmentally Sensitive Areas” (ESA) (Section 2.2.2.3 of the RHOP) for areas of natural heritage and hydrological significance. Areas designated ESA may or may not overlap spatially with designated areas introduced in the provincial and regional policies. Therefore, the comparison of policies generally disregards spatial coverage.
4.3.1.1 Comparison to the Provincial Policy Statement (PPS)

Natural Heritage Policies

The RHOP ESA designation contains a general blanket definition of natural features and does not address specifics. As well, the protection policies are fairly weak, considering that prior to undertaking a new development, an environmental analysis only may be required. The circumstances that would require an analysis and criteria to be met in order for a development to proceed are not covered.

Other gaps relating to the RHOP ESA designation include:

- No mention of long-term protection or diversity of natural features
- Lacking specific designations such as “endangered/threatened” species
- No reference to Areas of Natural Scientific Interest (ANSI)
- No mention of specific types of protected habitats
- No references to agriculture being exempted from policies

Water Resources Policies

The RHOP does not provide for preparation and/or use of watershed plans.

Within the ESA’s, water bodies containing significant natural features or ecological functions warrant protection.

In regards to stormwater management, the RHOP provides for controlling the run-off quantity in order to prevent downstream erosion, but it does not address matters of run-off quality. In general, the protection of water quality is not covered by the RHOP.

Hazard Lands Policies

The hazard land designation of the RHOP complies fairly with the PPS policies, with a few exceptions where the PPS is much more specific than the RHOP. The policies of the RHOP create a general restriction of development within hazard lands, while the PPS provides for restrictions on specific types of development (e.g. institutional uses, essential emergency services, or handling of hazardous substances).

The “two zone” concept mentioned in the PPS is not referred to in specific in the RHOP; however, the RHOP does outline a Special Policy Area (SPA) which could be considered a “second zone”.

Based on the RHOP, the allowed developments require conformance with regional conservation authority’s requirements, while the PPS outlines much more detailed conditions for permitting development.

Agriculture Policies

The PPS protects agricultural lands and industry through the designation of Prime Agricultural Areas. The agricultural policies in the RHOP were contained in the Rural Area designation
which was deleted in OPA 218. As part of the ORMCP, agricultural lands fit under the Countryside Area. Prime Agricultural Lands are recognized and are protected by the ORMCP. While these two designations conform to a certain degree, the PPS contains many specifics which OPA 218 and the ORMCP does not mention. The similarity between these two designations is that they both are for the general purpose of protecting agricultural lands. The Countryside Area designation also is much broader in scope and includes activities not related to agriculture. The PPS also outlines specifics for allowable lot creations within agricultural lands which OPA 218 does not mention.

4.3.1.2 Comparison to the Greenbelt Plan (GBP)

The Greenbelt Plan uses the environmental area designation of “Protected Countryside”. The RHOP, having been developed prior to the Greenbelt Plan, does not mention this specific designation, but it uses its own designation of ESA. While some of the policies of the RHOP’s ESA are similar to the Protected Countryside policies, the two areas do not overlap spatially. There are relatively few Protected Countryside areas within Richmond Hill meaning these gaps apply to only one planning district (i.e. North Leslie).

Natural Heritage Policies

Gaps identified in the RHOP with respect to natural heritage policies of the GBP include:

- Conditions for development, such as requiring that 30% of developable area shall be natural self-sustainable vegetation;
- Policies regarding agricultural activities in relation to natural heritage features;
- Connectivity or enhancement of natural features;
- Policies for existing developments;
- Policies to conserve “rural character” of Protected Countryside area;
- Policies outlining conditions for activities related to the use of renewable resources;
- Precedence of the most restrictive environmental policies only applies to ORM area; and
- Policies concerning aggregate and non-renewable resources have little regard for natural heritage features besides effects on water table and the physical environment.

Water Resources Policies

As mentioned in the analysis of the PPS, the RHOP contains few policies directly relating to water resources. The only major policy in this area is that water bodies that are considered significant natural features are included in the ESA designation and therefore are protected by its policies. Specifically, the following GBP policy areas are absent in the RHOP:

- Key hydrological features designation and definition;
- Vegetation protection zone;
- Specific development exemptions; in RHOP these only apply to lands which are also considered hazard lands.
External Connections

The Greenbelt Plan provides for external connections between the Greenbelt Natural Heritage System and other natural systems. In general, the RHOP does not provide for the connections of natural systems. Despite this, some policies (namely the ESA designation and water quantity considerations) may have relevant implications.

Recreational Use Policies

With the exception of a policy stating that some ESA lands can accommodate certain recreational activities, the RHOP contains no policies about recreational uses in relation to natural heritage features.

4.3.2 Analysis of Secondary Plans

The following discussion on the results of the gap analysis for the Secondary Plans covers the general gaps found through review of the Secondary Plans.

Based on this review, two general trends were identified. The more prominent one was that the earlier Secondary Plans tended to have less environmental policies than those written more recently. The other observation was that the environmental terminology within the initial Official Plan and through the Secondary Plans prepared between 1982 to the present date has evolved over time, resulting in inconsistent terms in use that vary across the Town’s geographic areas.

Gaps in All Secondary Plans

Certain policy gaps were found in all Secondary Plans, regardless of their age or planning district. There was one exception - the pending OPA for the North Leslie Planning District. This Secondary Plan contained a blanket statement indicating that all developments within their jurisdictional area must conform to the provincial and regional policy plans. This planning area is also the only one to contain any Protected Countryside areas and therefore all Greenbelt Plan policies only apply to North Leslie. Policy gaps common to all other Secondary Plans include:

- **Policies regarding protection of diversity of natural heritage features.** Both in the Provincial Policy Statement as well as the Greenbelt Plan, the protection of diversity and connectivity of Natural Heritage Features is mentioned. While some secondary plans mention the protection of natural features and maintaining connectivity, diversity is not mentioned.

- **Promotion of efficient water use and conservation.** The PPS specifically states that planning authorities shall promote sustainable use of water resources including water conservation. Policies regarding water conservation, efficient use, and conservation are not mentioned in the OPAs with the exception of OPA 218 which includes policies regarding water-use management.

- **Policies specific to Greenlands designation.** Several planning districts contain lands which have been given the Greenlands designation in the YROP. These districts include Doncrest (OPA 18), Headford Business Park (OPA 38), Bayview North-East Business Park (OPA 120), Bayview North-West (OPA 121), Elgin-Leslie (OPA 135), and North
Leslie. With the exception of North Leslie’s OPA, which contains a blanket statement for conformance, the other OPAs do not specifically mention the Greenlands designation or any policies specific to these areas.

- **Development restrictions regarding ANSIs.** Five planning districts contain ANSI lands: North Urban, Yonge-West, Yonge-East, West Gormley, and North Leslie. With the exception of North Urban, their respective OPAs do not specifically mention protection and development restrictions in ANSI lands as stipulated in the PPS. However, these planning districts are all in the ORM and the ORMCP as well as OPA 218 include and protect ANSI lands under the key natural heritage feature designation.

- **Assistance in mapping headwater areas.** The YROP indicates that regions should assist in mapping headwater areas. These policies are not mentioned in any OPAs.

**What has been added by the Secondary Plans?**

Since the policies of the RHOP still apply in areas with approved Secondary Plans, an analysis was completed to identify the RHOP gaps already covered by certain Secondary Plans. In other words, from the analysis of the Secondary Plans, natural heritage policies that make certain planning districts go beyond the RHOP to conform to the provincial and regional policies can be identified. These policies can act as a model for creating a new Official Plan for the Town of Richmond Hill.

The following policies in one or more of the Secondary Plans cover the respective policy gaps identified in the RHOP for certain Secondary Plans districts:

- **Long-term protection of natural heritage features.** This statement is contained in the PPS and in general, OPAs do not mention a timeframe for protection policies. However, OPA #s 138, 237, and the proposed OPA for North Leslie do specifically state that protection of natural heritage features should be for a long-term.

- **OPA 129 and 138 contain definitions of two distinct EPAs (1&2), these outline:**
  - Strong protection policies which prohibit development with very specific exceptions; and
  - ANSI areas under the EPA designations.

- **The YROP mentions the restoration of natural heritage features.** Ecological restoration and enhancement areas and policies are mentioned in OPA #s 129 and 138. Policies specifically citing not only the protection of features, but the restoration are included in the GBP and the ORMCP as well.

- **Planning based on watershed plans.** The YROP mentions that planning should be based on watershed plans and that cooperatively between regional municipalities and conservation authorities these watershed plans should be developed. OPA 129 does specify that planning should conform to any recommendations in applicable watershed plans.

- **Policies to maintain inventory of trees and promote good forest management practices.** The YROP contains policies promoting the maintenance of tree inventories and promotion of good forest management practices. The majority of OPAs mention the protection of trees, however specifically only OPA #s 21, 129, 138, and 155 indicate the maintenance of inventories.
• Encouragement of landowners to protect natural heritage features. This is prescribed by the YROP and policies specific to encouraging landowners to protect and enhance natural features are mentioned in OPA #s 129 and 138.
4.4 **Sustainability and Natural Heritage**

Building upon the provincial and regional policy directions for natural heritage management, the future approach will benefit through consideration of community sustainability. The concept of “Sustainability” has emerged as a planning philosophy to manage with the highly consumptive, socially inequitable and environmentally unsustainable way that urban communities have and continue to grow. This concept aims to achieve environmental protection and social equity in a way that changes how the development required to accommodate growth in human population occurs. During the 1960’s and 1970’s, development usually maximized profit and optimized performance with varying impacts to environmental integrity, quality of life and social justice. Natural resources such as woodlands, streams and wetlands have often been treated as commodities that represented less economic value than the proposed replacement land use.

By the 1980s an international awareness evolved, noting that the current approach to development was responsible for loss of biodiversity, natural resource depletion, pollution, and in some cases social inequity and reduction in quality of life. As a result a new paradigm of growth and development was created through the concept of sustainability.

In 1987, the United Nations Commission on the Environment and Development produced the Brundtland Commission report that defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition provides a direction and goal towards which more specific principles for land use planning and resource management activities can be developed. For example, in considering how to manage the Town’s natural areas, adoption of practices that would retain their longer term health, viability, diversity and resilience to stressors would result in natural areas that meet present and future human needs.

Dr. Karl-Henrik Robert further defined how to translate sustainability into the imperative change in human behaviour for achieving a sustainable society. These scientific principles or system conditions of sustainability and the practices to achieve them are currently being implemented worldwide by communities and businesses. They include:

1. *Nature is not subject to systematic increases in the concentration of substances extracted from the Earth;* the use of certain minerals that are scarce in nature should be substituted with ones that are more abundant, with all mined minerals and extracted resources used efficiently and our dependence on fossil fuels reduced over time;

2. *Nature is not subject to systematic increases in concentrations of materials produced by society;* substitute persistent and unnatural compounds with ones that are normally abundant or that break down easily in nature and efficiently use all substances produced by society;

3. *Nature is not subject to systematically increasing degradation by physical means;* draw resources from well managed ecosystems, pursue the most productive and efficient use of these resources and of the land and exercise caution in all modifications to nature; and
4. Human needs are met worldwide; contribute as much as we can to meeting human needs in our society and worldwide by using resources efficiently, fairly and responsibly so that the needs of all people upon whom we have an impact now and the future needs of those not yet born stand the best chance of being met.

A number of excellent documents have been prepared in recent years to define principles of sustainability applicable and relevant to municipal governance. Although there is no universal acceptance of these principles or what specifically they mean in the management of the natural environment, it is possible to define some specific principles that can be applied directly to natural environment management. These principles will be explored in the subsequent stages of the Environmental Policy Review.

4.5 Trends and Issues

Sound planning for protection and promotion of natural heritage systems requires a deep understanding of the development trends and of the historical and future issues faced by these systems. This section provides an overview of the trends and issues that may impact the Town’s environment in the future.

4.5.1 The Concept of Natural Heritage Planning

Recent trends in conservation biology emphasize the need to protect natural areas, features and associated functions through the identification, protection and where possible restoration of large, diverse and connected natural systems that identify the remaining key natural core areas and identify corridor and linkage areas that provide avenues of interchange between core areas. This approach is believed to be necessary to preserve the health and diversity of natural features, especially in urbanizing landscapes.

A natural heritage system approach is supported in Section 2.1.2 of the PPS which states:

“the diversity and connectivity of natural features in an area and the long term ecological function and biodiversity of natural heritage systems should be maintained, restored or where possible improved, recognizing linkages between and among natural heritage features and areas, surface water features and groundwater features.”

Similarly, York Region’s Natural Heritage Strategic Directions Paper provides direction for the identification, protection and restoration and enhancement of a Regional Greenlands system.

The Town already possesses many elements of a natural heritage system identified through the implementation of the ORMCP and through the protection of streams and stream valleys which in themselves represent continuous natural corridors. However the Town recognizes that it needs to re-examine how natural areas have been protected to date, examine the direction provided in Provincial and Regional policy and holistically examine opportunities to provide a complete and connected system that meets these requirements while providing a system that also meets the needs of its own residents. The policy and community directions point towards protection and
where possible, enhancement of the health, diversity, connectivity and resiliency of its natural heritage values.

The TRCA has also identified a Terrestrial Natural Heritage Systems that currently is not formally protected in the Official Plan.

4.5.2 Climate Change

Climate change resulting from human activity is widely recognized as one of the largest challenges faced by our planet. Anthropogenic factors contributing to climate change include increases in atmospheric CO₂ levels, from fossil fuel combustion, release of particulate matter, and land use-related activities such as excessive water-taking, deforestation, agriculture, livestock production, and ozone depletion.

Climate change may be a factor in changes to our future hydrologic or water cycle. Climate change sensitive factors in the watershed may include:

- Increased flows in rivers and streams;
- Increased stream bank erosion;
- Decreased recharge of groundwater aquifers; and
- Deterioration of water quality in streams and rivers.

Climate change can also affect plant diversity patterns. As environmental conditions of temperature or moisture change, some species cannot complete their life cycles successfully. Other species may be affected indirectly, i.e. through their dependence on other species for necessities such as food, shelter or reproductive triggers. It is speculated that these effects can reverberate to levels as high as the ecosystem or biome.

At a municipal level, the following measures can be used to slow the rate of climate change:

- Sustainable transportation;
- Energy efficiency and renewable energy initiatives;
- Local food production;
- Water conservation;
- Tree planting;
- Green roofs;
- Rain harvesting; and
- Use of native plants.

In developing a policy response to climate change, it is important to identify potential impacts of climate change through watershed-specific assessments. TRCA has suggested that a sensitivity analysis can be performed to assess the effect of future land-use conditions (e.g., build-out of existing Official Plans) for various climate change scenarios to identify changes in the water budget, surface water and ground water conditions, as well as aquatic communities and species conditions through modeling.
Policy measures in the watershed plan to mitigate or adapt to these changes with a view of environmental and human protection may include:

- Strongly encouraging lot level source and conveyance control measures for stormwater quantity control (e.g. greenroofs, rain harvesting);
- Identifying additional stormwater storage sites to provide contingency locations that can hold and slowly release to streams the stormwater collected from the more impervious surfaces of urban lands;
- Improving/retrofitting existing stormwater management facilities to achieve additional water quality treatment; and
- Redefining floodway encroachment lines to establish safer setback limits for development.

4.5.3 Innovative Approaches

A literature review was completed to understand and identify innovative approaches that could be incorporated into the Town’s new Official Plan. These approaches were synthesized into eight themes, which are summarized below.

**Green Space**

A review of green space initiatives in other jurisdictions suggests that urban forests should be managed under a long-term strategy of sustainable development. An interconnected greenway system of active and passive parklands and natural heritage trails and pathways should be established to build the urban forest. The following measures have been used in other municipalities:

- Encouraging land owners to adopt natural landscaping techniques;
- Facilitating the development of an open space naturalization program;
- Implementing a streetscape naturalization plan; and
- Enhancing ecological health through the expansion, replacement and/or operation of municipal infrastructure and services.

**Use of Native Species**

Natural heritage can be enhanced by promoting the use of native species in existing and new communities. The following measures have been used in other municipalities:

- Increasing the amount of native plant species in landscaping and providing support and encouragement for landowners to do the same; and
- Implementing a streetscape program to maximize that use of native tree and shrub cover along streets.
Wildlife Management and Connectivity

In terms of wildlife management and maintaining natural environment connectivity for ease of movement, the following measures have been used in other municipalities:

- Enhancing public awareness and support for urban wildlife; and
- Naturalization of urban open spaces.

Sustainable Community Planning

Review of policies in other jurisdictions regarding sustainable community planning suggests that the creation of new compact and intensified communities could be achieved by integrating sustainable infrastructures and natural heritage systems. New development should be planned with a mix of uses, an appropriate ecological density, high quality urban design, and an affordable housing strategy. Bonusing policies in high priority areas for ecological enhancement and promoting Eco-village areas where applicable in new community development are also suggested. As part of the development of the Town’s new Official Plan, policies could be considered that support density targets within the built up area, including bonusing provisions in areas identified for ecological enhancement.

Green Buildings and Business

Many municipalities have provided policy support, encouragement, and/or requirements for the construction of energy and water efficient buildings. Some of the measures that have been supported in other municipalities include:

- Establishing a scheme for evaluating overall sustainability of built form;
- Providing incentives for implementing sustainable building techniques and practices;
- Encouraging the use of micro-climatic techniques to decrease energy consumption; and
- Encouraging green landscaping techniques such as greenroofs and biowalls.

Water Resources

Measures for protecting water quality and quantity are well-developed in many municipalities (and are further discussed under the Low Impact Development theme). Water quality and quantity protection measures that have been used to enhance the viability of natural areas include:

- Identification of stream and shoreline priority restoration areas;
- Reducing environmental impacts from stream crossings and encroachments on riparian lands; and
- Encouraging the adoption of various water conservation techniques.
**Low Impact Development (LID)**

Low Impact Development (LID) is the practice of minimizing changes to the hydrologic cycle (runoff and infiltration after a storm) as part of land development. LID strategies integrate green space, native landscaping, natural hydrologic functions, and various other techniques to generate less runoff from developed land. The following measures have been used in other municipalities:

- Encouraging the use of LID technologies and practices (e.g. grassed swales, rain gardens, open ditch drainage);
- Identifying areas where Best Management Practises will be pursued for enhanced infiltration;
- Encouraging the use of pervious pavement as a technique for stormwater management and enhanced infiltration;
- Promoting the naturalization of stormwater management ponds;
- Encouraging greenroofs as a stormwater management tool in urban areas;
- Encouraging constructed wetland creation as a tool for ecological restoration;
- Encouraging the harvesting of rainfall for various uses; and
- Retrofitting residential neighbourhoods to reduce runoff and enhance stormwater management practices.

**Transportation, Energy and Waste Management**

Transportation, energy and waste management are important aspects of ensuring that the natural environment remains viable in an urbanizing municipality. Provincial and Regional policies promote the use of public transit and encourage the creation of cycling and pedestrian networks as an alternative to the automobile. Municipalities have helped to implement this notion at the community-scale by designing new communities that support a range of transportation choices to reduce automobile dependence. Use of renewable energy sources has also been promoted at the municipal level by encouraging the use of solar, geothermal, wind, and other renewable energy sources in new and existing communities. Some municipalities have also encouraged the creation of District energy systems that can provide renewable heating for an entire community or area of a municipality.
5. WHAT DOES THIS MEAN FOR THE TOWN’S FUTURE ENVIRONMENTAL POLICIES?

Based on the importance of the natural environment to a healthy liveable community, environmental protection, enhancement and management policies will continue to be a major focus of the new Official Plan. Provincial and Regional policy direction emphasizes a sustainability approach through which the management of human requirements for homes, business, recreation and livelihood are balanced with the ecological needs of plants and animals and of healthy waters, soil and air. For the Town, the updated environmental policies will move from the current primary direction for protection and securement of natural areas to one whereby environmental resources and processes are protected, enhanced, restored, and actively managed as a connected set of systems for long-term viability.

This section of the Report presents a discussion of the key issues to be addressed to provide for long-term protection and enhancement of the natural environment within the Town. These issues are summarized into themes which are intended to:

- Address mandatory directions contained in Provincial and Regional policies and plans;
- Consider and where appropriate, incorporate the information and recommendations from relevant advisory materials and data sources;
- Integrate implications of planning trends in the area;
- Consider examined literature sources that identify innovative approaches for protection and enhancement of environmental values that may have application in the Town; and
- Incorporate the implications of the principles and philosophy of Sustainability for future natural heritage protection.

The key environmental policy themes to be addressed through the OP update are:

1. Revising the focus of the Town’s environmental policy approach;
2. Identification of a comprehensive Greenway System, comprised of a linked system of natural and recreational resources that extend throughout the Town and to neighbouring municipalities;
3. Adapting the Town’s approach to water resource management;
4. Opportunities to better integrate natural and man-made systems;
5. Promotion of urban and near-urban agriculture;
6. Reducing waste, emissions, and energy use; and
7. Opportunities to build a more sustainable Richmond Hill.

The next phase of the Environmental policy review will identify specific policy options for each of the above policy themes, set out specific outcomes for each theme as well as develop a complementary monitoring program to track progress for successful implementation of the
Town’s updated environmental policies. These policy themes are discussed through the following sections.

5.1 **REVISING THE FOCUS OF THE TOWN’S ENVIRONMENTAL POLICY APPROACH**

The Town’s existing environmental policies aim to protect environmental features (e.g. watercourses, valleylands, woodlots, wetlands, lakes, areas of natural and scientific interest, fish habitat, and habitats of endangered species) by controlling development activities, establishing environmental buffers and through designation of lands for conservation uses. The existing environmental policies have evolved over the years into a series of different environmental policies prepared for each concession block or Secondary Plan area as the areas were needed to accommodate new growth or redevelopment. The Town’s strongest environmental policies are generally those that were developed more recently and within areas of the Town with a large amount of environmental features (e.g. the North Urban Development area, which is also referred to as the Oak Ridges area and the Oak Ridges Moraine areas in the northern portion of the Town). Within the older built up areas in the southern portion of the Town, the environmental policies protect valleyland features (i.e. river, stream, and creek corridors), but provide limited policy direction on the enhancement and active management of these and other environmental features over the long term.

The current Official Plan represents a mixture of inconsistent environmental policies in terms of areas protected, standards of protection and applicable terminology. In addition the Official Plan has yet to address many of the recent trends in conservation biology such as sustainable design, biodiversity management and the systems approach to protection of natural features and functions. It is no longer considered enough to protect natural areas as individual “islands of green” but to protect natural areas as large connected “Greenway systems” that provide a natural system that possesses the size, connectivity, diversity and resilience needed to maintain or where possible enhance natural features or functions within the Town.

5.2 **IDENTIFICATION OF A COMPREHENSIVE GREENWAY SYSTEM**

As noted above, the Town’s existing environmental policies have evolved over time and are now inconsistent in terms of both terminology and standards from area to area depending on when they were adopted. Based on the input received through the People Plan process to date, and the Provincial and Regional policy direction, the Town must identify a comprehensive Greenway System to protect, enhance, and actively manage the environment over the long term. This new Greenway System will harmonize the existing environmental designations in the Town’s Official Plan and various Secondary Plans, in addition to providing policy direction for the enhancement and restoration of environmental features and linkages.

The Town has a wealth of information from which to draw to understand the location of existing environmental features, their health, their core areas, and their corridor and linkage functions.
This information is being used to identify target areas for possible restoration, new linkages, and enhancement of existing linkages, opportunities to connect environmental areas with more urban areas within and beyond the Town, and opportunities to encourage sustainable design techniques.

The Town’s internal environmental connections are relatively good in some areas, along the more major tributaries of the Don, Humber and Rouge River systems. As well, the adoption and integration of policies of the Oak Ridges Moraine Conservation Plan have provided a good basis for protecting and connecting natural areas both within the northern part of the Town and with adjacent areas of the Oak Ridges Moraine locate to the east, west and north of the Town. Adoption and integration of the policies of the Greenbelt Plan and the York Regional Official Plan will provide further reinforcement of this natural system.

Additional opportunities exist to link environmental areas found in the southern portion of the Town by identifying, protecting, and enhancing natural corridors located primarily along the stream systems found in the southern half of the Town. These corridors can utilize areas already protected in Open Space, Hazard Land, and Environmental Protection Area designations in the Official Plan. These corridors can also connect many of the natural area remnants found in the south as well as enhancing the environmental connections to areas outside of the Town’s municipal boundary (i.e. to environmental features in adjacent municipalities).

Using the framework described above the Town must identify a Greenway system dedicated to the long term protection and enhancement of natural areas, features and functions essential to the protection or improvement to the health of the Town’s natural environment. The Greenway System could also integrate existing recreational features to enhance its connectivity and to take advantage of opportunities for naturalization in appropriate segments. A properly designed system protects and where possible enhances the size, diversity, connectivity and resilience of natural areas located in a defined geographic area such as a municipality or a watershed. Natural areas could be placed in an appropriate environmental protection designation in the Official Plan that not only prohibits land uses and activities incompatible with the long term protection or restoration of the natural ecosystems but provides specific environmental protection and enhancement strategies such as:

- Identification of targeted restoration areas;
- Naturalization in appropriate public and private lands;
- Securement of new or enhanced natural linkages;
- Development of focused education and/or enhancement programs;
- Requirement of sustainable or ecologically friendly design approaches in adjacent lands; and
- Establishment of a monitoring program.

There are opportunities to increase the amount of natural cover in the Town. According to information gathered by York Region, forests cover approximately 14% of the Town’s land area (approximately 17% if street trees are included in this calculation). Environment Canada, the
Conservation Authority’s Watershed Plans, and York Region’s Official Plan direct the Town to target between 25%-30% canopy coverage to maintain the health of the various watersheds in the Town.

As the Town proceeds with the development of environmental policies, the Town will need to develop a more refined and detailed greenway system that can be tied to environmental designations and policies that outline specific planning and design protocols. The Greenway system will need to define:

**Natural Core Areas** - areas that contain significant and/or sensitive natural features and/or functions that need to be protected in a natural self sustaining state over the long-term.

**Natural Corridor Areas** – areas that serve as important movement corridors for plants and animals between natural core areas. These areas are usually stream and shoreline corridors. Such areas should be protected as open space areas that can continue to act as conduits for plant and animal movement. Such areas should remain or where applicable be restored to natural self-sustaining natural cover.

**Restoration Areas.** - areas adjacent to and between natural core and natural corridor areas which should be identified as areas that can be retained or restored to a natural cover in order to enhance connectivity between natural core areas and/or natural corridor areas.

**Areas of Influence** - areas adjacent to the three above areas where new development or redevelopment may occur that needs to be assessed in the context of its impact on the natural core, natural corridor and/or restoration areas. This may include the establishment of a natural buffer area or the incorporation of ecologically sensitive design into the development.

### 5.3 Adapting the Town’s Approach to Water Resources

The water resources of the Town include surface water systems (e.g. rivers, streams, creeks), surface water features (e.g. lakes, ponds, wetlands), and groundwater systems (e.g. aquifers). The Town’s water resources play an integral part in maintaining the health of the environment and the Greenway System. As a result of the way that the Town has developed to this point in time, the natural water flows, water quality, and the resulting water quantity available to sustain forest, wetland and aquatic (fish) communities has been altered (mainly due to stormwater management techniques).

Richmond Hill is located within four different watersheds: the Don River watershed, Rouge River watershed, the Humber River watershed, and a small portion of the Holland River watershed. The Town’s existing Official Plan policies focus on managing the flow of water quantities through stormwater management to prevent downstream erosion and flooding.

Watershed plans prepared by the Conservation Authorities for the four watersheds within the Town all suggest the management of water flows on a subwatershed or tributary basis. By managing water on a subwatershed or tributary basis, an overall water balance for an area can be
achieved that meets ecological or natural system needs for the types of environmental features within the area. The Watershed Plans recommend a water management strategy that starts at the source, namely where water falls onto yards and off of roofs. They suggest that water needs to be managed at the source, rather than redirected through a series of storm sewers, swales and ditches to stormwater management facilities for treatment.

The Watershed Plans suggest the use of new green technologies and low impact development techniques to allow water resources to be cleaned naturally over time as the water infiltrates into the soil, eventually helping to recharge the groundwater systems below.

The following provides examples of low impact design and stormwater best management practices that emulate natural water processes that the Town could consider:

- Use and encouragement of pervious paved surfaces (increase water infiltration through soil);
- Constructed wetlands as stormwater management ponds;
- Direction of roof drains onto grassed areas rather than to storm sewers; and
- Bioretention basins (larger facilities) or infiltration gardens (smaller) of vegetated lands that capture, treat, and then slowly release water runoff from roads, driveways and parking lots.

There are opportunities to more fully integrate the watershed planning approach in the Town’s new Official Plan to better integrate water resource management within the municipal planning process.

The Official Plan could strengthen the requirements of the watershed planning approach by specifying when and under what circumstances a subwatershed plan or more focused water resource management examination is required. This usually occurs when a major development or redevelopment is being considered in a subwatershed unit. At this point the applicant could be required to examine the impacts of their proposals on the water resources within the context of the subwatershed. At this scale it is also possible to define specific performance targets. The Functional Servicing Plans approach has already been adopted by the Town for the area covered by OPA #129 (see Map 3-7).

At the property level, a Stormwater Management Plan (SWM) could be required to understand water resource management at the site scale. The SWM Plan has proven to be a useful planning and design tool for:

- Characterizing and understanding water resources and hydrological features and functions at the site-specific level;
- Integrating and collating information from larger scale planning documents such as watershed and subwatershed plans relevant to site-specific conditions;
- Identifying water management targets and design approaches that are relevant to the site specific condition;
Co-ordinating the collection of relevant hydrological information and modelling needed at the site specific level; and

Co-ordinating and implementing the most appropriate best management practices at the site-specific level.

SWM Plans could be routinely required as a precondition of development and redevelopment projects occurring in the Town.

5.4 **Opportunities to Better Integrate Natural and Man-Made Systems**

As the Town continues to urbanize, opportunities will arise to better integrate natural and man-made systems. Most of the Town’s environmental features are connected to each other through the linkages provided along the valleylands and across the linkage and countryside areas of the Oak Ridges Moraine. Presently, linkages are limited between many of the Town’s environmental features and the Town’s parks, open spaces, and trail network.

As the Town urbanizes, there is an opportunity to further enhance the connection between environmental features and recreational facilities and activities to provide a more diverse and integrated experience of the Town’s landscape. As greater proportions of people within the Town begin to live in more urban forms of housing the importance of and demand for local, common facilities that provide recreational facilities within natural settings will increase.

Increasing the availability and extent of diverse recreational experiences within natural areas can be accomplished in several ways throughout the Town. Municipal facilities, such as parks, roadways, areas around Town buildings and stormwater management ponds, can be further naturalized through planting of native plants, shrubs and trees, demonstrating leadership and providing green connections to natural areas and through communities. Building upon the Town’s existing education programs such as the Healthy Yards program, plantings to transform lawns to native plant landscapes can be encouraged on institutional, industrial, commercial and residential lands, particularly along streams and to connect existing green spaces for human and wildlife use. The benefits of more naturalized spaces include increased plant and wildlife diversity, quieter, cleaner and more pleasant places to walk or just be and decreased land maintenance costs for all over time.

The Oak Ridges Moraine Conservation Plan and the Greenbelt Plan protect a large amount of land in the northern part of the Town as the Oak Ridges Moraine Corridor Park. The Corridor Park provides an opportunity to develop a unique northern gateway opportunity which could:

- Identify the Town as a leader in environmental stewardship;
- Form the nucleus for the development of major outdoor attractions for visitors and new residents;
- Provide realistic and sustainable land use opportunities for landowners;
- Contribute to the development of a World Class Municipal Open Space System.
5.5 **Promotion of Urban and Near-Urban Agriculture**

The lands located within the northern portion of the Town protected as Natural Core, Natural Linkage, and/or Countryside areas in the Oak Ridges Moraine Conservation Plan anticipate certain types of agricultural uses. The challenge for the long term viability of these lands for agricultural purposes lies in the fact that many of the parcels are not large enough to be used for traditional agricultural purposes.

Opportunities exist to encourage near-urban agricultural uses that could provide local food products, specialty food products, or “niche” food products in demand by nearby communities, restaurants or other food service industries. Opportunities also exist to couple these near-urban agricultural uses with rural tourism destinations such as local food markets, bed and breakfast establishments, and tours of local greenhouses or other urban farming facilities (i.e. hydroponics facilities, aquaculture facilities).

Due to the growing cost of importing food, opportunities also exist within the Town’s urban areas to encourage urban agriculture. The Town has already established a number of community gardens. As the population grows and the Town’s demographic ages, demand for these facilities will likely continue. As a result of changes in built form as the Town intensifies, roof gardens, hydroponics facilities, and aquaculture facilities could also be encouraged. These forms of urban agriculture can be accommodated inside and on top of existing or new built form, minimizing the potential for land use conflicts.

5.6 **Reducing Waste, Emissions and Energy Use**

Over the past few years, the Town has taken steps to begin to reduce waste, emissions and energy use. The Town’s waste diversion is increasing, but as the population continues to grow, so does the overall amount of waste produced. The Town’s current waste diversion rate is 64% with a target diversion rate of 65%. It should be noted that large item and hazardous waste disposal for Richmond Hill is not located within the Town (i.e. residents must travel to adjacent municipalities to dispose of these items). To date, waste management within the Town has focused on end-user rather than source/producer reduction and recycling.

In terms of emissions, the Town’s corporate greenhouse gas emissions are 1.6% of Richmond Hill’s total emissions. Most energy used within the Town is used to heat and cool buildings with 42% of Richmond Hill’s community energy demand coming from residential dwellings.

The Town can continue to reduce waste, emissions, and energy use by establishing new land use policies that:

- Encourage the use of public transit;
- Direct intensification to areas serviced by higher-order transit;
- Support the design of new communities that provide a range of transportation choices to reduce automobile dependence;
- Encourage more sustainable, energy-efficient development techniques;
- Encourage the use of renewable energy sources (i.e. solar, wind, geothermal) to power new communities and developments.

Through the implementation of the new Official Plan, the Town could also investigate and encourage the establishment of District energy systems (i.e. systems similar to Toronto’s ENWave district cooling system) that can provide renewable heating and cooling systems for new communities and developments and develop strategies to educate the public and business owners on how to reduce waste, emissions, and energy at home and at work.

5.7 OPPORTUNITIES TO BUILD A MORE SUSTAINABLE RICHMOND HILL

York Region adopted their Sustainability Strategy in 2007 after extensive consultation with stakeholders. The Sustainability Strategy provides a long-term framework for decision-making that balances economic, environmental and community considerations. Sustainable decision-making is recognized as a key strategy to manage the projected growth in York Region, and to maintain long-term economic viability, the integrity of the natural environment, and the community’s quality of life. The strategy identifies over 100 actions to achieve long-term sustainability, many of which fit with the key issues identified as part of the Environmental Policy Review, including:

- Creation of more energy-efficient communities with smaller ecological footprints;
- Increase of natural cover;
- Creative promotion of intensification and compact development in centres and corridors; and
- Implementation of stormwater best management practices to improve the quantity and quality of surface and ground waters.

5.8 CONCLUSION

This background paper defines the existing physical environment, community characteristics and policy framework for protecting the Town’s natural environment. Combined with ongoing public consultation through People Plan Richmond Hill, this report will form the basis for developing environmental policy options for the Town. The options will be integrated with other essential social and economic aspects of the Official Plan being developed in other background papers– including the Urban Structure Study, Housing and Residential Intensification Study, Economic Policy Review, Regional Centre Study and the Downtown Study.
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