

YORK REGION'S LAND Resources



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7.0



8.0



9.0



4.0



5.0



6.0



4.0 YORK REGION'S land resources



The text in this chapter relates to the indicators of health for York Region's land resources. These are found in table form in section 4.13. The text of this section should be read in conjunction with the table.

4.1 greenlands

The Regional Greenlands System is comprised of those parts of York Region that make a significant contribution to ecological function. The bulk of the lands that form the Greenlands System were originally identified in 1994. York Region's Greenlands are specially designated in the ROP and are identified in Map 4 of the Official Plan. The Greenlands designation is based on the integration of three components:

- earth sciences (including geological conditions, slope and the presence of significant landforms);
- major valley corridors and aquatic areas (including lakes and kettle lakes); and
- life science areas, including Areas of Natural and Scientific Interest (ANSIs) and Environmentally Significant Areas (ESAs) that support important vegetation communities and provide wildlife habitat.

In 2004, with the approval of Regional Amendment 41 (The Oak Ridges Moraine Conformity Amendment), the Regional Greenlands System was expanded to include those lands that are designated by the Province as Natural Core Areas and Natural Linkage Areas in the Oak Ridges Moraine Conservation Plan. Natural Core Areas are defined as the lands with the greatest concentrations of natural heritage features that are critical to maintaining the integrity of the Moraine as a whole. These include forests, wetlands, streams, wildlife habitat, kettle lakes, peatlands and complex landforms. Natural Linkage Areas include critical natural and open space linkages between the Natural Core Areas and along rivers and streams. These linkages provide a network of green corridors that allow movement of wildlife and plant materials. With the addition of these lands, the extent of the Regional Greenlands System has increased significantly from 46,533 hectares in 2001 to 60,174 hectares in 2005.

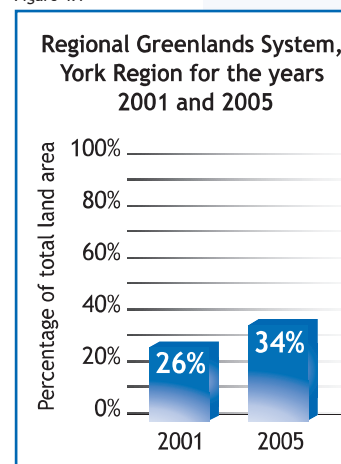
The Provincial Greenbelt Plan (which includes the ORMCP), approved in 2005 occupies approximately 1234 sq. km or 69% of the Regional area. Within this, the Oak Ridges Moraine Conservation Plan occupies some 558 sq. km. or 31% of the Regional land base and the protected Countryside designation of the Greenbelt Plan some 676 sq. km or 38%.

Key Findings:

- In 2005, the Regional Greenlands System included 60,174 hectares of land or 34% of the total land area in York Region.
- This represents a 29% increase in the extent of the Regional Greenlands System between 2001 and 2005, which is attributable to the addition of the Natural Core Area and Natural Linkage Areas on the Oak Ridges Moraine.
- As noted in section 2.4, an additional 580 hectares of Greenlands have been protected since 2001 through the Greenlands Property Securement Strategy. The Region continues to secure additional lands through this Strategy's suite of tools including stewardship, policy protection and acquisition through easements, donations, bequests, leases or purchases.



Figure 4.1



Source: Geomatics Branch, York Region Planning and Development Services Department, 2005.





4.2 ENVIRONMENTAL POLICY areas

Environmental Policy Areas are identified in the ROP and include Areas of Natural and Scientific Interest and Environmentally Significant Areas. ANSIs are representative areas identified by the Ministry of Natural Resources as “areas of land and water containing landscapes or features which have been identified as having values related to protection, natural heritage appreciation, scientific study or education”.¹ ESAs are identified by Conservation Authorities as lands that have one or more of the following characteristics:

- a distinctive landform or feature;
- important ecological functions that contribute to the maintenance of the broader natural system;
- exceptional or high-quality habitat or biological community;
- a rare ecosystem or remnant habitat;
- an unusually high density of biological communities or species;
- habitat for indigenous species that are rare or endangered; and
- habitat for species that require large areas of suitable habitat.

ESAs found within water bodies are identified using the same characteristics and are here referred to as Biological Aquatic ESAs.

Key Findings:

- *In 2005, there were 10,187 hectares of Life Science ANSIs in York Region, or 6% of the total land area.*
- *Between 2001 and 2005, the extent of Life Science ANSIs (as measured in hectares) increased by 45%. This is due in large part to the recent evaluation of lands in York Region as ANSIs by the Ministry of Natural Resources (MNR).*
- *In 2005, there were 8,778 hectares of land-based ESAs in York Region. This represents 5% of the total land area.*
- *In addition to the Biological Land ESAs, another 776 hectares of Biological Aquatic ESAs were found in the portion of Lake Simcoe within York Region in 2005.*
- *Overall, there was a 4% decrease in hectares of Biological ESAs between 2001 and 2005.*



York Region

State of the Environment 2005

Natural Features

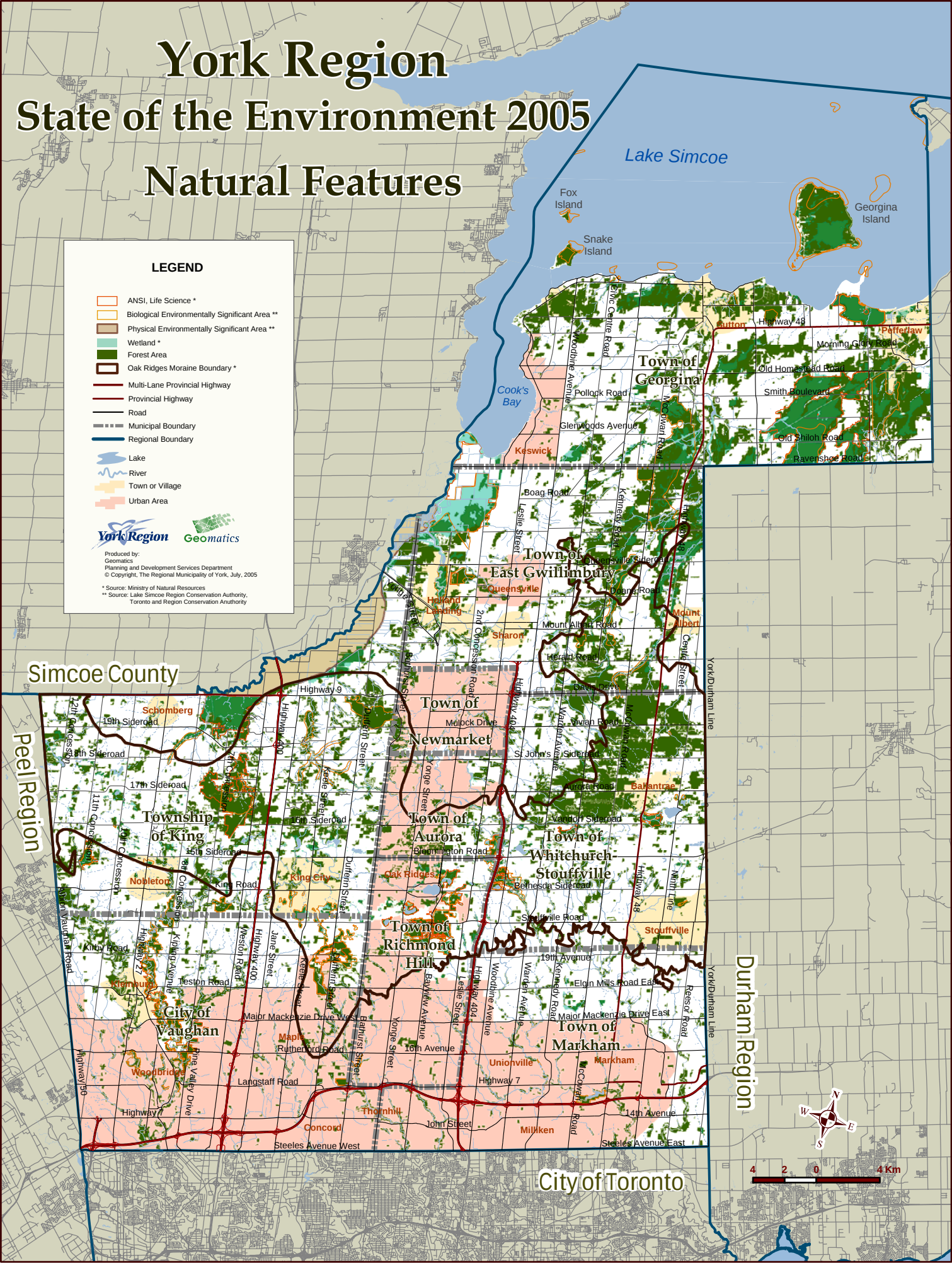
LEGEND

- ANSI, Life Science *
- Biological Environmentally Significant Area **
- Physical Environmentally Significant Area **
- Wetland *
- Forest Area
- Oak Ridges Moraine Boundary *
- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Municipal Boundary
- Regional Boundary
- Lake
- River
- Town or Village
- Urban Area

York Region Geomatics

Produced by:
Geomatics
Planning and Development Services Department
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* Source: Ministry of Natural Resources
** Source: Lake Simcoe Region Conservation Authority,
Toronto and Region Conservation Authority



Simcoe County

Peel Region

Durham Region

City of Toronto

4 2 0 4 Km

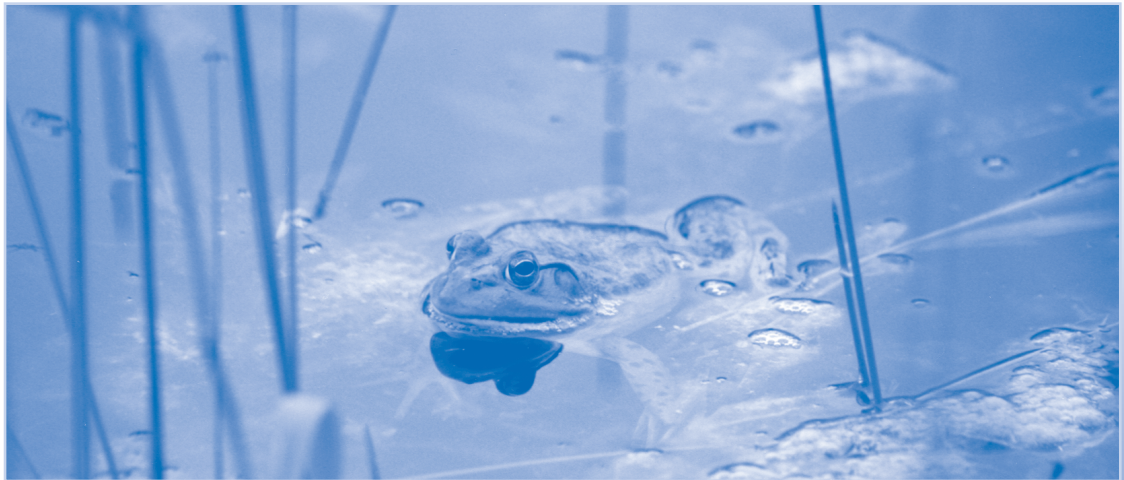
4.3 wetlands

Wetlands are lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. Wetlands (which include swamps, marshes, bogs and fens) are among the most productive and biologically diverse systems on earth. They provide many valuable ecological functions. Often called “nature’s sponges”, they help reduce flooding and erosion by retaining stormwater, filter out pollutants from water, recharge groundwater and provide habitat for a wide range of reptiles, amphibians, birds and mammals. An estimated 70% of the wetlands originally found in southern Ontario have been lost to agriculture and urban development.²

Since 2000, additional protection has been provided for wetlands in York Region through the policies and actions of the Region, area municipalities and the province (see section 3.2.5). This has translated into additional wetlands that are now protected from development. This total (11,810 hectares) includes all Provincially Significant and evaluated wetlands, and unevaluated wetlands on the Oak Ridges Moraine. It does not include unevaluated wetlands in areas other than the Oak Ridges Moraine that may have been identified by Conservation Authorities through the Ecological Land Classification process. York Region is currently investigating the feasibility of constructing wetlands in abandoned Regional lagoon sites.³

Key Findings:

- *In 2005, wetlands accounted for 11,810 hectares or 7% of the total land area of York Region.*
- *There was a 38% increase in the extent of protected wetlands (as measured in hectares) between 2001 and 2005.*





4.4 forest COVER

Like wetlands, forests provide a host of benefits to society. They play a major role in the hydrologic cycle by reducing flooding, recharging groundwater and filtering surface waters. They also support wildlife, reduce soil erosion, produce huge amounts of oxygen, and help to combat global warming by sequestering carbon dioxide. Forests provide additional social and economic benefits through the logging, hunting and recreation they support.

The Region adopted its Greening Strategy in 2001. Under the umbrella of this Strategy, the Region undertook the Significant Woodlands Study in 2004. The purpose of this study was to update the Region's forest cover information, and to establish and apply criteria to determine the significance of woodlots within the Region. One of the major outcomes of the Study was an improvement in the Region's ability to monitor and map forest cover. Improvements in remote sensing (aerial photography) now allow all woodlands to be mapped that are at least 0.2 hectares (0.5 acres) in size. As noted in section 2.4 of this report, the Greening Strategy also includes a number of programs aimed at increasing forest cover. Between 2000 and 2004, for example, approximately 500,000 trees and shrubs were planted in York Region. Other activities that contributed to additional forest cover include the York Natural Planting Partnership for Private Landowners, community naturalization initiatives and Regional support for naturalization events carried out by area municipalities.

The Significant Woodlands Study shows that in 2005, 22.5% of the land base of York Region was forested. This includes the 18 tracts of York Regional Forest, which account for 2,039 hectares, or about 5% of the total forested area in York Region. About half of the Regional Forest is made up of regenerating conifer plantations dominated by red pine and about half is hardwood and mixedwood forest typical of the Great Lakes-St. Lawrence Forest Region. The York Regional Forest was awarded the Forest Stewardship Council's certification status in 2000, in recognition of the sustainable forest management that is used there. In addition to harvesting, the York Regional Forest is used for interpretive tours, forest festivals, community education ("Nature's Classroom") and general public use and enjoyment. Walking trails exist in the forest tracts, and mountain biking and hunting are allowed in some tracts.

The target for forest cover in the ROP is 25%. A direct comparison between the extent of forest cover today and the figure used in the SOE 2000 Report is not possible because of the differing methodologies used to determine forest cover. It is estimated by York Region's Natural Heritage and Forestry Services, however, that the amount of forest cover has essentially remained the same since 2000. While some forested land has been lost to urban development and expanded agricultural use during this period, this has been offset by naturalization and regeneration initiatives carried out by the Region and others.

Key Findings:

- 40,025 hectares or 22.5% of the Region's land base is covered by forest.
- Approximately 500,000 trees and shrubs were planted by the Region between 2000 and 2004.
- The Region owns 2039 hectares of York Regional Forest, which represents 5% of the existing total forest cover in York Region.



4.5 biodiversity

Biodiversity (or biological diversity) is a measure of species richness, ecosystem complexity and the amount of genetic variation in populations of plants or animals. The more biodiversity there is in a system, the more robust it is and the better able to deal with external stresses. For this report, the focus is on species richness, or the number of different wildlife species that are found in York Region. Currently 174 species of breeding birds have been reported in York Region.⁴ Unfortunately, updated numbers for the number of species of mammals, reptiles and amphibians in York Region are not available at this time.⁵

An updated list of provincially rare animals in York Region was obtained through the Ministry of Natural Resources (MNR) Natural Heritage Information Centre. In 2005, there are 14 species of rare animals found in York Region (see below). Of these, 2 are amphibians, 10 are birds, 1 is a fish and 1 is a reptile. Of the 14 rare species, 2 are endangered, 5 are threatened and 6 are of special concern. (The status in Canada of the Jefferson X blue-spotted salamander had not been evaluated at the time of writing this report). Comparisons with the 1997 information provided in the SOE 2000 Report are not possible, as there have been changes in criteria and nomenclature since then.

Information from the Natural Heritage Information Centre shows that 12 species of plants are considered rare in York Region in 2005, up from 6 species so designated in 1997.

Key Findings:

- 174 species of breeding birds are found in York Region.
- 14 species of rare animals are currently found in York Region.
- 12 species of rare plants are currently found here.
- There is no recent information available on the number of mammal, reptile and amphibian species found here.



Loggerhead Shrike

Figure 4.2

RARE ANIMAL SPECIES in YORK REGION*

AMPHIBIANS

Jefferson salamander	Threatened
Jefferson X blue-spotted salamander	Not Classified

BIRDS

black tern	Special Concern
cerulean warbler	Special Concern
red-headed woodpecker	Special Concern
red-shouldered hawk	Special Concern
yellow-breasted chat	Special Concern
yellow rail	Special Concern
hooded warbler	Threatened
least bittern	Threatened
Henslow's sparrow	Endangered
loggerhead shrike	Endangered

FISH

redside dace	Threatened
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REPTILE

Blanding's turtle	Threatened
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*As defined in Ontario by MNR.

Source: Natural Heritage Information Centre, MNR, 2005.

Figure 4.3

RARE PLANT SPECIES in YORK REGION

Astomum muehlenbergianum
(a moss)

sharp-leaved goldenrod

wild bean

bee-balm

crataegus corusca
(a hawthorn)

arrow-arum

handsome sedge

Schweinitz's sedge

Houghton's umbrella sedge

purple twayblade

white-hair witchgrass

mosquito fern

Source: Natural Heritage Information Centre,
MNR, 2005.



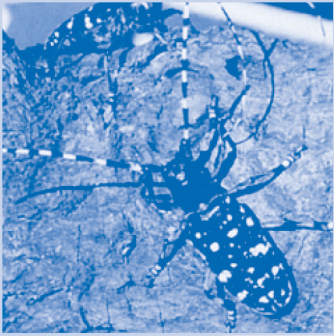


4.5 biodiversity

continued

Not All Biodiversity is Desired...

The Asian Longhorned Beetle is a classic example of the fact that not all biodiversity is a good thing. This beetle, discovered in an industrial part of the City of Vaughan and in the northern part of Toronto in September 2003, is the latest example of an invasive species that has found its way to our shores - in this case, from Asia. Like other invasive species, such as purple loosestrife and dog strangling vine, it has no native predators and therefore populations can grow extremely rapidly.



Asian Longhorned Beetle

The Asian Longhorned Beetle is one of many insect pests that can survive long-range transport in wood and wood packaging materials. The voracious larvae of the beetle bore into trees to feed on the wood, eventually riddling them with holes and causing them to die. Adult beetles also feed on bark, leaves and shoots, causing considerable damage. In some circumstances, the Asian Longhorned Beetle can kill a healthy, mature tree in as little as one or two seasons. The beetle is fairly indiscriminate in its eating habits and will attack most Canadian deciduous trees, including all species of maple, elm, poplar and willow. The Asian Longhorned Beetle poses an extremely serious risk to urban forests, our hardwood forests, and the ecology of our woodlands.

The discovery of the Asian Longhorned Beetle triggered an immediate and vigorous response from York Region, the City of Vaughan, the City of Toronto and a number of environmental organizations that work with the Canadian Food Inspection Agency (CFIA), the federal agency responsible for the regulation of agricultural pests.

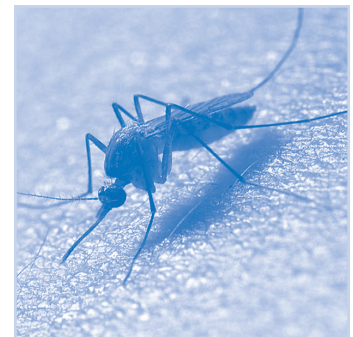
CFIA and its partners started by surveying for infested trees. Once the general area of infestation was known, CFIA established a "regulated area" to prevent the spread of the Asian Longhorned Beetle. A federal order prohibits the movement of any tree materials (including nursery stock, trees, leaves, logs, lumber, wood, wood chips and bark chips from certain deciduous trees and firewood of all species) out of or through the regulated area unless authorized by a Movement Certificate issued by the CFIA. Within the regulated area, infested trees were cut down and chipped, the only known remedy for the infestation. The Government of Canada provided funds for the survey, tree removal and compensation for land owners who had trees removed.

With its partners, York Region received the Ontario Federal Council Leadership Through Collaboration Award from the Government of Canada in 2004 for efforts in combating the beetle infestation.

York Region residents should continue to be on the alert for the Asian Longhorned Beetle. More information including how to identify the beetle can be found at www.inspection.gc.ca.

West Nile Virus

West Nile virus (WNV) is a mosquito-borne virus, named after the West Nile region of Uganda where it first appeared in 1937. Mosquitoes become infected by feeding on the blood of birds that carry the virus and can then transfer the virus to humans. WNV cannot be transmitted from person-to-person (except in the case of blood receipt or organ transplantation from an infected donor). The symptoms of WNV illness are usually mild, but can include fever, muscle weakness, stiff neck, confusion, severe headache, and a sudden sensitivity to light. Certain people, including the elderly and those with weakened immune systems, are at greater risk for serious health consequences.⁶ In rare cases, the disease can cause death.



4.5 biodiversity

continued

West Nile virus was first detected in the Western Hemisphere in 1999 and has since rapidly spread across the North American continent. By 2002, it had spread to 44 states and five provinces in Canada, including Ontario.⁷ In 2002, 11 human cases of WNV were reported in York Region. In 2003, this number dropped to 2, and there were no human cases of WNV reported in 2004 (see Figure 4-4). Five human cases were reported in York Region as of September 2005.⁸

Control of WNV

Control of WNV in York Region includes a three step approach: trapping, larviciding when necessary, and increasing public awareness of the virus.

Trapping: Part of the York Region WNV control plan includes trapping mosquitoes to identify the presence of the virus in the Region. Traps are set up at various locations throughout the Region, with mosquitoes sent for testing.⁹

Larviciding: The species of mosquito that is the major vector of WNV is *Culex pipiens*. It is commonly found in catch basins. The larvicide methoprene is used in catch basins to control the spread of the virus. Methoprene comes in a slow-release, pellet-like formulation. Administered when the mosquito is in the larval stage of development, it interferes with the mosquito life cycle, preventing the larva from reaching maturity. It is not sprayed. It has been approved by both the provincial and federal governments and is considered low risk for humans, pets and the environment when applied according to label directions.

In 2005, for the first time in York Region, the biological larvicide, VectoLex, was used in catch basins in Environmentally Sensitive Areas. The active ingredient in VectoLex is a naturally occurring bacterium (*Bacillus sphaericus*) that is commonly found in soil.¹⁰

Public Awareness and Education: An important part of York Region's control plan is the work being done jointly with area municipalities and the MOHLTC to ensure that people are aware of the virus. York Region's Health Services Department has offered WNV public information open houses in all nine area municipalities. Brochures, posters and community outreach activities have been distributed detailing effective measures the public can take to prevent exposure to WNV. York Region also has a West Nile Virus Registry, where members of the public, including persons with environmental sensitivities, respiratory illness or asthma, may register to be notified by telephone if there are ever plans to spray adult mosquitoes in their area so they may have enough time to take appropriate precautions. Residents can register for the West Nile Virus Registry by calling *Health Connection* at 1-800-361-5653.

PREVENTION and PROTECTION from WEST NILE VIRUS

- Minimize outdoor activities where and when mosquitoes are most active such as dusk, night and dawn.
- Wear protective clothing such as long sleeved shirts, full-length trousers, socks, light coloured clothing and tuck pant legs into socks when possible.
- Mosquitoes breed in still water. Eliminate stagnant water around your property which may gather in pool covers, children's pools, flower pots, wheelbarrows and old tires.
- Change water in bird baths weekly.
- Make sure screens on your home are tight-fitting and in good repair.

Figure 4.4

WEST NILE VIRUS STATISTICS in YORK REGION, 2002-2004

SURVEILLANCE	2002	2003	2004
Positive mosquito pools	14	5	1
Number of mosquito trap sites	10	41	30
Bird sightings (calls)	2,286	3,533	2,014
Birds picked up	127	813	1,647
Birds sent for testing	55	48	64
Positive birds	8	8	11
Positive horses	4	0	0
Suspect human cases investigated	31	92	53
Positive human cases (probable or confirmed)	11	2	0

Source: York Region Health Protection Division and Infectious Diseases Control Division, Health Services Department, 2005.

For information on the current status of WNV in Ontario, visit www.health.gov.on.ca.
For the current status of WNV in York Region, visit www.york.ca.





4.6 AGRICULTURAL LAND and practices

Agricultural Land

Agricultural farmland remains an important resource for York Region. Although agricultural land is used primarily for the production of food for humans and animals, it can also be used to grow plants for fibre and fuels (including wood), and for other organically derived products (such as pharmaceuticals). Extensive amounts of agricultural land have been lost to urbanization in York Region in the last 50 years. As the population of York Region continues to expand, it will become increasingly important to study and protect the agricultural land base.

In 2005, 37% of the land base of York Region remains farmland. This includes farms with fallow lands, but does not include forest or wetlands. For the SOE 2005 Report, the extent of farmland has been measured using the most recent Regional mapping available. Comparison with the information contained in the SOE 2000 Report is not possible, as the figures from 2000 were derived from the 1996 Census of Agriculture. (However, it is known that approximately 4,007 hectares of rural/agricultural land was redesignated for urban use between 2001 and 2005, see section 4.7 Land Use and Planning).

About 31% of the total land base in York Region is prime agricultural land in 2005. Prime agricultural land is defined as the land with the best soils for agriculture (those that are listed as Class 1, 2 or 3 by the Canada Land Inventory) and specialty crop areas.

Key Findings:

- *In 2005, 37% of the land base in York Region is farmland.*
- *Prime agricultural land (Class 1-3 lands and specialty crop areas) account for 31% of York Region's land base.*
- *The economic value of farmland in York Region increased slightly from \$170 million in 1996 to \$179 million in 2001.*

Agricultural Practices

Traditional ploughing turns crop stubble under and leaves the surface bare. When sloping or light-textured soils are repeatedly ploughed, there is increased risk of soil erosion, crop yields drop and there is increased silt deposited in waterways. Low and no tillage practices have played a significant role in reducing soil erosion on Canadian cropland since 1981.

Reduced tillage conserves moisture and soil resources on the field, uses less labour and fuel, and means fewer repairs to equipment per hectare. Once farmers have adjusted to the reduced tillage practices, yields tend to be equivalent to or higher than those with conventional tillage. In addition to short-term economic benefits, most no-till producers are convinced that reduced tillage improves the long-term condition and overall health of their soils. With reduced tillage, silt and nutrients are kept on the field and not carried off to water bodies. Wildlife also benefits, as crop stubble offers more food and cover, and earthworms and soil microbes thrive. Reduced tillage also reduces greenhouse gas emissions.¹¹ About 44% of the agricultural land in York Region was prepared for seeding in 2005 using low and no till farming. This is an increase over the 42% that was reported for 1996.

Another way York Region farmers can reduce the environmental impact of their operations is by developing an Environmental Farm Plan. Environmental Farm Plans are developed voluntarily and are intended to highlight good existing practices and facilities, identify areas of environmental concern, and set realistic goals and timetables for improving environmental conditions. The idea of Environmental Farm Plans originated within the Ontario farm community and farmers have actively participated in the refinement of the program.



4.6 AGRICULTURAL LAND and practices continued

Since the program began in 1993, it has helped more than 20,000 participants adopt more environmentally sustainable farm practices. These include improved cropping practices and manure handling, controls to reduce erosion and farmyard runoff control, management of irrigation and initiatives to enhance wildlife habitat.

In York Region, approximately 180 farmers completed Environmental Farm Plans between 1995 and 2005. The Ontario Soil and Crop Improvement Association currently has a new funding program for the Plans in which farmers can receive a grant up to \$30,000 on a cost-shared basis. This is expected to boost the number of participants further over the next 3 years.¹²

The passage of the *Nutrient Management Act* in 2002 requires some farmers to develop Nutrient Management Plans. As of the time of writing, few have been developed in Ontario, but it is expected that many will be developed over the next few years once the requirements of the *Nutrient Management Act* become law.

Key Findings:

- The extent of low and no till farming increased by 2% between 1996 and 2001.
- About 180 farmers in York Region developed Environmental Farm Plans to improve the sustainability of farm practices between 1995 and 2005.



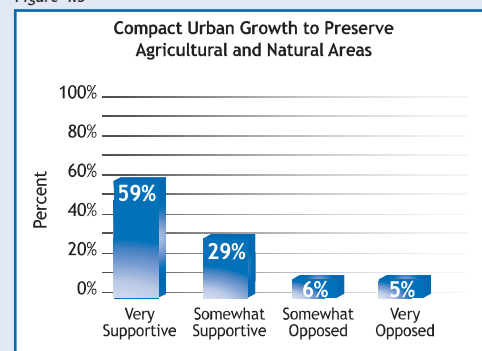
ENVIRONICS SURVEY

As part of an Environics Survey in 2004, York Region residents were asked the following question:

"In order to protect greenspaces and agricultural lands in York Region, additional growth will need to be more compact and be located in existing urbanized areas. Do you support or oppose this approach of managing additional growth to preserve natural and agricultural areas?"

The majority of residents surveyed (88%) supported a growth management approach where additional growth will be more compact and located in existing urban areas in order to preserve natural and agricultural areas. Of these respondents, 59% were very supportive and 29% were somewhat supportive.

Figure 4.5



Source: Environics Survey Fall 2004





4.7 LAND USE and planning

Annual population growth in the Greater Golden Horseshoe makes it the third fastest growing area of North America, behind Los Angeles and New York/New Jersey. It is forecasted that York Region will continue to be the single largest contributor to this growth through the year 2031.

Figure 4-6

NUMBER OF PERMITS ISSUED for NEW RESIDENTIAL UNITS in YORK REGION 1998 - 2004

Year	Number of Permits Issued
1998	9,438
1999	12,910
2000	12,699
2001	11,202
2002	12,589
2003	10,143
2004	9,306

Source: York Region Planning and Development Services Department, 2005.

The population of York Region has grown by about 37,000 people per year for the last five years, and as of December 31, 2004 was estimated to be 889,600. The forecast is for an additional 610,000 people, 236,000 housing units and 350,000 jobs in the Region by 2031. The Region's challenge is to plan for this growth in a way that meets the Goals of the Regional Official Plan and Vision 2026, the Region's Strategic Plan.

The ROP requires that 30% of all new development occur by infill or intensification in existing urban areas. Land use planning in York Region is also shaped by initiatives such as the provincial Draft Growth Plan Concept, which includes the Greenbelt/Oak Ridges Moraine, a focus on compact development, an intensification target of 40% of new development to occur by infill or intensification and an emphasis on "transit first". For additional information on this and other new and emerging policies that affect the environment in York Region, see chapter 2 of this report.

Rate of Development

Development continues at a high rate in York Region. In 2004, 9,306 building permits were issued in York Region. This is similar to the number of issued in 1998, and lower than the rates in the intervening years. The ROP calls for the production of an average of 8,750 housing units annually.

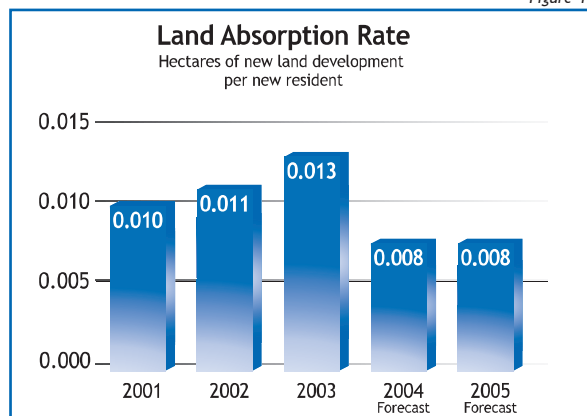
A new indicator used in this report is "land absorption rate". The calculation of "land absorption rate" shows that 0.013 hectares of new land was developed in 2003 for each new resident of York Region. In 2001, this figure was 0.010 hectares, and it is projected to be reduced to 0.008 hectares in 2005. The decrease in the rate of land absorption shows the Region is accommodating more residents with less land. This indicates a more compact urban form that supports transit investments and makes efficient use of Regional infrastructure.

Rural/agricultural land continues to be redesignated for urban use in York Region. Approximately 4,007 hectares of rural/agricultural land was redesignated for urban use between 2001 and 2005. This is 2% of the total land area.

Key Findings:

- *Development continues at a high rate in York Region.*
- *9,306 building permits were issued in York Region in 2004. This is essentially the same number as were issued in 1998 and a reduction from the numbers issued in the intervening years.*
- *0.013 hectares of new land were developed per new resident in 2003, and it is expected this will be reduced in 2004 and 2005.*
- *4,007 hectares of rural/agricultural land was redesignated for urban use between 2001 and 2005.*

Figure 4-7



Source: York Region Planning and Development Services Department, 2005.

York Region

State of the Environment 2005

Regional & Provincial Land Use Designations & Rapid Transit

Land Designations

Oak Ridges Moraine Conservation Plan Area

- Oak Ridges Moraine Conservation Plan Boundary
- Core
- Countryside
- Hamlet
- Linkage
- Urban
- Settlement

Greenbelt Plan 2005 Area

- Protected Countryside
- Natural Heritage System (Part of the Protected Countryside Designation)
- Holland Marsh Specialty Crop Area
- Town or Village

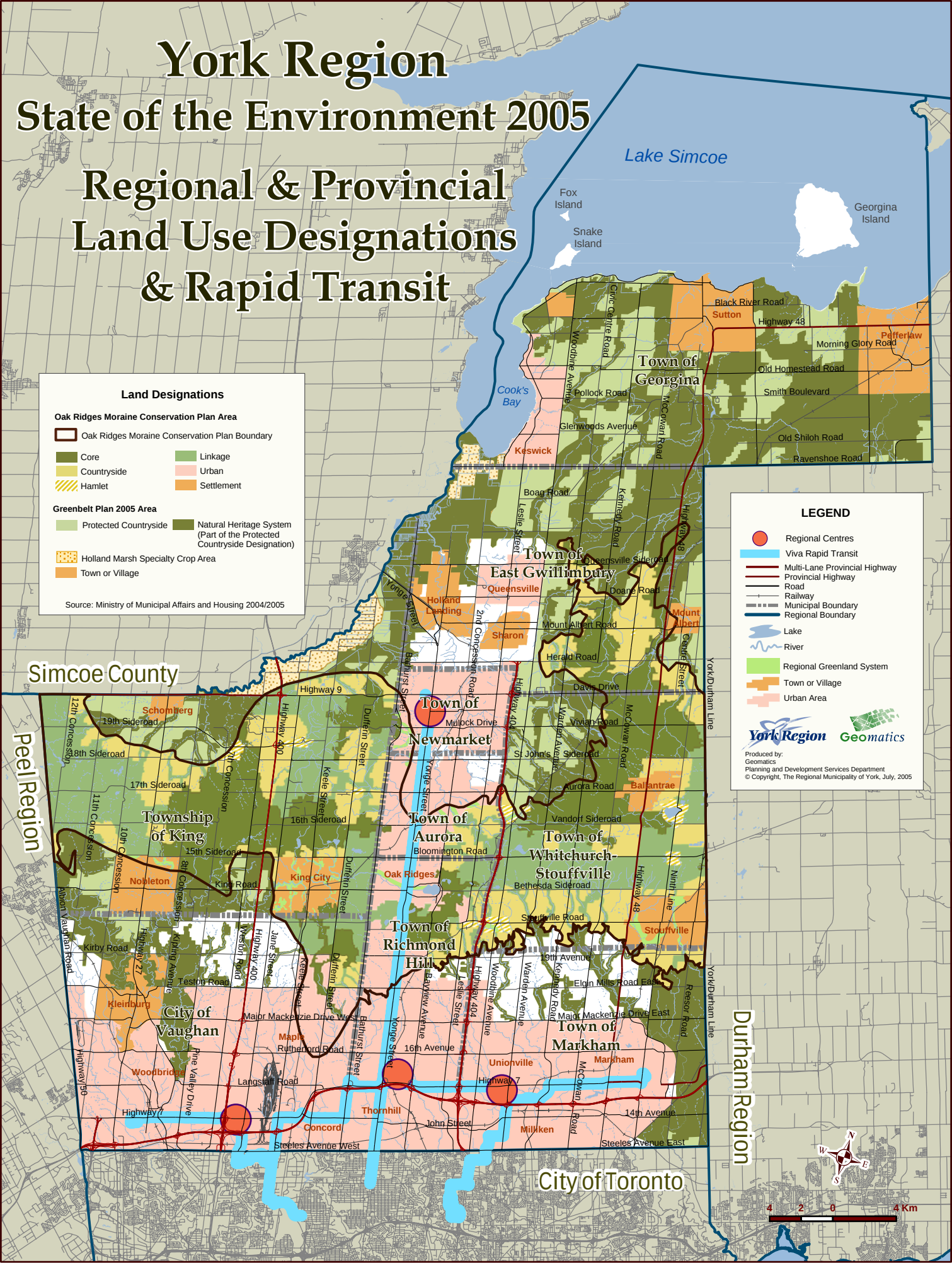
Source: Ministry of Municipal Affairs and Housing 2004/2005

LEGEND

- Regional Centres
- Viva Rapid Transit
- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- Lake
- River
- Regional Greenbelt System
- Town or Village
- Urban Area

York Region Geomatics

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Geomatics
Planning and Development Services Department
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4.7 LAND USE and planning continued

Population Density

Population density is a measure of the number of persons living in an area. Increasing density is key to meeting the intensification policies of the ROP and the Provincial government and combating urban sprawl. Urban sprawl has been defined as “continuous low density residential development at three units per acre or less”.¹³ Urban sprawl often lacks coordinated planning, is reliant on automobiles, lacks public transit, and has poor linkages between land uses, often resulting in a lack of community.

York Region has been growing by about 37,000 people per year for the past 5 years. This has required balancing the needs of a growing population for housing, transit, and human services such as health and education with the need to protect the environment in which we live. York Region’s Official Plan, Centres and Corridors Strategy and Growth Management Strategy provide direction to help ensure this balance by setting boundaries for where growth can occur. In the past 10 years, growth has occurred at twice the density it did before and is limited to areas designated for this growth.

Densities in York Region’s communities in some cases are approaching those of older “416” communities and are expected to continue increasing as York Region moves forward on implementing the Centres and Corridors and Growth Management Strategies. Urban centres of higher population and employment supported by high-order public transit, and mixes of uses such as community facilities, public open spaces, restaurants, shops, cultural institutions, human services and administrative facilities can be expected as York Region moves away from a suburban model of development to a more urban model.

In 2004, the Region’s population density in urban areas and villages was about 1,371 people per square kilometre.¹⁴ This is up by almost 253 people or 17% from 1999 when densities were approximately 1,170 people per square kilometre.¹⁵

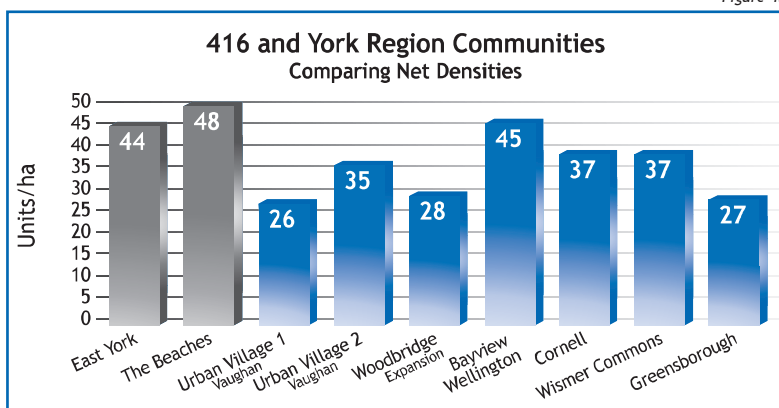
ROP Amendment 43 (the Centres and Corridors Amendment) calls for 30% of future population and employment growth to occur within the Region’s centres and corridors by 2030. It is estimated that by 2030, population densities in urban areas and villages could approach 2,312 people per square kilometre under a high growth scenario.¹⁶

Key Findings:

- Population density continues to increase in York Region, and has increased by 17% since 1999 in urban areas and villages.
- The estimated population density in 2004 in urban areas and villages was 1,371 persons per square kilometre

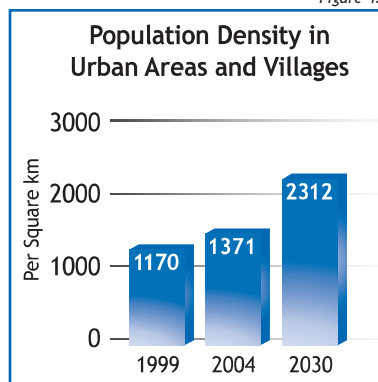


Figure 4.8



Source: York Region Planning and Development Services Department, 2005.

Figure 4.9



Source: Population Data, York Region Planning and Development Services Department, 2005.



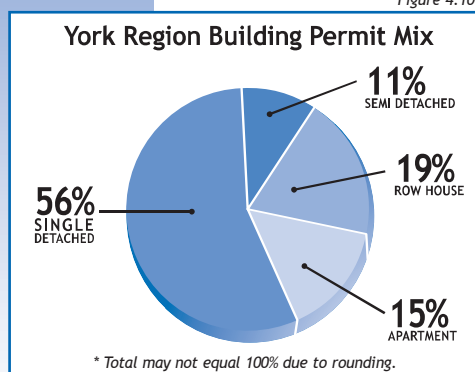


4.7 LAND USE and planning continued

Mix of Housing Types

The goal of the ROP is for an increased diversity of housing types, with no more than 62% of the housing stock composed of single-family detached houses. In the 1980s, 85% of the housing in York Region was single-family detached. In 1998, this figure had dropped to 76%. The most recent statistics, from 2004, show that the overall mix of housing types is continuing to diversify, with 73% of the housing stock made up of single-family detached houses. In 2004, 56% of the 9,306 building permits issued in York Region were for single-family detached houses, and 44% were for multiple dwellings.

Figure 4.10



Source: Economic & Development Review 2004, York Region Planning and Development Services Department, 2005.

Key Findings:

- The type of housing being built in York Region continues to diversify. In 2004, 58% of houses built were single-family detached, down from 65% in the 1990s.
- The overall mix of housing types in York Region continues to diversify, with a reduced proportion of single-family detached houses overall. In 2004, 73% of housing was single-family detached, 5% semi-detached, 10% row houses, and 12% apartments.

Figure 4.11

HOUSING COMPLETIONS in YORK REGION 2004

Singles	6,246
Semis	1,366
Rows	2,118
Apts.	949
Total	10,679

Source: Economic & Development Review 2004, York Region Planning and Development Services Department, 2005.

TRIPLE BOTTOM-LINE

Environmental benefit:

Rapid transit reduces greenhouse gas emissions attributed to carbon dioxide from automobile usage.

Social benefit:

Rapid transit ensures that all segments of the population and labour force have access to efficient, affordable and quality transportation.

Economic benefit:

Rapid Transit ensures a more efficient movement of goods and people by reducing automobile congestion.

York Region's Road towards Sustainable Development

What is Sustainable Development?

The notion of sustainable development arose from an international awareness that economic progress was resulting in natural resource depletion and increased poverty. In 1987, the United Nations through the Brundtland Commission defined sustainable development as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*”. In short, the crux of sustainable development is about legacy. What type of world do we want to leave for our children and grandchildren 20, 50 and even 100 years from now?

The Triple Bottom-Line

The thinking behind sustainable development is that all our initiatives should aim to simultaneously create environmental, social and economic benefits and value. This is referred to as the “Triple Bottom-Line” approach.

The Triple bottom-line approach emphasizes transparency, equity, accountability, community involvement as well as monitoring and continuous improvement towards sustainability.

4.7 LAND USE and planning continued

York Region's Road towards Sustainability

The concept of sustainable development is integrated into many of the Region's policy documents.

Vision 2026 is York Region's strategic plan for the next quarter century and was created in partnership with our community. It encourages the integration of nature into development in order to create well-designed and liveable communities.

Through *Vision 2026*, the Region has committed to enhance our environment by continuing to develop and build on initiatives like the Greening Strategy and reporting out to the public in initiatives like this State of the Environment Report as well as continuing to use our key strategic documents, like the Regional Official Plan, Transportation Master Plan, etc. to set sustainable policy and implementation guidelines.

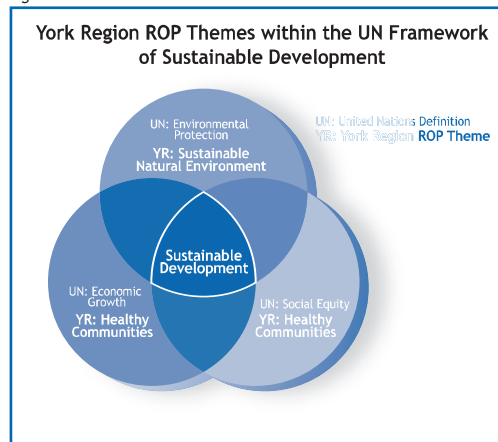
York Region's *Regional Official Plan* (ROP) focuses on achieving the triple bottom-line by interconnecting the three themes of *Sustainable Natural Environment*, *Economic Vitality* and *Healthy Communities* - the three elements of the United Nations sustainable development framework, as illustrated in Figure 4.12.

The Region has undertaken many successful initiatives that demonstrate in action, "how" the Region strives to achieve the sustainable development objectives in the *Regional Official Plan*. Regional successes include, but are not limited to:

- Centres and Corridors Strategy
- Oak Ridges Moraine and Greening Strategy Initiatives
- Water for Tomorrow Program
- York Region Transit (YRT) and Rapid Transit (VIVA)
- Human Services Plan
- State of the Environment Report
- Corporate Clean Air Task Force
- Housing Strategy
- Smart Commute Initiative
- Wind Energy Studies
- Building Energy Feasibility Study.

Many of these initiatives are on the leading edge of governmental policy within the GTA, such as the *Centres and Corridors Strategy*, and many have won recognized national and international awards such as the *Water for Tomorrow Program*. York Region faces a number of significant challenges, principally with the continuing pace of growth. The Region continues to examine our policies and programs to identify the areas for improvement so that we can progress and evolve towards achieving sustainable development in our communities.

Figure 4.12



Source: York Region Planning and Development Services Department, 2005.





4.8 transportation

Automobile Use

Automobile use continues to dominate transportation in York Region. In 2001, for example, 79% of all trips were made by car, as compared to 8% by transit, 7% by walking and cycling, and 5% by school bus. The most recent findings suggest that households in York Region have more cars, take more car trips every day, and carry fewer people in the car now as compared to the mid-1990s.^{17, 18} These trends contribute to worsening traffic congestion and increased emissions of air pollutants. However, since 1996, the average length of trip to work has been reduced and the percentage of people who both live and work in York Region has increased. These trends help reduce the adverse impacts of automobile use.

ENVIRONICS SURVEY RESULTS

When York Region residents were asked to name (top of mind) the single most important local issue facing the Region, the largest proportion overall point to transportation issues (35% up from 24% in 2003), of which most were concerned with traffic (23% up from 16%) and transit/transportation (12% up from 8%). Next is concern around development (16% down from 21%).

Source: Environics Survey Fall 2004

Key Findings:

- Between 1996 and 2001, the average number of vehicles per household increased slightly from 1.8 to 1.9.
- Between 1996 and 2001, the average number of vehicle trips per household per day increased from 6.8 to 7.2.
- Between 1995 and 2004, the average vehicle occupancy decreased from 1.19 to 1.14.
- Between 1996 and 2001, the average length of trip to work decreased 2% from 16.8 to 16.5 km.

Transit

Significant progress has been made in the realm of public transit since the SOE 2000 Report. In 2001, the various local transit systems across York Region were amalgamated under York Region Transit (YRT). Since then, ridership in York Region has grown by over four million riders - an average of 10.5% per year and 44% in total. In 2004, YRT carried over 13.8 million passenger trips, an impressive 14.3% increase over the previous year.

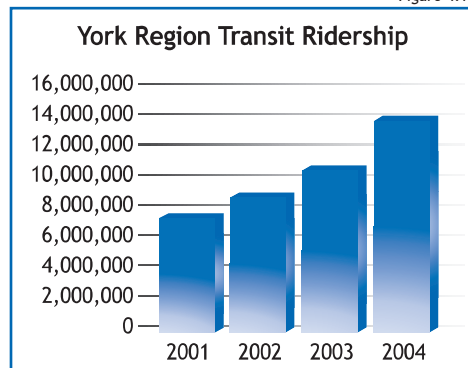
This figure represents approximately 55,000 passenger trips on an average weekday and amounts to more than 1.4 million new trips in just one year. Since 2001, YRT has experienced the highest growth rate for transit use in the GTA and one of the highest growth rates in Canada.

This increase in transit use is a function of both the tremendous population growth in York Region and the improvements in the Region's transit service levels. Since amalgamation, the hours of revenue service have increased by an average of 16% per year. This unprecedented investment in public transit reflects York Region's commitment to the system's expansion and the development of a more balanced and transit supportive transportation network. This transit investment will also support more compact, pedestrian friendly communities and help focus residential, commercial, institutional and community uses within the Region's transit centres and corridors.

Since the creation of YRT, conventional transit service and in some instances services for those with physical challenges, have been implemented in those municipalities that previously did not have these services. All nine area municipalities in York Region now have some level of transit service.

By the end of 2004, the YRT system consisted of over 70 routes. These include core routes (operating along major arterial corridors), feeder or local routes (operating in local neighbourhoods), high school specials (which focus on specific student demand), GO Train shuttles, express services and two community bus routes (operating in both Richmond Hill and Newmarket). Each category of route serves a particular sector of the transit market and each plays a role in the success of the overall system network.

Figure 4.13



Source: Transit Services, York Region Transportation and Works Department, 2005.



4.8 transportation

continued

The introduction of Viva rapid transit in key corridors within the Region (Yonge St., Highway 7, Markham Centre/Warden Ave, and the Jane/Keele/Vaughan Corporate Centre) in September 2005 further contributes to an even more highly developed public transit network. With Viva, the YRT network has evolved to feed these new rapid transit corridors as well as provide convenient local service. The target in the ROP for proximity to transit is that 90% of residential properties should be within walking distance (500 m) of transit.

In 2005, there were 189,052 residential properties (86%) and 79 employment areas (73%) in York Region within 500 m of Public Transit. For additional information on Viva and GO Transit improvements, please see section 3.2.13 of this report. More information on York Region Transit is available at the following web sites: www.yrt.ca and www.vivayork.com.

Key Findings:

- *Transit ridership has increased 44% since the amalgamation of local transit systems into YRT in 2001.*
- *In 2004, YRT carried over 13.8 million riders.*
- *In 2004, 15.6% of residents used the transit system, an increase over the 13% of residents who used transit in 1995.*
- *In 2001, 8% of trips were made by transit. There is still a significant way to go to meet the target of 17% transit use by 2031 in the Regional Transportation Master Plan.*
- *By 2005, the Region will meet its target for proximity to public transit - 92% of residential properties will be within 500 m of transit.*

Alternatives to Vehicle Use

The Active & Safe Routes to School program has been a fixture in some York Region schools since 2001. The program is aimed at getting students to walk, cycle or roller blade, part or all of the way to school, rather than being driven. The benefits of the program include increased physical fitness for participants as well as reduced traffic and air emissions. In York Region, the Active & Safe Routes to School program is currently a joint project of York Region Health Services, York Region Planning and Development Services, York Region District School Board, York Catholic District School Board, the Town of Markham, WindFall Ecology Centre and the Green Communities Association.

Key Findings:

- *In 2001, 54 schools participated in "Walk to School Day".*
- *In 2004, 70 schools took part in a one-week "Iwalk" program.*
- *In 2004, 85 schools participated in "Walk to School Day"*
- *In 2005, 11 schools participated in a year-long "Iwalk" program.*

Road Salt

In 2001, Environment Canada identified road salt as a risk to wildlife, local ecosystems and groundwater, and asked municipalities across the country to develop salt management plans to reduce its use on roadways.¹⁹ In response, the Region began investigating ways to reduce salt use on roads in 2002, and launched a pilot project on the application of a salt-brine solution to roads before snowstorms. Salt-brine may be less harmful to the environment, as it appears to keep more salt on the roads to break up the ice rather than having the salt bounce to the sides of roadways, where it can be toxic to plant life. When applied before a snowstorm, the salt-brine solution prevents ice from forming and bonding to the pavement. Elsewhere, using a preventative approach has been found to be more effective than a reactionary one. The pilot project was so successful that salt-brine use was adopted as part of the winter maintenance program in 2003.

In October 2004, the Region launched its Salt Management Program. The Program includes an advanced Road Weather Information System in which five weather stations in key parts of the Region provide information on temperature, pavement condition, salt concentration and precipitation to more accurately identify when the usage of salt is necessary.





4.8 transportation

continued

The Salt Management Program also includes a Global Positioning System (GPS) to monitor road coverage by vehicles and track the application rate of both sand and salt, spreader controls to more precisely spread sand and salt, and drive-through storage sheds to minimize the exposure of sand and salt to the environment. The Region is also considering the use of calcium chloride or magnesium chloride in an effort to further reduce salt use. Through the Salt Management Program, the Region has been able to reduce its overall and “per application” use of road salt.

For information on chlorides in rivers in York Region, which is related to salt use, see section 5.4.

Key Findings:

- *In 2004, the Region used 38,369 tonnes of salt on roads, compared to 41,366 tonnes in 2000.*
- *Per application, this was 11.68 tonnes per lane kilometre in 2004, versus the 13.65 tonnes per lane kilometre applied in 2000. This represents a 14% decrease in the “per application rate” (the amount of salt applied per lane-kilometre).*



SAVING ENERGY THROUGH TRAFFIC SIGNALS

York Region has completed its Light Emitting Diode (LED) traffic signal retrofit and replacement program under budget and two years ahead of schedule. The program saw the conversion of older style incandescent traffic lights to low maintenance, energy saving LEDs. LEDs are superior to incandescent bulbs for visibility, maintenance and power costs. Units do not need to be replaced as often as incandescent bulbs, and use 90 per cent less power.

The LED program started on a trial basis in 2002, with LEDs installed on new traffic lights. Based on the success of that trial, Region-wide retrofitting of the Region's 570 traffic intersections began in 2003. Completion of the project was scheduled for 2006 at a cost of more than \$4.6 million to convert 19,000 units. However, Regional Roads staff were able to find efficiencies and complete the task in one year at a substantially reduced cost of just over \$2.7 million.

With the conversion complete, it is anticipated that the program will pay for itself in three years.

4.9 WASTE management

Solid Waste Generation

In York Region, the responsibility for solid waste management is split between the Region and area municipalities. Area municipalities are responsible for curbside collection of garbage, blue box materials and yard waste. The Region is responsible for the processing of blue box materials, organic waste and leaf and yard waste and the management of “residual waste” - that is, everything that is left over. The Region is also responsible for materials that are dropped off at transfer stations and the transportation and ultimate disposal of municipally-collected solid waste.

As the population of York Region has grown, so has the amount of waste that is generated by households, institutions and businesses. The amount of waste collected annually by municipalities has increased approximately 37% between 1997 and 2004. Since the closure of the City of Toronto's Keele Valley Landfill site in 2002, waste collected in York Region has been shipped to two landfills in Michigan and one in Ontario.

Key Findings:

- The amount of waste collected by municipalities annually has increased from 167,000 tonnes in 1997 to 228,698 tonnes in 2004. This is an increase of approximately 37%.
- The amount of waste generated per capita increased from 256 kg in 1997 to 257 kg in 2004.

Solid Waste Diversion

Diverting solid waste from disposal by reducing, reusing or recycling is beneficial to the environment. Waste diversion extends the life of landfill sites, allows materials to be re-processed into value-added consumer goods rather than being thrown away, and reduces the amount of energy needed to collect and transport waste to landfill.

In 2004, the Province began discussions on how to reach 60% diversion of solid waste by 2008.²⁰ York Region and its area municipalities are addressing the need for diversion through enhanced blue box programs that collect a wider range of materials, expanded central composting of leaf and yard waste, and the introduction of household organic waste programs using the “green bin”. Initial results suggest the goal of 60% diversion can be met and possibly exceeded. Rollout of these expanded programs across the Region's nine local municipalities is expected to be completed by 2008.

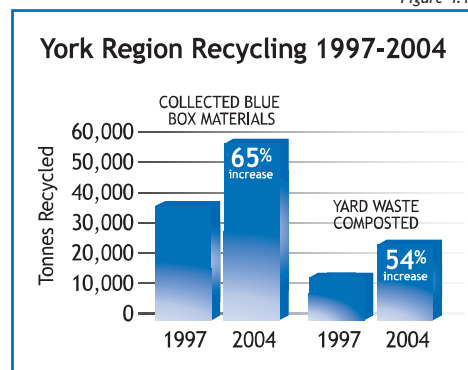
Key Findings:

- 56,019 tonnes of municipally collected blue box materials were processed in 2004, up 65% from 1997 figures.
- 21,621 tonnes of leaf and yard waste were centrally composted in 2004, up 54% from 1997 figures.
- 849 tonnes of household organic waste was collected for central composting in 2004. Currently only one municipality (Markham) has such a program but other municipalities are expected to join in over the next few years.
- The current diversion rate has not changed appreciably since 1997.
- Significant additional efforts are underway to reach the provincial target of 60% diversion by 2008.

For additional information on progress made in solid waste diversion in York Region, see section 3.2.11 of this report.



Figure 4.14



Source: York Region Transportation and Works Department, 2005.





4.9 WASTE management

continued

Hazardous Waste

The Region opened a new Household Hazardous Waste facility in May 2005 in Vaughan, replacing the City of Toronto's facility at the Keele Valley Landfill Site, which was closed at the end of 2002.²¹ In 2004, 1,131 tonnes of household hazardous waste was dropped off at the three other household hazardous waste facilities located in East Gwillimbury, Georgina, and Markham, which represents an increase of 21% over that dropped off in 2001.

The Ministry of the Environment (MOE) monitors PCB storage sites around the province that are used to store high and low-level PCBs (such as those found in old electrical transformers) until they can be destroyed. Today there are 14 PCB storage sites in York Region, down from 40 in 1995.²²

Key Findings:

- 1,131 tonnes of household hazardous waste was dropped off for disposal at Regional facilities in 2004, an increase of 21% over the amount dropped off in 2001.
- In 2005, there were 14 PCB storage sites in York Region, a 65% reduction from the 40 that existed in 1995.

4.10 pesticides

Agricultural Use

York Region farmers used 61,769 kg of pesticides in 2003.²³ Of this, 80% was herbicides to control weed growth and the balance was insecticides, fungicides, nematocides and growth regulators. The pesticide use in 2003 is a reduction from the 117,995 kg used in 1993, but the extent of farmland has also decreased since that time. Nevertheless, it appears that there has been an overall reduction of pesticides in agricultural use.

Municipal Pesticide Use

Many municipalities have responded to public concern over non-essential pesticide use by reducing or eliminating the amount of pesticide use on their own lands. Through policies, approved by their respective Councils, Aurora, King, Markham, Vaughan, Whitchurch-Stouffville and York Region have specifically targeted pesticide reductions on turf (grass) surfaces. Newmarket staff and council are currently researching an internal pesticide use policy. In May 2002, Regional Council approved the Pesticide Reduction Guidelines for Lands Owned by The Regional Municipality of York.

The table on the next page also shows the amount, in grams of active ingredient, of pesticides that were used by various municipalities in 2004 on turf surfaces. The municipalities of Georgina, King, Markham, Newmarket and Whitchurch-Stouffville reported no pesticide usage on turf in 2004.



4.10 pesticides

continued

Figure 4.15

AMOUNT of PESTICIDE USED on TURF and EXISTENCE of POLICIES on PESTICIDE USAGE by MUNICIPALITY 2004		
MUNICIPALITY	PESTICIDE USAGE in grams of active ingredient	INTERNAL POLICY
Aurora	23,480	Yes
East Gwillimbury	37,800	No
Georgina	0	No
King	0	Yes
Markham	0	Yes
Newmarket	0	Researching
Richmond Hill	42,000	No
Vaughan	27,643	Yes
Whitchurch-Stouffville	0	Yes
York Region	45,799	Yes

Source: Environmental Health Program, York Region Health Protection Division, 2005.

Public Pesticide Use

The public has become increasingly aware of the dangers of pesticide overuse or misuse. At the same time, however, a large segment of the public continues to use large amounts of pesticides on lawns and gardens. Following the lead of Hudson, Quebec, which in 1991 passed a by-law banning the use of non-essential pesticides, a number of municipalities across the country are exploring how to encourage reductions in the use of these substances.²⁴ The Town of Markham is currently exploring the idea of a ban on the use of non-essential pesticides.

Unfortunately, no agency currently collects data on residential pesticide use in York Region, or indeed, across the country. When the new federal *Pest Control Products Act* (2002) comes into full effect, pesticide manufacturers will have to report sales data to Health Canada and this may provide indirect data on the amount of pesticides used by homeowners.²⁵

Key Findings:

- There has been a reduction in agricultural use of pesticides since 1993.
- Municipalities used 176,722 grams of active ingredient of pesticides on turf in 2004.
- 5 area municipalities did not use any pesticides on turf in 2004.
- The amount of pesticides used by the public is not known.





4.11 energy

Energy is both vital to our way of life and a huge stress on the environment. Most of us use energy almost without thinking in every facet of our lives: to heat, cool and light our buildings, propel our cars and power our appliances. Yet almost every part of the energy use cycle - production, transmission, use and waste disposal - causes an impact on the environment. To minimize environmental impacts such as air pollution, global warming, disturbance of river systems and radioactivity from nuclear wastes, it is vital to both use energy efficiently and to conserve it where possible.

Energy Used by York Region

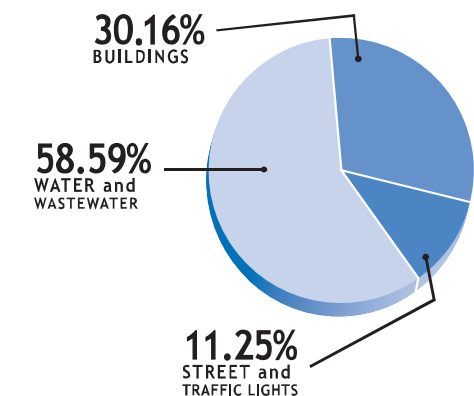
York Region established a Corporate Energy Services Program in 2003. The mandate of the program is to manage the Region's energy portfolio in an economical and sustainable manner while promoting the wise use of energy and supporting initiatives that enhance the environment. The Program provides services in four major areas: Corporate Energy, Existing Buildings, New Buildings and Environment. These are described below.

1) Corporate Energy: Energy and Environmental Management System

The Energy and Environmental Management System (EEMS), is a web-based software program that captures the energy consumption and energy costs associated with buildings, streetlights, transportation and other Regional facilities. EEMS is available to other municipalities for their benefit through a licensing agreement. Below, EEMS was used to track amount of electricity used for The Regional Municipality of York's operations and facilities in 2003.

Figure 4.16

Distribution of Electricity Consumption York Region, 2003



TYPE	CONSUMPTION (kWh)
Building	23,013,198
Street and Traffic Lights	7,047,859
Water and Wastewater	50,912,967
TOTAL	80,974,024

Source: Property Services Branch, York Region Corporate Services Department, 2005.

in Richmond Hill will have a range of environmental benefits, including improvement of regional air quality and reduced greenhouse gas emissions.

2) Existing Buildings: Building Energy Feasibility Study (BEFS) Initiative

In 2004, the Region completed Building Energy Feasibility Studies that set aggressive energy and water savings targets in Regional facilities. The Region will implement the findings of the Building Energy Feasibility Studies in phases, beginning with the York Region Administrative Centre. In 2006, energy performance improvements will be made in York Region's Water and Wastewater facilities will be conducted.

3) New Buildings: Sustainable Building Program

The Region has developed standardized energy efficiency guidelines for new building design and equipment.

4) Environment: Wind Energy

York Region is in the forefront of investigating wind power within its jurisdiction. A pilot has been completed by the Region in two local area municipalities, the Town of Georgina and the Town of Whitchurch Stouffville. The Region is also using Provincial wind mapping data in order to identify the most promising site(s) for potential wind power development in York Region.

In March 2004, the Town of Richmond Hill began undertaking a wind power preliminary feasibility and wind resource study. The preliminary feasibility study is now complete. The study concluded that there is potential on Town owned lands for 3 or 4 turbines with a total capacity of up to 8 Megawatts. This would provide electricity for approximately 2500 homes. With the completion of the preliminary study, it is clear that a Wind Power project

4.11 energy

continued

In March 2005, the Town of Markham approved a \$100,000 feasibility study to investigate community-scale solar power for part of Thornhill's new Leitchcroft community of townhouses and high-rise units. The study will examine the potential for arrays of solar panels, possibly storing their energy underground, to reliably and economically heat water and perhaps also provide space heating for hundreds of homes.

Key Findings:

- *The Region uses 80,974,024 kWh of electricity a year for its operations and facilities.*
- *The Region has set an aggressive 35% energy reduction target for Regional facilities and will begin implementation of programs in 2005 to work towards achieving this target.*

Total Energy Used in York Region

Statistics received from Aurora Hydro, Newmarket Hydro, and PowerStream (servicing Markham, Richmond Hill, and Vaughan) reveal that residential consumption of electricity has increased since 2000. When we view the data on a per capita basis, however, the residential consumption of electricity has slightly decreased since 2000, meaning that the average person is using a little less electricity than they were 5 years ago. Note that data from Hydro One, which services the municipalities of East Gwillimbury, Georgina, King, and Whitchurch-Stouffville, was unavailable at the time of development of this Report.

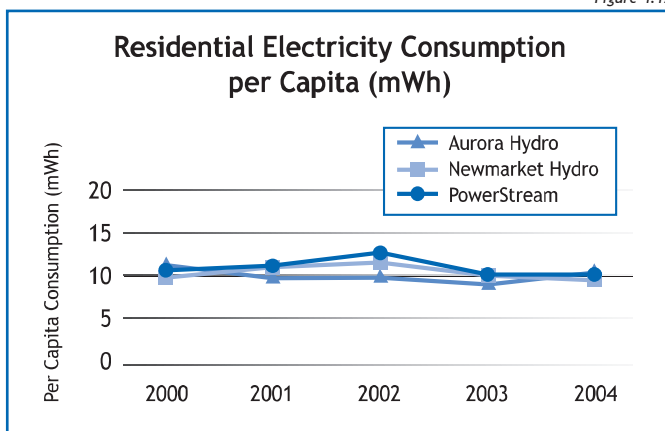
Natural gas has many applications, the most common of which is for heating. Natural gas is also used to generate electricity and accounts for approximately 8% of Ontario's electricity generating capacity.²⁶ Natural gas can also be used as a transportation fuel, and it is a cleaner source of fuel than diesel or gasoline. While Ontario does have some natural gas reserves, the province's supply is derived mostly from imports from Canada's western provinces. Unfortunately, data on natural gas consumption is not available on a Regional basis. Most of the Region's natural gas volume is purchased in bulk under contract through a program created by the Association of Municipalities of Ontario and the Ontario Association of Non-Profit Homes and Services for Seniors.²⁷

Information on the amount of energy conserved annually in York Region is not available at this time. However, this information is now being tracked by utilities in the Region and will be an important indicator to use in the future.

Key Findings:

- *On a per capita basis, electricity use has decreased slightly since 2000.*
- *Data on conservation of energy is just starting to be tracked and will be an important indicator for future SOE Reports.*

Figure 4.17



Source: Aurora Hydro, Newmarket Hydro, PowerStream, 2005.





4.11

energy continued

Electromagnetic Fields

Energy radiating in the form of electromagnetic waves originates from both natural and artificial sources and is around us everywhere. The electromagnetic spectrum extends from extremely low frequencies with long wavelengths (e.g., radio and magnetic waves) through to high frequencies with short wavelengths (e.g., gamma and X-rays). Electromagnetic radiation from electrical power systems has a frequency around 60 Hz and is termed “extremely low frequency” (ELF).

Electrical wiring, electric blankets, appliances, and computers produce electromagnetic fields (EMFs). Whenever appliances are plugged in, electric fields are present. When an appliance is turned on - whenever there is an electric current - magnetic fields are then present. EMFs are strongest closest to the source and rapidly decrease in strength as one moves away from the source. The magnetic field portion of an EMF can pass through most physical barriers while the electric field cannot. Public concern about EMFs, including here in York Region, has focused on hydro corridors but much of our exposure to EMFs comes from within the house.

No Canadian national standard for ELF EMF exposure has been established due to scientific uncertainty with linking EMFs to health outcomes. Some scientists have hypothesized that several adverse health outcomes such as depression and some cancers are associated with exposure to ELF EMF. At this time, however, the evidence from these studies is inconclusive and controversial in the scientific community.

Of all the health outcomes examined, childhood leukemia has shown the most consistent association with ELF EMFs.²⁸ To date, science is unable to explain the cause of the association between ELF EMF and leukemia in these studies and many other possible causes need to be explored including inherited conditions, viral infection, exposure to certain chemicals and radiation. In short, the scientific community is many years away from conclusively determining the risks involved with EMF exposure, but most evidence suggests that exposure to high levels of EMFs is necessary to produce detrimental health effects. Health Canada and York Region Health Services continue to monitor EMF research to build our understanding of the risks involved with ELF EMF exposure.

Residents who are concerned about ELF EMFs should consider taking a prudent avoidance approach. This means taking an extra effort to reduce exposures to ELF EMFs if it will entail little or no additional cost while achieving a greater margin of safety. Home appliances that have the highest magnetic fields are those with high currents or high-speed electric motors, such as vacuum cleaners, microwave ovens, electric washing machines, dishwashers, blenders, can openers, and electric shavers.²⁹ Magnetic fields often drop off dramatically within about 3 feet of the source, so simply standing back from the microwave oven while it is in use is an example of a simple preventative measure.³⁰ Reducing home energy use in general will reduce EMF exposures, save money and help the environment.



4.12 aggregates

One of the natural resources of York Region is aggregates - deposits of sand and gravel that can be used in the production of concrete and mortar, for roadbeds and for many industrial uses. While aggregate resources are protected by municipal, regional and provincial policies and legislation, the ROP designates the particular areas where extraction can take place and specifies that extraction is subject to Regional and local Official Plans and by-laws.

In 2003, 2.2 million tonnes of aggregates were produced in York Region.³¹ (By way of comparison, this is about 1% of the 165 million tonnes produced in Ontario that year). The 2003 York Region production was a 5% increase over the 2.1 million tonnes produced in 1998.

In 1998, 324 hectares of land were used for aggregate extraction in York Region. Comparison figures are not available for recent years. We do know that 1,519 hectares of land are currently licensed under the *Aggregate Resources Act* in York Region.³² This is the licensed area, not the extraction area. Not all of the 1,519 hectares can be extracted. The extraction area of these properties is the licensed area minus all of the setbacks that have been incorporated into the properties to account for adjacent properties, roadways, significant features and sensitive receptors.³³

Companies that operate gravel pits are required to remediate them once they are closed. Unfortunately, information on the number of gravel pits in York Region in need of remediation is not available. However at licensed active sites in the GTA, licensees reported that in 2003 there were 143 hectares of new disturbed areas where active extraction was taking place and 176 hectares where rehabilitation was taking place.³⁴ Some abandoned pits and quarries are remediated under the Management of Abandoned Aggregate Properties Program run by The Ontario Aggregate Resources Corporation, which also collects licence fees and production statistics on aggregate production in the province.

Key Findings:

- *Extensive amounts of aggregate continue to be produced in York Region.*
- *In 2003, 2.2 million tonnes of aggregate were produced. This is an increase of 5% over that produced in 1998.*
- *1,519.4 hectares of land are licensed for aggregate extraction in York Region, although this does not represent the amount of land where extraction can take place.*
- *The number of gravel pits needing remediation in York Region is not known.*

York Region's Indicators of Health for Land follow on the next four pages.



4.13

indicators of health



CATEGORY	INDICATOR	STATUS in 2000 REPORT	STATUS in 2005 REPORT	TRENDS/COMMENTS
GREENLANDS	Extent of Regional Greenlands System	46,533 hectares; 26% of total land area (2001) ⁽¹⁾	60,174 hectares; 34% of total land area (2005)	29% increase in hectares
	Extent of greenspace in public ownership (Region and Conservation Authorities holdings)	Holdings within York Region: LSRCA: 685 hectares TRCA: 2, 588 hectares YR: York Regional Forest 2,032 hectares Total: 5305 hectares; 3% of total land area (1997)	Holdings within York Region: LSRCA: 704 hectares TRCA: 3,532 hectares YR: York Regional Forest 2, 039 hectares Total: 6275 hectares; 4% of total land area (2005)	18% increase in hectares
ENVIRONMENTAL POLICY AREAS	Extent of Life Science Areas of Natural and Scientific Interest (ANSIs)	7,046 hectares; 4% of total land area (2001) ⁽¹⁾	10,187 hectares; 6% of total land area (2005)	45% increase in hectares
	Extent of Biological Environmentally Significant Areas (ESAs)	9,131 hectares of land-based ESAs; 5% of total land area (2001) ⁽¹⁾ There are also 805 hectares of ESAs in the portion of Lake Simcoe within YR (2001)	8,778 hectares of land-based ESAs; 5% of total land area (2005) There are also 776 hectares of ESAs in the portion of Lake Simcoe within YR (2005)	4% decrease in hectares
WETLANDS	Extent of wetlands	8,567 hectares; 5% of total land area (2001) ⁽¹⁾	11,810 hectares; 7% of total land area (2005)	38% increase in hectares
FOREST COVER	Extent of forest cover	15 -18% of total area including Lake Simcoe (1991)	40,025 hectares; 22.5% of total land area (2005)	Change in methodology of calculation since 2000 Report, however forest cover likely maintained (i.e. no net loss); ROP target is 25%
	Extent of York Regional Forest	2, 032 hectares (1997)	2,039 hectares; 5% of total forest cover (2005)	<1% increase in hectares
BIODIVERSITY	Number of species of mammals, birds, reptiles and amphibians	-	174 species of breeding birds; number of mammals, reptiles and amphibians unknown (2005)	-
	Number of rare, vulnerable, threatened and endangered animal species	18 species of rare animals; of these 11 were vulnerable, 3 were threatened and 3 were endangered (1997)	14 species of rare animals; of these 5 are threatened, 2 are endangered and 6 are of special concern (2005) ⁽⁷⁾	Change in terminology and criteria since 1997
	Number of rare plant species	6 species ⁽²⁾ (1997)	12 species (2005)	Data not directly comparable due to changes in criteria for rare plant species

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indicators of health



CATEGORY	INDICATOR	STATUS in 2000 REPORT	STATUS in 2005 REPORT	TRENDS/COMMENTS
AGRICULTURAL LAND	Extent of farmland	45% (1996)	37% of total land area (2005)	Data not comparable due to different methodologies used to calculate farmland
	Extent of prime agricultural land and specialty crop areas	-	31% of total land area(2005)	-
	Economic value of farmland	\$170 million (1996)	\$179 million (2001)	Increase in gross farm receipts
AGRICULTURAL PRACTICES	Extent of low or no till farming	42% of agricultural land prepared for seeding (1996)	44% of agricultural land prepared for seeding (2001)	Increase in low and no till farming
	Number of farmers participating in Environmental Farm Plans	-	Approximately 180 farmers have participated in Environmental Farm Plans between 1995 and 2005	-
LAND USE/ PLANNING	Annual number of building permits issued	9,438 permits (1998)	9,306 permits (2004)	1.4% decrease in the number issued annually
	Land absorption rate	-	0.013 hectares of new land developed per new resident (2003)	Collection of data began in 2001
	Extent of rural land that has been redesignated for urban use	12,897 hectares (1981-1997)	4,007 hectares; 2% of total land area (2001-2005)	-
	Population density (urban areas and villages)	1,170 people per km2 (1999)	1,371 people per km2 (2004)	17% increase in density
	Mix of housing types built annually	65% single family detached (1990s)	58% single family detached (2004)	Decrease in single family detached homes built annually
	Total mix of existing housing types	85% single family detached (1980s) 76% single family detached (1998)	73% single family detached, 5% semi-detached, 10% row houses, 12% apartments (2004)	Increasing diversity of building forms; ROP target is 62% single family detached (2021)
	Percentage of York Region residents who work in York Region	47% (1996)	54%(2001) ⁽³⁾	Increase; ROP target is 75% (2021)
TRANSPORTATION	Average length of trip to work	16.8 km (1996)	16.5 km (2001) ⁽³⁾	2% decrease
	Extent of public trails	-	32 trails; 578 km in total (2005)	-
	Average number of vehicles per household	1.8 (1996)	1.9 (2001) ⁽³⁾	6% increase
	Average number of vehicle trips per household per day	6.8 (1996)	7.2 (2001) ⁽³⁾	6% increase
	Average vehicle occupancy	1.19 (1995)	1.14 (2004) ⁽⁴⁾	4% decrease

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indicators of health

LAND



CATEGORY	INDICATOR	STATUS in 2000 REPORT	STATUS in 2005 REPORT	TRENDS/COMMENTS
TRANSPORTATION	Proximity to transit	-	189,052 (or 86% of total) residential properties and 79 (or 73% of total) employment areas within 500 m of Public Transit (2005)	ROP target is 90% of residential properties should be within 500 m of public transit
	Total number of conventional transit trips	6,168,500 (1986) 8,614,000 (1996)	13,815,517 (2004)	44% increase in ridership (over 4 million riders) since the amalgamation of transit services in 2001
	Percentage of people using conventional transit	13% in urban areas including school busing (1995)	16% (2004)	3% increase
	Modal split (breakdown) of all trips made	88% automobile, 9% public transit, 2% walking and cycling, 1% other (1996)	79% automobile, 8% public transit, 7% walking and cycling, 5% school bus (2001) ⁽⁵⁾	Transportation Master Plan target is 17% public transit use by 2031
	Participation in Active & Safe Routes to School program	-	11 schools participated in year long "Iwalk" program (2005); 70 schools participated in one week "Iwalk" program (2004); 85 schools participated in "Walk to School Day" (2004)	-
	Amount of salt used by the Region on roads annually and per lane km	41,366 tonnes; 13.65 tonnes/lane km (2000)	38,369 tonnes; 11.68 tonnes/lane km (2004)	7% decrease in overall tonnage; 14% decrease in application rate
WASTE MANAGEMENT	Amount of solid waste that is municipally collected annually	167,000 tonnes (1997)	228,698 tonnes (2004)	37% increase
	Amount of residential solid waste generated per capita	256 kg (1997)	257 kg (2004)	Slight increase
	Rate of diversion from landfill (as a percentage of total solid waste collected by the Region and municipalities)	Approximately 25% (1997)	25.8% (2004)	Slight increase; MOE target is 60%
	Amount of municipally-collected "blue box" materials processed	34,000 tonnes (1997)	56,019 tonnes (2004)	65% increase
	Amount of municipally-collected leaf and yard waste centrally composted	14,000 tonnes (1997)	21,621 tonnes (2004)	54% increase
	Amount of municipally-collected household organic waste	-	849 tonnes (2004)	Only one municipal program at this time
	Amount of Household Hazardous Waste (HHW) collected	933.5 tonnes (2001) ⁽¹⁾	1,131 tonnes (2004)	21% increase in HHW drop off
	Number of PCB storage sites	40 sites (1995)	14 sites (2005)	65% decrease



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indicators of health



CATEGORY	INDICATOR	STATUS in 2000 REPORT	STATUS in 2005 REPORT	TRENDS/COMMENTS
PESTICIDES	Amount of pesticides used for agriculture	117,995 kg (1993) ⁽⁶⁾	61,769 kg (2003)	48% decrease
	Amount of lawn/turf pesticides used by the Region and area municipalities	-	YR: 45,799 grams active ingredient (2004); see text section 4.10 for area municipality data	-
ENERGY	Amount of energy the Regional Municipality of York uses for its operations	-	23,013,198 kWh for buildings; 7,047,859 kWh for street and traffic lights; 50,912,967 kWh for water and wastewater treatment (2003)	The Regional Municipality of York energy reduction target is 35%
	Total amount of municipal residential electricity sales (in mWh)	Aurora Hydro: 130,679 Newmarket Hydro: 202,663 PowerStream: 1,427,490 Hydro One: N/A (2000)	Aurora Hydro: 145,891 Newmarket Hydro: 221,168 Powerstream: 1,743,714 Hydro One: N/A (2004)	Data not available to calculate for all of York Region
	Average residential electricity consumption per capita (in mWh)	Aurora Hydro: 10.8 Newmarket Hydro: 10.1 PowerStream: 10.71 Hydro One: N/A (2000)	Aurora Hydro: 10.4 Newmarket Hydro: 10.0 PowerStream: 10.43 Hydro One: N/A (2004)	Data not available to calculate for all of York Region
	Total natural gas consumption	Ont: 2.6 billion cubic feet per day (2000)	Ont: 2.6 billion cubic feet per day (2004) York Region: N/A	-
	Average residential natural gas consumption per capita	4,170 litres per capita per day (1996)	N/A	-
AGGREGATES	Amount of aggregate produced annually	2.1 million tonnes (1998)	2.2 million tonnes (2003)	5% increase
	Extent of land used for aggregate extraction	324 hectares (1998)	1,519.4 hectares currently licensed under Aggregate Resources Act (2005)	Note that figures are not comparable (see text section 4.12)

(1) Information not included in 2000 SOE Report, but added here for completeness

(2) Information included in Appendix D from 2000 SOE Report

(3) This number is updated every five years and will next be updated in 2006

(4) This number is from an interim Cordon Count. Next full Cordon Count Program to be completed in 2006

(5) Total may not equal 100% due to rounding

(6) Note there was a typo for this indicator in the 2000 SOE Report

(7) One species has not yet been evaluated by the province