#530547

TOWN OF AJAX
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. B. Tuckey
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February 12, 2008

Honourable John Gerretsen
Minister of the Environment
12th Floor, 135 St. Clair Avenue West
Toronto ON
M4V 1P5

Re: Proposed Provincial Actions to Limit Phosphorus Loadings from Sewage Treatment Plants in the Lake Simcoe Basin

The following resolution was passed by the General Government Committee at its meeting held February 7, 2008 and endorsed by Ajax Town Council at its regular meeting held February 11, 2008:

1. **That the "Proposed Provincial Actions to Limit Phosphorus Loadings from Sewage Treatment Plants into Lake Simcoe" report, dated February 7, 2008, be endorsed as the Town's comments on Environmental Bill of Rights Registry Posting No. 010-2246, conveying the following recommendations to the Ministry of the Environment (MOE) requesting equitable protection of water quality in both the Lake Simcoe Basin and the Lake Ontario Basin by taking the following steps:**

   a) **conduct the appropriate studies and provide a justification for loadings of phosphorus to the Lake Simcoe Basin to ensure that the proposed regulation for sewage treatment plants (STPs) located within the Lake Simcoe Basin imposes the appropriate limits on all phosphorus discharges, including soluble phosphorus, that are sufficient to ensure the long-term protection of the water resources, recognizing the changes that have occurred to the Lake's ecosystem and associated watershed over the past few decades;**

   b) **substantially upgrade the Provincial standards governing STPs, on a regular basis, in order to recognize changes that have been and are happening to aquatic ecosystems and, specifically, to reduce the release of total phosphorus, soluble phosphorus, other nutrients and contaminants into our freshwater resources;**

c) move to a regulatory regime that controls the discharge from STPs based upon loadings of specific nutrients and contaminants, as is being practiced by many other regulatory jurisdictions around the world, and not based on concentrations, as is being proposed for total phosphorus in Lake Simcoe;

d) prepare and approve a new regulation imposing much stricter limits on nutrient emissions from the expanding Duffin Creek STP, which receives wastewater collected by the York-Durham Sewage System (YDSS), known as the Big Pipe, from sources in the Lake Simcoe Basin and the Lake Ontario Basin, prior to finalization of the STP's design and issuance of a new Certificate of Approval (Sewage Works), such that the existing loadings of nutrients and contaminants from the Duffin Creek STP are not allowed to increase, as is being proposed for STPs within the Lake Simcoe Basin;

e) develop a comprehensive, long-term Provincial strategy and regulations for STP point sources that are loadings-based as well as concentration-based, including the imposition of strict loading limits on total and soluble phosphorus, to curtail nutrient emissions from all STPs discharging into the Lake Ontario Basin;

f) prepare a comprehensive, long-term Provincial strategy governing the Lake Simcoe Basin that prevents further transfer of greater loadings of nutrients and contaminants, and associated adverse environmental impacts, via the Big Pipe, from the Lake Simcoe Basin to Lake Ontario waters and the Ajax waterfront by:

   i) establishing a finite upper limit on the volume and loadings of nutrients and contaminants associated with wastewater that are being conveyed from the Lake Simcoe Basin into Lake Ontario, in consultation with the Town;

   ii) aggressively promoting water conservation as the primary means of reducing wastewater volumes generated by growth; and

   iii) prohibiting consideration of any new YDSS connections or extensions in the Lake Simcoe Basin as options when addressing wastewater infrastructure gaps identified in the "Intergovernmental Action Plan for Simcoe County, Barrie and Orillia" to support further growth in Simcoe County; and

g) assist the Regions of Durham and York to obtain federal and provincial infrastructure funds to undertake vital technology upgrades to the Duffin Creek STP and the Ajax water supply plant and other such existing plants as the first line of defense for the Lake Ontario Basin's waters; and

2. **That the Town Clerk send this report to the Minister of the Environment, the Minister of Public Infrastructure Renewal, Durham and York Regions, Simcoe County, the Great Lakes and St. Lawrence Cities Initiative, the International Joint Commission, the Environmental Commissioner of Ontario and the other local municipalities in Durham Region.**

A copy of the report that prompted this action is attached for you information. Thank you for your prompt attention.

M. de Rond, Director of Legislative & Information Services/Town Clerk
65 Harwood Ave. S.,
Ajax, ON
L1S 3S9
905-619-2529 ext 336

copy: Minister of Public Infrastructure Renewal
Durham Region
York Region
Simcoe County
The Great Lakes and St. Lawrence Cities Initiative
International Joint Commission
Environmental Commissioner of Ontario
Municipalities in Durham Region
P. Allore, Director of Planing & Development Services
B. Hodgins, Senior Policy Planner
R. Ford, Director of Finance/Treasurer

TOWN OF AJAX
REPORT

Report To:	General Government Committee
Submitted By:	Paul Allore, MCIP, RPP Director of Planning & Development Services
Prepared By:	Barbara Hodgins, MCIP, RPP Senior Policy Planner
Subject:	**Proposed Provincial Actions to Limit Phosphorus Loadings from Sewage Treatment Plants in the Lake Simcoe Basin**
Ward(s):	All
Date of Meeting:	February 7, 2008
Reference:	Strategic Plan: Environmental Leadership

Recommendations:

1. **That the "Proposed Provincial Actions to Limit Phosphorus Loadings from Sewage Treatment Plants into Lake Simcoe" report, dated February 7, 2008, be endorsed as the Town's comments on Environmental Bill of Rights Registry Posting No. 010-2246, conveying the following recommendations to the Ministry of the Environment (MOE) requesting equitable protection of water quality in both the Lake Simcoe Basin and the Lake Ontario Basin by taking the following steps:**

   a) **conduct the appropriate studies and provide a justification for loadings of phosphorus to the Lake Simcoe Basin to ensure that the proposed regulation for sewage treatment plants (STPs) located within the Lake Simcoe Basin imposes the appropriate limits on all phosphorus discharges, including soluble phosphorus, that are sufficient to ensure the long-term protection of the water resources, recognizing the changes that have occurred to the Lake's ecosystem and associated watershed over the past few decades;**

   b) **substantially upgrade the Provincial standards governing STPs, on a regular basis, in order to recognize changes that have been and are happening to aquatic ecosystems and, specifically, to reduce the release of total phosphorus, soluble phosphorus, other nutrients and contaminants into our freshwater resources;**

   c) **move to a regulatory regime that controls the discharge from STPs based upon loadings of specific nutrients and contaminants, as is being practiced by many other regulatory jurisdictions around the world, and not based on concentrations, as is being proposed for total phosphorus in Lake Simcoe;**

d) prepare and approve a new regulation imposing much stricter limits on nutrient emissions from the expanding Duffin Creek STP, which receives wastewater collected by the York-Durham Sewage System (YDSS), known as the Big Pipe, from sources in the Lake Simcoe Basin and the Lake Ontario Basin, prior to finalization of the STP's design and issuance of a new Certificate of Approval (Sewage Works), such that the existing loadings of nutrients and contaminants from the Duffin Creek STP are not allowed to increase, as is being proposed for STPs within the Lake Simcoe Basin;

e) develop a comprehensive, long-term Provincial strategy and regulations for STP point sources that are loadings-based as well as concentration-based, including the imposition of strict loading limits on total and soluble phosphorus, to curtail nutrient emissions from all STPs discharging into the Lake Ontario Basin;

f) prepare a comprehensive, long-term Provincial strategy governing the Lake Simcoe Basin that prevents further transfer of greater loadings of nutrients and contaminants, and associated adverse environmental impacts, via the Big Pipe, from the Lake Simcoe Basin to Lake Ontario waters and the Ajax waterfront by:

i) establishing a finite upper limit on the volume and loadings of nutrients and contaminants associated with wastewater that are being conveyed from the Lake Simcoe Basin into Lake Ontario, in consultation with the Town;

ii) aggressively promoting water conservation as the primary means of reducing wastewater volumes generated by growth; and

iii) prohibiting consideration of any new YDSS connections or extensions in the Lake Simcoe Basin as options when addressing wastewater infrastructure gaps identified in the "Intergovernmental Action Plan for Simcoe County, Barrie and Orillia" to support further growth in Simcoe County; and

g) assist the Regions of Durham and York to obtain federal and provincial infrastructure funds to undertake vital technology upgrades to the Duffin Creek STP and the Ajax water supply plant and other such existing plants as the first line of defense for the Lake Ontario Basin's waters; and

2. That the Town Clerk send this report to the Minister of the Environment, the Minister of Public Infrastructure Renewal, Durham and York Regions, Simcoe County and the other local municipalities in Durham Region.

Background:

The purpose of this report is to provide comments to the Ministry of the Environment (MOE) by February 4, 2008 on Environmental Bill of Rights Posting No 010-2246 regarding:

1) a proposed regulation imposing short-term limits on the discharge of total phosphorus from sewage treatment plants (STP) within the Lake Simcoe Basin until March 31, 2009;

2) an intended long-term Provincial framework to manage sources of all types of phosphorus, currently regulated and yet to be regulated, within the Lake Simcoe Basin to be prepared by March 31, 2009; and

3) identify the Town's serious concern about the escalating adverse environmental impacts of the expanding Duffin Creek STP on the Lake Ontario waters and the Ajax waterfront, resulting from further growth in the YDSS sewershed, which already conveys wastewater from the Lake Simcoe Basin to Lake Ontario, and recommend actions that should be taken to protect both Lake Simcoe's and Lake Ontario's freshwaters.

Attachment 1 to this report provides the subject EBR Posting with the following information:

- the MOE's proposed regulation, under the Ontario Water Resources Act, and proposed phosphorus loading limits on existing STPs located in the Lake Simcoe Basin;
- a proposed prohibition on MOE's issuance of approval for new STPs within the Lake Simcoe Basin until March 31, 2009 for STPs that would discharge to the surface waters of the Basin;
- performance standards for new stormwater facilities that would service new developments; and
- a map of the Lake Simcoe Basin, which is located north of the crest of the Oak Ridges Moraine in Durham and York Regions and Simcoe County.

Discussion:

The basic premise of this staff report is that the MOE should treat the Lake Ontario and Lake Simcoe Basins equally, and with greater respect, in order to restore the quality of the freshwater resources that Ajax and other Great Lakes communities need to sustain healthy communities.

The Lake Ontario Basin is home to millions of Canadians and Americans and the Lake surface itself extends over almost 19,000 square kilometres. The Province's 2006 Growth Plan for the Greater Golden Horseshoe projects tremendous population growth and intensified development primarily within this Basin, despite identifying the need for billions of dollars beyond current levels of investment in infrastructure. The highest points in the Oak Ridges Moraine form the natural drainage divide between the Lake Ontario Basin and the Lake Simcoe Basin to the north.

In comparison, Lake Simcoe, which is located north of the Greater Golden Horseshoe and the Greenbelt and drains to the Lake Huron Basin, has a surface area of less than 750 square

kilometres and has population of approximately 400,000 persons, including seasonal cottagers. Attachment 2 shows the relative sizes of the two lakes.

In the Lake Simcoe Basin, much like the Lake Ontario Basin, there is considerable, mounting pressure for development outside the Province's Greenbelt. The Province is currently working on a Growth Plan for Simcoe County, Barrie and Orillia, despite the MOE's identification of large "gaps" in the municipal water and wastewater infrastructure need to support growth. The problems being experienced in the Lake Simcoe Basin are also evident, but at a much larger scale, in the Lake Ontario Basin.

Staff are concerned that the Province will continue to take its traditional approach to servicing growth in the Lake Simcoe Basin by extending the man-made York-Durham Sewage System (YDSS), also known as the "Big Pipe" further to collect and convey even larger volumes of nutrient-laden wastewater and other pollutants from parts of Simcoe County, in addition to York Region's communities to the Duffin Creek STP on the north shore of Lake Ontario near Ajax. See Attachment 3. Presently, the Big Pipe carries wastewater through existing communities, the Greenbelt, and under the Oak Ridges Moraine, to the Duffin Creek STP where, following treatment, wastewater is released in great, ever increasing volumes with proportionately higher loadings of nutrients and contaminants into Lake Ontario waters.

The Duffin Creek STP, one of the largest STPs in Canada prior to its current Stage 3 (of 4) expansion, has long been identified as a major point source of nutrients[1] and potentially other contaminants in the Lake Ontario Basin, emitting effluents through a submerged diffuser pipe, perforated by exit portals, within one kilometre of the Lake Ontario shoreline close to the Ajax waterfront.

Consequently, with respect to the subject EBR Posting, staff believe the MOE's proposed actions with respect to phosphorus emissions from STPs in the Lake Simcoe Basin should also be applied to emissions from STPs in the Lake Ontario Basin. Importantly, the proposed limit should be much stricter and encompass a wider range of forms phosphorus and other contaminants than proposed.

Phosphorus and MOE Guidelines

Generally, there are two types of phosphorus:

1) Total Phosphorus - analyzed to detect all phosphorus present in a water sample, though much of this phosphorus may be bound to particulates or present in particulate form and thus not readily biologically available. Guidelines are usually set for this total phosphorus value, as biological and physical/chemical processes under the right conditions can transform phosphorus between soluble (readily biologically available) and insoluble forms. The current MOE guideline is 20 micrograms per litre (ug/L) total phosphorus present in the water column for protection of surface waters; and

2) Soluble Phosphorus - contributes directly to algae growth as the phosphorus has to be in a soluble form to be taken up by algae. Concentrations as low as 1 ug/L are sufficient to

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[1] Lake-wide Management Plan (LaMP) for Lake Ontario, Figure 3-1 and Table 3-6, May 1998.

supply the phosphorus that algae like *Cladophora* need for unrestricted growth. Presently, there is no MOE guideline for soluble phosphorus[2].

Total phosphorus and soluble phosphorus also occur in many chemical forms in freshwater. A number of sources of phosphorus to Lake Ontario are covered by MOE loading limits, and some of these, such as STPs, can be more easily controlled than others.

For example, STP discharges (point sources) can be reduced using better treatment technologies. The best available technology should be able to reduce discharges of phosphorus to well below the current MOE standard set in Certificates of Approval for many STPs discharging to our lakes and waterways. Conversely, releases of phosphorus from lake sediments that have been building up over many decades of discharge of high levels of phosphorus from past practices (non-point sources) cannot be controlled as easily.

Over the past century, large quantities of phosphorus have been discharged into Lake Ontario and other Great Lakes and smaller lakes such as Lake Simcoe, and lake sediments have been acting as a buffer by absorbing the phosphorus. However, when organic matter in the lake settles onto the sediments and decays, lake sediments eventually turn anaerobic. This results in sediment releasing phosphorus into the overlying waters. The amount of phosphorus contributed from this source is highly dependant upon the past history of phosphorus loadings to the sediments and the seasonal biogeochemistry of the sediments.

Since the 1970's, scientific studies have confirmed that phosphorus from STPs contribute to the prolific growth of aquatic plants and algae. An Environment Canada publication[3] identified STP effluents, as well as algal toxins and nutrients (phosphorus and nitrogen), and other sources, as threats to our drinking water supplies and aquatic ecosystem health. It noted that the toxicity of STP effluent depends on factors including the size and characteristics of the sewershed.

There are more than 40 STPs located along the shore of Lake Ontario, 75% of which are located in Ontario and concentrated toward the westerly portion of the north shore. These STPS vary in age and many are operating to meet site-specific MOE requirements. There is concern that approximately half of the total phosphorus discharged from the Duffin Creek STP is in the form of soluble phosphorus, which can have a direct and immediate effect on local algae growth[4].

The Lake Simcoe Basin

The smaller Lake Simcoe waterbody is characterized by extensive nuisance aquatic plants[5], including algae, due to inputs of nutrients from STPs and other sources. Algae has been accumulating along waterfronts, beaches and marinas and detrimentally affecting recreational

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2 Dr. Donald Lush, Senior Ecologist, EcoMetrix.

3 Threats to Sources of Drinking Water and Aquatic Ecosystem Health in Canada, 2001. National Water Research Institute, Burlington, Ontario. Scientific Assessment Report Series No. 1.

4 Dr. Donald Lush, Senior Ecologist, EcoMetrix.

5 Lake Simcoe Environmental Management Strategy.

activities, although extensive monitoring and many restorative works have been undertaken. In addition, zebra mussels consume particulate phosphorus (phosphorus that is not readily available to algae) and excrete it as soluble phosphorus, which is readily taken up by algae, promoting algae growth, as noted in a recent study[6]. STPs release various forms of phosphorus and other nutrients.

The EBR posting proposes a 12-month rolling limit on phosphorus loadings from STPs to Lake Simcoe. This proposed loading limit is a good start.

Unfortunately, the EBR posting does not provide background reports that explain how this 12-month rolling limit fits into the overall picture and why 7 tonnes per year is the appropriate limit. EBR staff indicated that no such reports are available. The proposed 12-month rolling limit may be achievable at existing STPs, but higher environmental standards could be phased in to achieve better results in the next five years.

The MOE's objective should be to ensure wastewater is better treated at STPs within the Lake Simcoe Basin and re-released to Lake Simcoe and its tributaries in a condition that improves existing water quality. This action would support reduction of current inter-basin nutrient and other contaminant transfers to Lake Ontario via the YDSS.

Recommendation: *That the Ministry conduct the appropriate studies and provide a justification for loadings of phosphorus to the Lake Simcoe Basin to ensure that the proposed regulation for sewage treatment plants (STPs) located within the Lake Simcoe Basin imposes the appropriate limits on all phosphorus discharges, including soluble phosphorus, that are sufficient to ensure the long-term protection of the water resources, recognizing the changes that have occurred to the Lake's ecosystem and associated watershed over the past few decades.*

The Lake Ontario Basin

Although water quality has generally improved in the main offshore Lake Ontario Basin waters over the past decade, adverse environmental effects are occurring within the Lake's nearshore zone within which the majority of the Basin's population interact with the Lake in terms of recreation and water supplies.

Lake Ontario plays a vital role in the quality of life for Ajax residents and millions of people in other Great Lakes communities within its Basin. Less than one per cent of the Lake's waters are renewed annually by precipitation and runoff. This means pollutants discharged into the Basin stay there within the water column and, especially, the sediments and can become more concentrated over time[7].

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6 "Research into the Cause and Possible Control Methods of Increased Growth of Periphyton in the Western Basin of Lake Ontario: Summary Final Report for Ontario Water Works Research Consortium" by the University of Waterloo, 2006

7 Canada-Ontario Agreement respecting the Great Lakes Basin Agreement, 2002.

For decades, many municipal STPs, like the Duffin Creek STP located immediately adjacent to the westerly limit of Ajax, have been discharging increasing volumes of treated effluent and associated loadings of nutrients and other contaminants through submerged outfall/diffusers into Lake Ontario. During the environmental assessment process for the Duffin Creek STP expansion, staff were advised that MOE's standards for STPs were not expected to be raised for another 25 years (or until 2030). MOE standards for this STP are based on concentrations and not loadings, thus loadings of nutrients and other contaminants can just continue to increase and yet the STP is still compliant with these standards.

Some STPs and their outfalls, such as the Duffin Creek STP, are located close to creek mouths, where large volumes of sediment are released from Basin lands into the Lake. The Duffin Creek STP is situated beside the mouth of Duffins Creek watershed. In such locations within Lake Ontario, extensive "reservoirs" of phosphorus-laden sediment deposits may have accumulated on the Lake bottom and may promote continued local growth of algae indefinitely.

When algae is detached by wind and wave action, it is carried into nearshore waters and onto the shoreline, where it decomposes and generates odours that discourage people's enjoyment of waterfronts.

The Province's governing standards for sewage treatment at STPs should be concentration-based and loading-based, such that dilution is not used to solve pollution issues, and continuously upgraded, as better information on contaminants and treatment technologies becomes available, to reduce the release of phosphorus (including soluble phosphorus limits) and other nutrients and contaminants emerging in wastewater from residential, commercial and industrial sources.

Recommendation: *That the Ministry substantially upgrade the Provincial standards governing STPs on a regular basis, to reduce the release of total phosphorus, soluble phosphorus, other nutrients and contaminants into our freshwater resources.*

The Ajax Waterfront

The Town of Ajax is a community dependent upon the waters of Lake Ontario, not only as our primary source of drinking water but as an important asset providing an attractive living environment with Lake-based recreational opportunities. Environmental degradation of the nearshore waters of Lake Ontario has become more evident over the past decade.

The Lake's ecology has changed substantially. With the invasion of zebra and quagga mussels, sunlight penetrates farther into the Lake at depths of up to approximately 7 metres. This environmental condition, combined with the mussels increasing the amounts of soluble phosphorus available in this environment, is encouraging the growth of large, extensive beds of attached algae (*Cladophora*) on the nearshore Lake Bottom. Smelly, decaying algae blankets our shoreline year-round.

Excessive algae growth also plagues the Pickering and Darlington Nuclear Plants and water supply plants by clogging water intake pipes, resulting in costly service interruptions and expensive preventative and de-clogging efforts.

Curtail Major Point Sources

In 2007, the MOE approved the Regions of Durham and York's proposal to double the size of the flows from the existing Duffin Creek STP. Currently one of the largest STPs in the Lake Ontario Basin[8], it is situated in Pickering, due west of the Ajax waterfront. Approval was subject to additional Ministerial conditions to support future growth primarily in York Region, which lies in both the Lake Simcoe Basin and the Lake Ontario Basin.

Through the associated environmental assessment to expand this STP, the MOE approved an expansion from a rated capacity of 420 million litres per day to 630 million litres per day. This STP treats wastewater generated by industrial, commercial and residential uses across a vast, highly urbanized sewershed that extends from Ajax in the east to Peel Region in the west and north into the Lake Simcoe Basin. In the approval, the MOE did impose some further restrictions on the STP's Total Phosphorus loadings. Future expansion of this STP (Stage 4) is on the books.

Unfortunately, the MOE's recent approval did not reduce the Duffin Creek STP's phosphorus loading limit below the level at which it is currently operating, or to a lower limit that has proven to be achievable at another STP at the west end of Lake Ontario. Also, the MOE did not establish lower limits for all types of nutrients (e.g. all forms of phosphorus and nitrogen). Therefore, the concentration of Soluble Phosphorus and total volume of the phosphorus load released into Lake Ontario from this STP's phosphorus load is substantial and will continue to escalate over time.

As a result, the approved Duffin Creek STP (Stage 3 of 4) will present an even larger point source of phosphorus in Lake Ontario waters. Given these actions, extensive algae growth and degraded conditions can be expected to continue along the Ajax shoreline. In the absence of a total nutrient loading justification for the waters of the Lake Ontario Basin, and local shoreline regions such as the Ajax shoreline, and how the loadings from this STP and others fit into this picture, the MOE should be acting in a prudent manner, imposing on this STP a regulation containing more restrictive nutrient limits prior to finalization of the STP design and MOE's issuance of a new Certificate of Approval (Sewage Works).

Recommendation: *That the Ministry move to a regulatory regime that controls the discharge from STPs based on loadings of specified nutrients and contaminants, as is being practiced by many other regulatory jurisdictions around the world, and not based on concentrations, as is being proposed for total phosphorus in Lake Simcoe.*

Recommendation: *That the Ministry prepare and approve a new regulation imposing much stricter limits on nutrient emissions from the expanding Duffin Creek STP, which receives wastewater collected by the York-Durham Sewage System (YDSS), known as the Big Pipe, from sources in the Lake Simcoe Basin and the Lake Ontario Basin, prior to finalization of the STP's design and issuance of a new Certificate of Approval (Sewage Works), such that the existing loadings of nutrients and contaminants from the Duffin Creek STP are not allowed to increase, as is being proposed for STPs within the Lake Simcoe Basin.*

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8 Lake Ontario Lakewide Management Plan, 1998.

Protection of Lake Ontario Waters

The subject regulation indicates the Ministry is willing to lead by taking action to improve certain aspects of Lake Simcoe waters.

The approach proposed in the subject regulation may have positive effects on Lake Simcoe, but should be applied, with stricter standards, to the Lake Ontario Basin to protect the valuable freshwater resources that sustain the high quality of life enjoyed by residents of Ajax and the Greater Golden Horseshoe and our valued aquatic habitat.

Therefore, it is MOE's responsibility to take more protective actions now to reduce STP emissions of phosphorus into the Lake Ontario Basin too, as the Province has planned a great deal of growth and development in shoreline communities in the coming decades. The Ministry need not wait for years while more nutrient research and monitoring studies and costly lake-modeling exercises are completed to do so. Loadings from STP point sources can begin to be better controlled now, supported by sustained funding.

Otherwise, predictably, existing Lake water quality will continue to decline.

Recommendation: *That the Ministry develop a comprehensive, long-term Provincial strategy and regulations for STP point sources that are loadings-based as well as concentration-based, including the imposition of strict loading limits on total and soluble phosphorus, to curtail nutrient emissions from all STPs discharging into the Lake Ontario Basin.*

Planning for Growth and Infrastructure

The Provincial Policy Statement (PPS 2005) states that the wise use and management of our water resources in a sustainable manner over the long-term is a "key provincial interest" - to protect ecological processes and public health and safety, minimize environmental and social impacts, and meet its long-term needs. Staff support this policy approach, and respectfully suggest that the Province has not placed sufficient emphasis on this in its subsequent growth planning initiatives.

The Province's "Growth Plan for the Greater Golden Horseshoe (GGH Growth Plan)", prepared by the Ministry of Public Infrastructure Renewal (PIR) and approved in June 2006, concentrates population growth and economic development primarily into watersheds draining into Lake Ontario. The GGH Growth Plan does not recognize or address the pressing societal needs for more protective Provincial environmental standards for our freshwater resources and greater investment in water and wastewater infrastructure and technologies necessary to support this growth without further environmental degradation of our water resources.

While the GGH Growth Plan was being prepared, the Ministry of Municipal Affairs and Housing was undertaking with Simcoe County municipalities an "Intergovernmental Action Plan for Simcoe, Barrie and Orillia" (IGAP). Simcoe County generally drains to Lake Huron via the Lake Simcoe Basin and the Severn and Nottawasaga Rivers. Sewer and water services are provided by the local municipalities. In 2006, the Province completed the IGAP Study that generally concluded that there is a substantial gap between the amount of growth proposed and the availability of sufficient water and wastewater infrastructure, and that local waterways cannot dilute higher levels of STP effluent without compromising Lake Simcoe water quality.

Notwithstanding these major infrastructure hurdles, Provincial staff advise that Simcoe County is on the verge of completing a plan for substantially more growth. Similar plans are underway in Barrie and Orillia. Other ongoing initiatives in the Lake Simcoe Basin include:

- boundary and servicing negotiations between Barrie and Innisfil, and evaluation of development proposals and Ontario Municipal Board appeals in Innisfil (Big Bay Point), New Tecumseth (Beeton) and Georgina (Keswick Business Park); and

- the emerging long-term Water and Wastewater Master Plan being prepared by York Region.

In his most recent annual report, the Environmental Commissioner of Ontario (ECO)[9] warned the following aspects of the GGH Growth Plan work against the provision of sustainable communities:

- promotion of urban growth and intensification in watersheds where communities are already struggling with water supply and waste treatment issues;

- no requirement that population allocations be appropriately adjusted in communities where watersheds are close to carrying capacity[10];

- elevation of the goal of accommodating population increases, with economic growth as the central driver, over the need to live within ecosystem limits; and

- promotion of artificial extensions of water and wastewater capacity to communities in watersheds close to carrying capacity through major infrastructure projects designed to pipe water in from outside the watershed and to pipe wastewater back out.

Reliance on long-distance transport of water and wastewater has rendered communities in York Region and the Lake Simcoe Basin more vulnerable to system failures and less self-sufficient. The Province needs to change its approach to providing the underlying infrastructure required for growth planning in order to develop much more sustainable communities, and work effectively to reverse the adverse environmental impacts of existing large-scale infrastructure projects.

Further, Ajax also needs the MOE to establish an upper, finite limit to the volume of wastewater and associated loadings of nutrients and other contaminants permitted to be conveyed from the Lake Simcoe Basin, via the YDSS, including the Duffin Creek STP, into Lake Ontario waters.

Due to the Province's decision in the 1960's to construct the Duffin Creek STP and its submerged outfall constructed close to Ajax, Ajax's portion of the Lake Ontario shoreline has been adversely impacted for decades by the STP's non-stop, ever-increasing, constant outflow and meandering plume of municipal effluent. The MOE is responsible for establishing the environmental standards to be met in order for the Regions to operate this STP. To achieve marked improvement in existing nearshore conditions and protect our water supply, Ajax needs more action on the part of the MOE to provide additional protections in both the Duffin Creek STP and the Ajax water supply plant.

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9 Annual Report 2006-2007 by the Environmental Commissioner of Ontario, November 2007.

10 "Carrying capacity" is defined as the maximum population size of a given species that an area can support without reducing its ability to support the same species in the future".

As the Province is participating in Simcoe County's growth planning, including consideration of servicing alternatives to support additional growth in the Lake Simcoe Basin, the Town needs the MOE to ensure that chosen wastewater infrastructure schemes prevent further transfer of STP wastewater and the associated adverse environmental impacts from the Lake Simcoe Basin into Lake Ontario waters and the Ajax waterfront. Consideration of any new YDSS connections or extensions in the Lake Simcoe Basin should be prohibited.

Recommendation: *That the Ministry prepare a comprehensive, long-term Provincial strategy governing the Lake Simcoe Basin that prevents further transfer of greater loadings of nutrients and contaminants, and associated adverse environmental impacts, via the Big Pipe, from the Lake Simcoe Basin to Lake Ontario waters and the Ajax waterfront by:*

i) establishing a finite upper limit on the volume and loadings of nutrients and contaminants associated with wastewater that are being conveyed from the Lake Simcoe Basin into Lake Ontario, in consultation with the Town;

ii) aggressively promoting water conservation as the primary means of reducing wastewater volumes generated by population growth and thus requiring treatment; and

iii) prohibiting consideration of any new YDSS connections or extensions in the Lake Simcoe Basin as options when addressing wastewater infrastructure gaps identified in the "Intergovernmental Action Plan for Simcoe County, Barrie and Orillia" to support further growth in Simcoe County.

First Line of Defense

The long-standing premise that Lake Ontario waters can continue to be used and reused for many purposes, including dispersion of increasing volumes (millions of litres per day) and varieties of effluent from STPs and other sources with impunity is unacceptable. The Lake's changing ecology and declining environmental conditions are evident along the shoreline in Ajax.

To promote an effective multi-barrier approach to protecting our water resources, senior governments should be providing municipalities with funds to install the best possible treatment facilities and technologies in both existing and new STPs and water supply plants (WSPs).

STPs and WSPs are interspersed along the Lake Ontario shoreline and inland, where STP outfalls and WSP intakes are sometimes relatively close together, as is the case at Ajax (e.g. the Duffin Creek STP and the Ajax WSP). MOE should assist Durham and York Regions to obtain federal and provincial infrastructure funds to undertake vital technology upgrades to both STPs and WSPs as the first line of defense for public health and our fresh water resources. Clearly, the solution lies in governments working together for the greater public benefit.

Recommendation: *That the Ministry assist Durham and York Regions to obtain federal and provincial infrastructure funds to undertake vital technology upgrades to the*

Duffin Creek STP, other STPs and water supply plants as the first line of defense for Lake Ontario's freshwater resources.

Financial Implications:

None.

Communication Issues:

None.

Conclusions:

As a responsible Great Lakes community, Ajax is taking actions to curb our water consumption, and to identify and curtail nutrient emissions from stormwater it controls into Lake Ontario. Currently applied Provincial standards are obsolete and do not protect our shared freshwater resources from the harmful effects of further growth in Southern Ontario.

It is strongly recommended that the MOE act on this report's recommendations, which include imposing tighter restrictions now on nutrient emissions from the large point sources presented by STPs in both the Lake Ontario and Lake Simcoe Basins, based on scientific information available now.

Within the next decade, Ajax residents should be able to rely on Lake Ontario for its water supply and for Lake-based recreational activities, rather than traveling long distances to inland lakes and, in the process, contributing to the need for additional transportation infrastructure and greenhouse gas emissions.

Barbara Hodgins, MCIP, RPP - Senior Policy Planner

Gary Muller, MCIP, RPP - Manager of Planning

Paul Allore, MCIP, RPP.- Director, Planning & Development Services

Attachment 1

Environmental Bill of Rights Registry Posting No. 010-2246

Posted by the Ministry of the Environment on December 6, 2007 for a 60-day public review and comment period ending February 4, 2008.

Description of Regulation:

The Ontario Ministry of Environment is proposing a regulation under the Ontario Water Resources Act (OWRA). The proposed regulation will govern point source discharges in the Lake Simcoe Basin for the purpose of controlling total phosphorus loadings into the Lake from those facilities. Although this proposed regulation focuses on point sources of phosphorus that are currently regulated, it is recognized that the long-term strategy for Lake Simcoe will need to address all sources of phosphorus, both those that are currently regulated and those that are not. The regulation loading limits will be in place from the time the regulation takes effect until March 31, 2009 during which time the Government intends to develop a comprehensive framework to provide for the long-term management of both point sources and non-point sources within the Basin.

The proposed regulation will define the Lake Simcoe Basin as including Lake Simcoe and the lands and waters of Ontario which drain into Lake Simcoe. A copy of a map of the Lake Simcoe Drainage Basin is attached. However, it is proposed that the definition in the regulation would be used to determine the extent of the regulation, not the map.

Phosphorus Loading Limits for Existing Sewage Treatment Plants

The proposed regulation would impose a rolling 12-month phosphorus loading limit on each of the 14 existing municipal sewage treatment plants and the one industrial sewage treatment plant located in the Lake Simcoe Basin that contributes phosphorus to the Lake. The proposed regulation would apply from the date it comes into effect until March 31st, 2009. Each of these plants is governed by a sewage works approval issued under section 53 of the Act. The approval for each plant contains detailed requirements for monitoring and reporting, and discharge limits, including phosphorus loading limits. The proposed new phosphorus loading limit for each plant would be listed in the regulation. The proposed loading limits for phosphorus imposed by the regulation would be in addition to any requirements in the plant's approval; meaning all other provisions of a plant's approval would continue to apply.

The phosphorus loading limit that would be imposed on each plant is to be based on the following two parameters. The first parameter is the projected flow of sewage that is anticipated at the sewage treatment plant for any 12-month period from the time the regulation takes effect until March 31, 2009. A small margin would be added to this value to accommodate any planned development requiring sewage capacity shortly after this period (i.e. development proposals that already have appropriate approvals). The projected flow amount for each sewage treatment plant will be based on a historical analysis of the actual flow data for that plant as reported to the Ministry and information relating to short-term capacity requirements. The intent of this approach is to set strict limits and at the same time ensure that adequate capacity is available only to service approved and existing development while a long-term Lake Simcoe strategy is developed.

The second parameter is the plant's engineering design concentration for phosphorus. This concentration is the level of performance that the sewage treatment plant is designed to achieve. A phosphorus loading limit that is based on the plant's engineering design concentration will ensure that the plant is operated in a manner that, on average, removes the amount of phosphorus that the treatment technology has the capacity to reliably achieve.

The two parameters, flow and phosphorus concentration, will then be multiplied together to derive the 12-month phosphorus loading limit for each of the 15 sewage treatment plants. For many of the 15 sewage treatment plants, the new phosphorus loading limits will be significantly lower than the enforceable limits currently specified in approvals.

Taken collectively, the 15 existing sewage treatment plants within the Basin are legally permitted under their current respective OWRA sewage works approvals to discharge up to 12.5 tonnes of phosphorus each year. As an interim cap, it is proposed that the new basin-wide permitted aggregate phosphorus loading for these existing sewage treatment plants be no greater than 7.5 tonnes/year for the period of the regulation, a reduction in permitted loading of approximately 5.0 tonnes/year for that period.

The proposed regulation will require the operator of each of the existing sewage treatment plants to record the total amount of phosphorus discharged from the plant during each month the regulation is in effect. The proposed regulation will require that such information be kept at the plant and be provided to a provincial officer upon request. The proposed regulation will require the operator of each of the existing sewage treatment plants to prepare and submit a report to the Director (i.e. Ministry of the Environment District Manager) by June 30, 2009 that sets out each monthly phosphorus loading amount for the period of the regulation and the total phosphorus loading amount from the

plant during each 12-month period encompassed by the effective period of the regulation (i.e. rolling 12-month total loadings). This report would have to be prepared in a form and manner approved by the Director.

Prohibition on New Sewage Treatment Plants

The proposed regulation will prohibit the Director from issuing an approval under section 53 of the Act for the establishment of a new sewage treatment plant within the Lake Simcoe Basin that discharges sewage to the surface waters of the Basin, if the discharge from the plant will result in the addition of phosphorus loadings to the waters of the Basin. This prohibition will cover applications for an approval to establish a new sewage treatment plant by any person, including the Crown and a municipality. This provision would be in effect until March 31, 2009.

New Stormwater Management Facilities That Serve New Development

The proposed regulation will place a restriction on the Director's authority to issue an approval under section 53 for the establishment of a new sewage works designed to manage stormwater from a new development within the Lake Simcoe Basin. The regulation would restrict the Director from issuing an approval for such proposed stormwater management facilities unless the Director is satisfied that the proposed facilities will meet the "enhanced protection level" specified in chapter 3 of the Ministry's Stormwater Management Planning and Design Manual 2003. The "enhanced protection level" is the highest protection level that is mandated by the Manual for a stormwater management facility. This provision of the proposed regulation would not apply to the construction of new stormwater facilities that are designed to service existing development or a new small infill development within an existing development. This provision would be in effect until March 31, 2009.

Purpose of Regulation:

The proposed regulation will govern point source discharges in the Lake Simcoe Basin for the purpose of controlling total phosphorus loadings into the Lake from those facilities. The regulation will govern point source discharges in the Lake Simcoe Basin in three ways. First, it will limit the phosphorus loadings from existing municipal and industrial sewage treatment plants within the Basin. Second, it will prohibit the Director from approving the establishment of a new municipal or industrial sewage treatment plant in the Basin. Third, it will impose stringent performance standards on new stormwater facilities that service new developments located in the Basin.

Other Information:

Ontario is committed to taking strong action to protect the health of Lake Simcoe, and in doing so:

- build on the good science and planning work already done by the province, municipalities, the Lake Simcoe Region Conservation Authority, and community groups;
- set strict limits on pollutants such as phosphorus;
- require stringent sewage treatment;
- implement a long-term governance structure that supports comprehensive Lake Simcoe environmental protection; and
- promote recreational opportunities while protecting the health of the lake.

The government will develop and implement this initiative in cooperation with First Nations, municipalities, the conservation authority, local residents, cottagers, farmers, environment groups, developers, and the tourism industry.

Background on Lake Simcoe

Lake Simcoe is located in central, southern Ontario in close proximity to more than half the population of the province. Aside from the Great Lakes, it is the largest lake in southern Ontario. Lake Simcoe is a complex ecosystem that is home to 58 different warm and coldwater fish species, as well as many other species. In addition to being a significant natural heritage feature, Lake Simcoe supports a thriving tourism industry and provides many recreational opportunities. The lake also provides drinking water for municipalities and is used to assimilate treated wastewater.

The drainage basin, or the area of land which drains into the lake, sweeps north from the Oak Ridges Moraine through parts of York and Durham Regions, the Cities of Kawartha Lakes, Orillia, and Barrie, and the County of Simcoe, crossing 23 municipalities. The drainage basin is home to over 350,000 permanent residents and an estimated 50,000 cottagers.

Scientific studies in the 1970s and 80s by the Ministry of the Environment, the Ministry of Natural Resources, the Ministry of Agriculture, Food, and Rural Affairs, and the Lake Simcoe Region Conservation Authority identified phosphorus enrichment of the lake as a key water quality problem. Phosphorus inputs from urban stormwater runoff, sewage treatment plant effluents, agricultural practices and other sources, caused prolific growth of aquatic plants

and algae and resulted in levels of dissolved oxygen in the water which were too low to support the successful natural reproduction of cold water fish, such as lake trout, lake whitefish, and lake herring.

In response, in 1990, the Lake Simcoe Environmental Management Strategy (LSEMS) partnership was initiated. The goal of the LSEMS is to improve and protect the health of the Lake Simcoe watershed ecosystem and improve associated recreational opportunities by:

- Restoring self sustaining coldwater fisheries,
- Improving water quality,
- Reducing phosphorus loads to Lake Simcoe, and
- Protecting natural heritage features and functions.

Since its inception, the LSEMS has made steady progress:

- lake water quality targets for phosphorus and dissolved oxygen have been established;
- the amount of phosphorus entering the lake each year has been reduced;
- levels of dissolved oxygen in the lake's deep water zones (critical for cold water fish survival) have increased; and
- there is evidence that a small number of naturally produced wild lake trout are able to survive.

However, the cold water fishery is still not able to sustain itself naturally. Aquatic plants can accumulate at waterfront areas, beaches, and marinas and, in excess, can have negative impacts on recreational activities. Invasive species, such as zebra mussels, have altered the way the lake ecosystem functions.

In order to further improve the health of the Lake, phosphorus levels need to further decrease. Future population growth that is planned within the Lake Simcoe Basin could add additional stress to the lake ecosystem. Recent studies have modeled potential phosphorus increases to the lake and tributaries from planned development and indicate the need for comprehensive basin-wide management of phosphorus. Without such management it is expected that phosphorus levels in Lake Simcoe will increase, eliminating the progress made in recent years.

Developing a Lake Simcoe Strategy

Over the next year, the Ministry will be developing its strategy to protect Lake Simcoe, including considering elements that may be incorporated into Lake Simcoe protection legislation. The province will engage First Nations in this initiative. The province will also consult with municipalities, the Lake Simcoe Region Conservation Authority, local residents, cottagers, farmers, environment groups, developers, and the tourism industry, providing opportunities for all parties to provide ideas and concerns, and to become involved in developing this strategy. The province is establishing a science advisory panel and intends to establish a multi-stakeholder working group to assist in this task. Details about the consultation process and opportunities for involvement will be provided early in 2008.

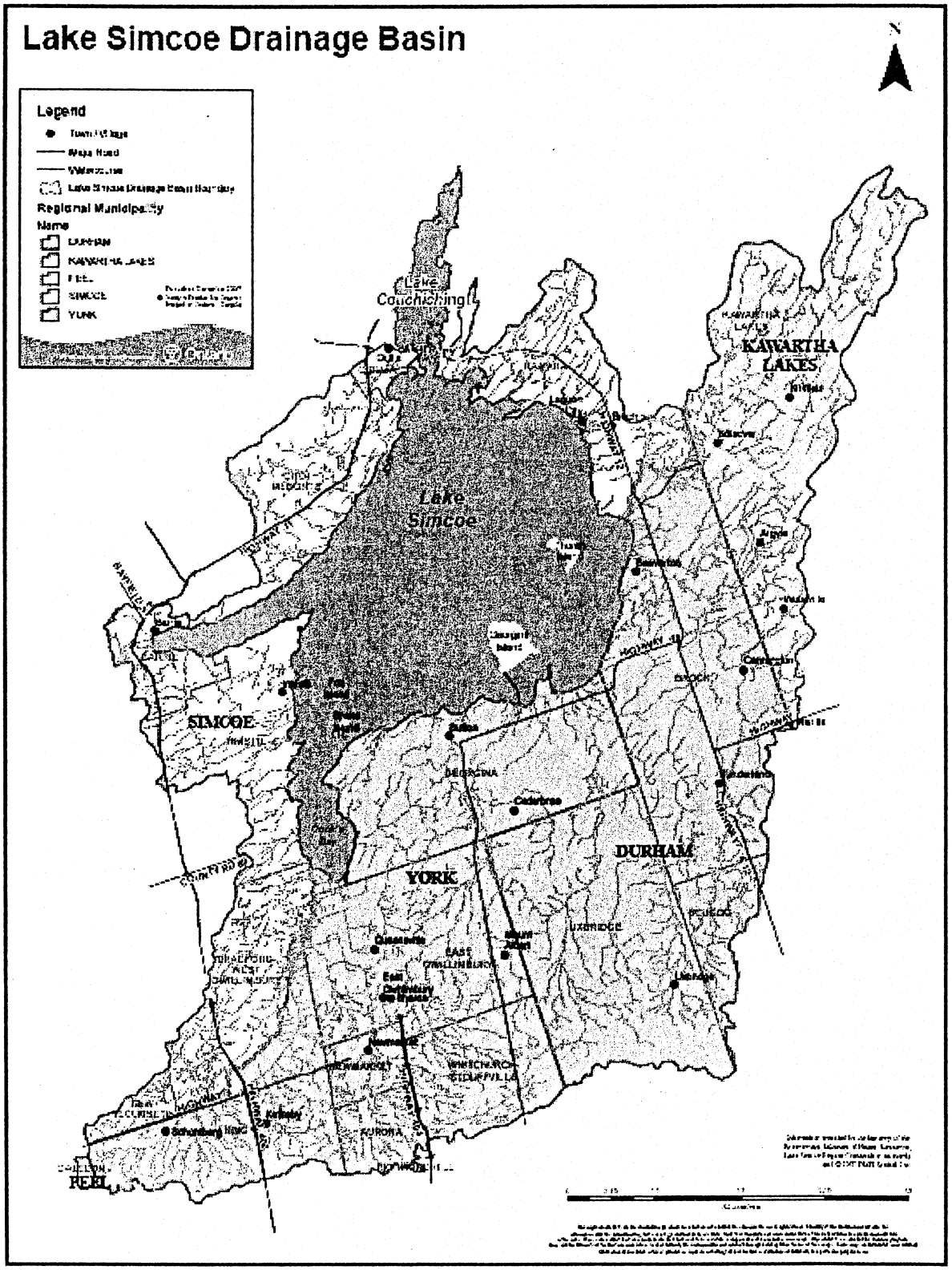
While this strategy is being developed, the Ministry of the Environment is proposing to take interim actions to prevent deterioration of the Lake. One of these interim actions is to place limits on point sources of phosphorus into Lake Simcoe and its basin tributaries, specifically on municipal and industrial sewage treatment plants. The interim actions would also prohibit the establishment of new industrial or municipal sewage treatment plants in the Basin and impose standards on new stormwater facilities that service new developments located in the Basin. The Ministry is also moving forward on several studies supporting long-term management of non-point sources of phosphorus. Taken together these form an interim approach to managing sources of phosphorus entering Lake Simcoe.

The Lake Simcoe protection strategy being developed over the next year will seek to put in place a framework that protects the quality and quantity of Lake Simcoe waters and supports a healthy lake ecosystem. As part of this framework, phosphorus management will be addressed in a comprehensive manner, not only including municipal and industrial sewage discharges, but also setting out strategies to address urban and rural run-off, septic systems and other sources of phosphorus. Strategies could include regulatory controls, remedial programs, nutrient off-setting or trading programs and other management tools. Interim limits on phosphorus loadings that may be put in place would also be reviewed through development of this strategy.

The Ministry of the Environment is currently seeking comment on the proposal to place in regulation interim limits on point sources of phosphorus within the Lake Simcoe Basin.

Public Consultation:

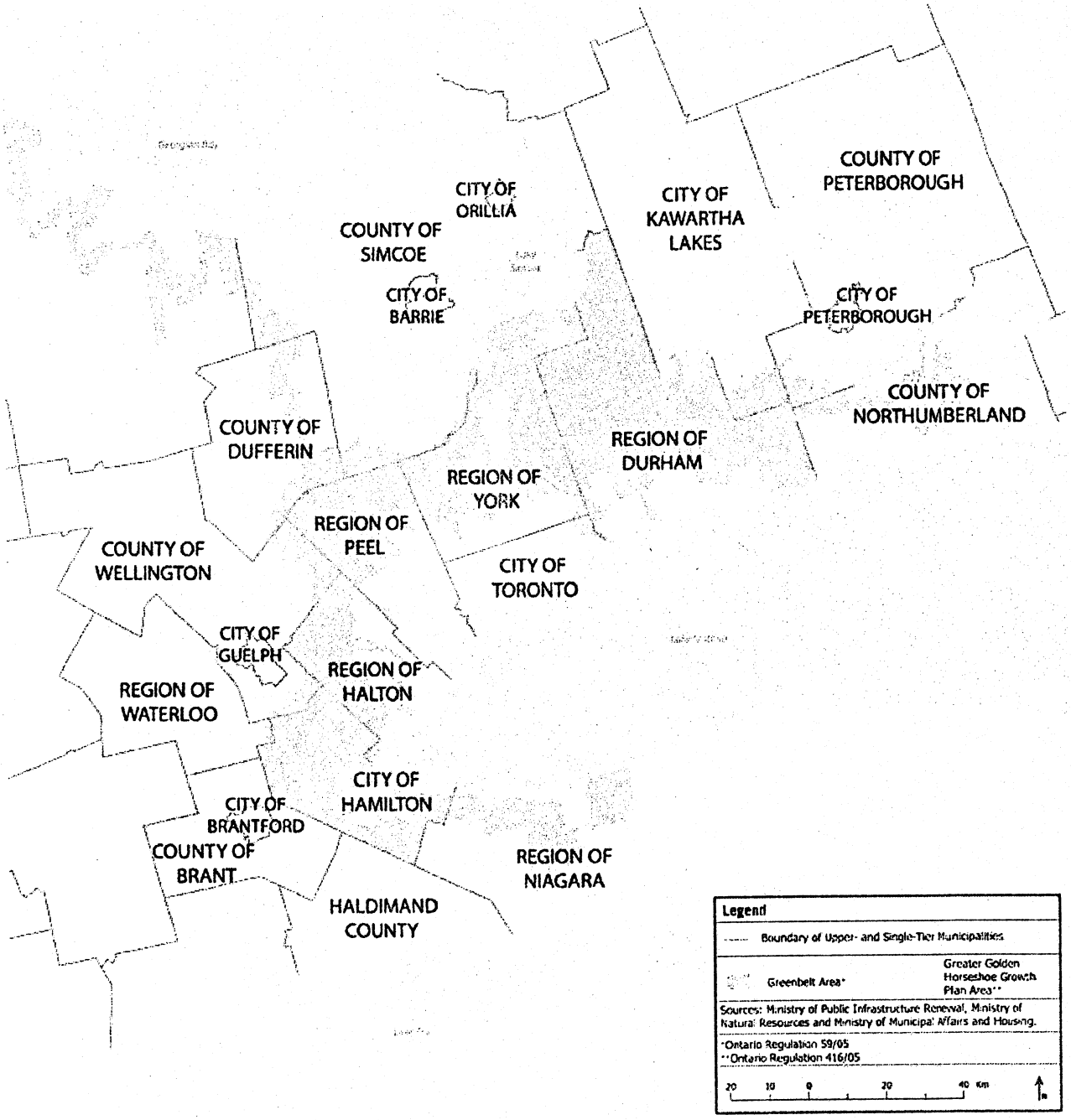
This proposal has been posted for a 60 day public review and comment period starting December 06, 2007. If you have any questions, or would like to submit your comments, please do so by February 04, 2008 to the individual listed under "Contact". Additionally, you may submit your comments on-line.



Attachment 2

Growth Plan for the Greater Golden Horseshoe

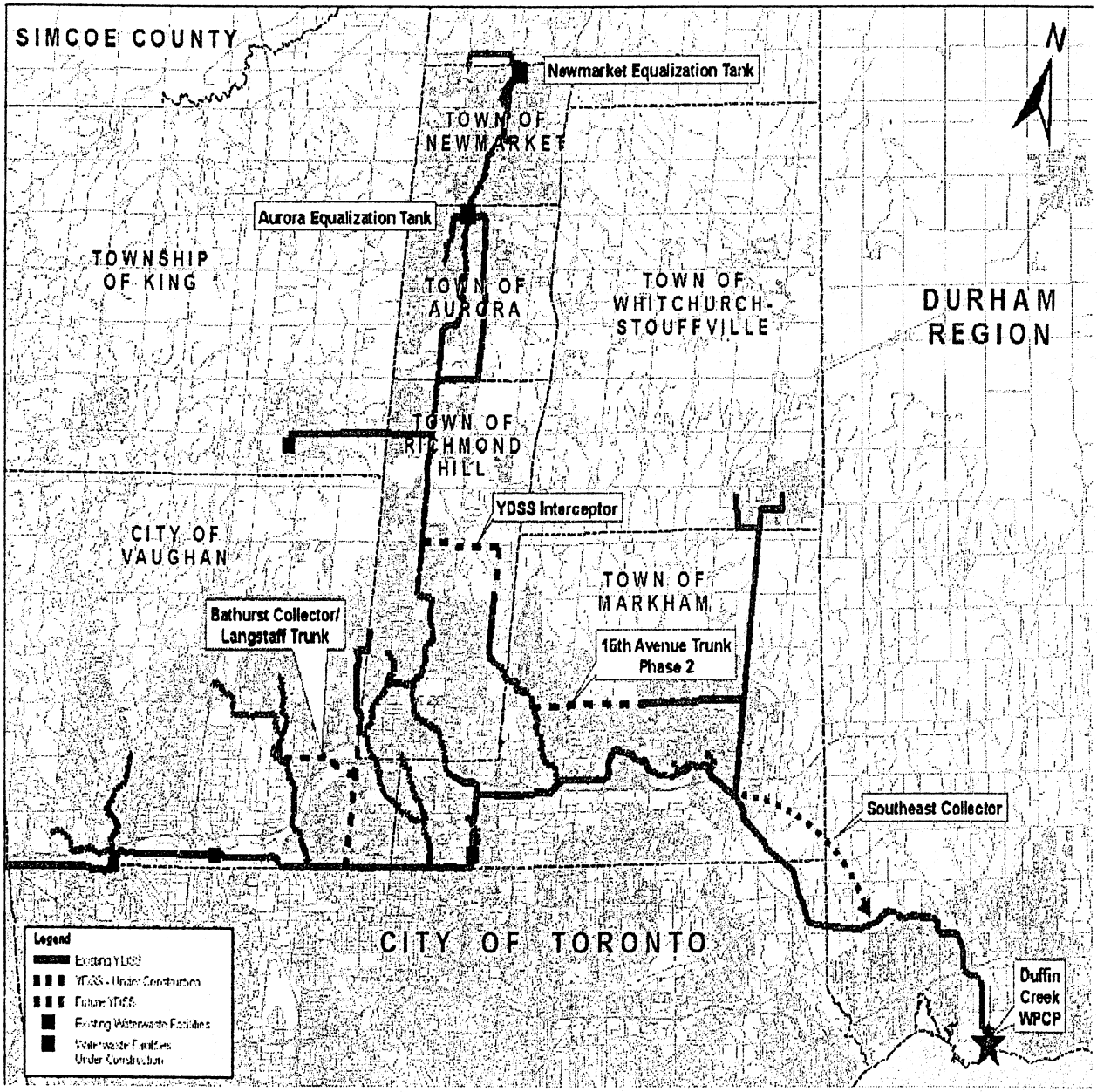
Showing Lake Ontario and Lake Simcoe[11]



11 Source: Growth Plan for the Greater Golden Horseshoe, 2006, by the Ministry of Public Infrastructure Renewal.

Attachment 3

The York-Durham Sewage System Today[12]



12 Summary of Need and Justification for the Continued Use, Maintenance and Improvement of the York Durham Sanitary Sewage System for the Collection and Treatment of Municipal Sanitary Sewage, 2007, prepared by York Region.