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**UPPER YORK SEWAGE SOLUTIONS PROJECT UPDATE  
PROJECT 74270**

***(Regional Council at its meeting on April 21, 2011, amended this Clause as follows:***

***Recommendation 2 be amended to provide that the Regional Clerk circulate this report to the Clerks of all of the local municipalities.)***

**The Environmental Services Committee recommends:**

- 1. Receipt of the presentation by Erin Mahoney, Commissioner, Environmental Services; and**
- 2. Adoption of recommendations 1 and 2 contained in the following report dated March 30, 2011 from the Commissioner of Environmental Services with the following additional recommendation:**
- 3. Staff report back to Environmental Services Committee in the Fall of 2011 on the service implications for local municipalities as they relate to both sewage servicing alternatives.**

**1. RECOMMENDATIONS**

It is recommended that:

1. Staff report back to Environmental Services Committee in Fall 2011 on the recommended preferred alternative for the Upper York Sewage Solutions Individual Environmental Assessment.
2. The Regional Clerk circulate this report to the Clerks of the Town of Aurora, the Town of East Gwillimbury and the Town of Newmarket.

**2. PURPOSE**

The purpose of this report is to provide information on recent developments related to the Upper York Sewage Solutions project that may change the overall sanitary servicing strategy for the Upper York service area as envisioned in the latest Wastewater Master Plan update (*see Attachment 1*).

### 3. BACKGROUND

#### **Terms of Reference for the Upper York Sewage Solutions Individual Environmental Assessment approved with the condition that Region also consider “Innovative Wastewater Treatment Technologies”**

The purpose of the Upper York Sewage Solutions project is to develop a sustainable sewage servicing solution to accommodate the planned growth of 153,000 residents and industry within the Towns of Aurora, East Gwillimbury and Newmarket by 2031. The Upper York Sewage Solutions Individual Environmental Assessment study commenced in late 2008 with the following key understandings developed based on circumstances existing at the time that were contained in and became elements of the Region’s 2009 Water and Wastewater Master Plan Update:

1. A provincial regulatory requirement in effect at the time under O. Reg. 60/08 – *Lake Simcoe Protection* prohibited the construction of any new sewage treatment in the Lake Simcoe Basin.
2. The recommended preferred alternative proposed at the time in the Master Plan (subject to further examination and review of alternatives during the Upper York Servicing Solution Individual Environmental Assessment) involved a solution that would convey wastewater from new growth areas within Queensville, Holland Landing and Sharon to Lake Ontario. This undertaking has received Environmental Assessment approval and has proceeded through design, property acquisition and tendering. The project is dependent upon the Upper York Sewage Solutions Individual Environmental Assessment to meet the longer term servicing needs.
3. Phosphorous discharges into the Lake Simcoe watershed would be subject to restrictive requirements that were still under development.

These factors were included in the project’s Terms of Reference submitted to the Ministry of the Environment for approval in November 2009. The Ministry of the Environment’s approval to the Terms of Reference, however, was received on March 11, 2010 with a condition to include the following additional alternative to the undertaking:

*“Innovative Wastewater Treatment Technologies (Innovative Alternative) such as wastewater purification and water recycling facilities; to be located in The Regional Municipality of York”.*

**Subsequent discussions with the Ministry of the Environment focused on the alternative to discharge to the Lake Simcoe watershed**

As part of the Individual Environmental Assessment process, the project team has identified the potential development of a local treatment solution that incorporates new innovative technology to enable discharge to the Lake Simcoe watershed within Lake Simcoe Protection Plan requirements. Further development of this solution identified that the potential use of new innovative technology (not previously approved or tested in this application in Ontario) could make this alternative viable subject to, among other things, provincial concordance on a number of permitting requirements to ensure approvability.

**Ministry of the Environment recently provided information necessary to allow the Region to proceed with fully assessing the Lake Simcoe-based Innovative Alternative**

To reach a reasonable level of definition needed to fully assess the Lake Simcoe Innovative Alternative, the Upper York Sewage Solutions project team met with Ministry of the Environment staff on numerous occasions to facilitate a clear mutual understanding of the potential approval requirements. Results of these discussions, which have been confirmed in writing, provide sufficient information to the project team to allow it to proceed with assessment of this potential Lake Simcoe Innovative Alternative.

Key information provided by the Ministry of the Environment related to such critical elements as required effluent phosphorus concentration compliance limits, proposals for increasing the Total Phosphorus loading cap and future establishment of water reuse guidelines.

**Upper York Sewage Solutions Individual Environmental Assessment study is anticipated to be completed in late 2013**

As outlined in Figure 1 below, the Upper York Sewage Solutions Individual Environmental Assessment study is currently in the final stages of the “Alternative to the Undertaking’ phase. The study is anticipated to be completed and approved in late 2013.

**Figure 1**  
Upper York Sewage Solutions  
Individual Environmental Assessment  
Key Process Steps and Schedule

	2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Terms of Reference (ToR)</b>																				
• Preparation of ToR	█	█	█	█																
• ToR Review/Approval by MOE					█	█														
<b>Environmental Assessment (EA)</b>																				
• Alternatives To the Undertaking					█	█	█	█												
• Identification of the Tentatively Recommended Alternative to the Undertaking									█	█										
• Confirmation of the Preferred Alternative and Assessment of Alternative Methods of Carrying Out the Undertaking									█	█	█	█								
• Impact Assessment of the Preferred Undertaking													█	█	█	█				
<b>EA Report</b>																				
• EA Report Preparation															█	█				
• EA Review/Approval by MOE																			█	█

We are here



**4. ANALYSIS AND OPTIONS**

**Upper York Sewage Solutions Individual Environmental Assessment Study focused on two viable alternatives**

The Water and Wastewater Master Plan approved by Regional Council on November 19, 2009 envisioned that the Upper York area would be serviced by a southern Lake Ontario solution. Based, however, on information recently provided by the Ministry of the Environment on provincial approval commitments that enable full discharge of treated sanitary effluent to the Lake Simcoe watershed, the Upper York Sewage Solutions Individual Environmental Assessment project team focussed on assessing the following two equally viable alternatives:

**1. Discharge to Lake Ontario**

Full build-out of East Gwillimbury (except for Mount Albert), Newmarket and Aurora serviced by a new sewer system, either tunnel and/or pumping stations and forcemains, discharging to Lake Ontario via a connection to the existing York Durham Sewage System south of 19<sup>th</sup> Avenue.

2. Lake Simcoe Innovative Alternative

Full build-out of East Gwillimbury (except for Mount Albert) serviced by an innovative Water Reclamation Centre, that includes water purification and recycling, discharging to the Lake Simcoe watershed, and

Full build-out of Newmarket and Aurora serviced by a hybrid system discharging to both the Lake Simcoe watershed and Lake Ontario via the new Water Reclamation Centre and the existing York Durham Sewage System.

**Lake Simcoe Innovative Alternative will be presented to the public as the tentatively recommended alternative solution**

A detailed assessment has been completed for both of the alternatives noted above comparing performance of these alternatives based on such criteria as environmental impacts, life cycle costs and sustainability. Based on this comprehensive assessment, the “Lake Simcoe Innovative Solution” has tentatively been identified as the recommended alternative solution and will be presented to the public for input and comment in spring 2011 as the tentatively recommended alternative to the undertaking for the Upper York Sewage Solutions Individual Environmental Assessment. Public input will then be thoroughly assessed and in combination with the ongoing assessment of other related risk factors the Region will establish which of the two viable alternatives will ultimately be identified as the Preferred Alternative to the Undertaking for the Upper York Sewage Solutions Individual Environmental Assessment.

A summary of the two viable alternatives is summarized in *Attachment 2*.

**Lake Simcoe Innovative Alternative will require resolution of some inherent issues and risks**

As part of the ongoing assessment of the tentatively recommended Lake Simcoe Innovative Alternative, a number of issues and risks inherent with this alternative will need to be advanced over the coming months and are outlined below:

1. Ministry of the Environment approvability
  - *Additional follow-up with Ministry of the Environment staff on the critical elements of approvability per their recent positive written confirmation*
2. Siting and local acceptance of new Water Reclamation Centre
  - *The preferred location of the new Water Reclamation Centre incorporating state-of-the-art technology and including natural buffering, wetlands and a public education centre will be established by way of a comprehensive assessment that will include social and natural environmental impacts, of all reasonably viable locations in East Gwillimbury*

- *Community acceptance of the new Water Reclamation Centre will also be considered as part of this siting process*
  - *Phasing of the solution including timing for planned development will be assessed*
3. Environmental stakeholder engagement on Lake Simcoe Innovative Solution
    - *Stakeholders will be engaged on the issues related to development and operation of the Lake Simcoe Innovative Solution*
  4. Detailed assessments of implications for other planned York Durham Sewage System projects will be completed including integration of new Water Reclamation Centre with the Queensville/Holland Landing/Sharon York Durham Sewage System Connection project
  5. Required York Durham Sewage System conveyance system improvements
    - *The planned conveyance system associated with establishing needed redundancy in the existing York Durham Sewage System in the Upper York service area will be evaluated including sections located downstream of the Newmarket Pumping Station*

**Further update report will be submitted to future meeting of Environmental Services Committee**

In accordance with the Individual Environmental Assessment process, the public and other key stakeholders will be provided sufficient opportunity to review and comment on the Lake Simcoe Innovative Solution as the tentatively recommended Alternative to the Undertaking. Stakeholder consultation sessions and Public Information Forums are currently scheduled for May and June, which will be followed by a review and comment period of approximately 30 days. Based on this schedule, the Upper York Sewage Solutions Preferred Alternative to the Undertaking should be established by August 2011, at which time a further update report will be submitted to the next appropriate Environmental Services Committee meeting.

**5. FINANCIAL IMPLICATIONS**

A preliminary review of the overall servicing options incorporating a potential Water Reclamation Centre that would provide sanitary servicing for the full build-out of East Gwillimbury (except for Mount Albert) indicate opportunities for cost savings through combining construction with other planned works as well as phasing of capital expenditures. All of these will also be fully explored during the evaluation of the alternative methods of implementing the Lake Simcoe Innovative Alternative.

The current Development Charges By-law includes \$505.7 million for the Upper York Sewage Solutions project. The approved 2011 Ten Year Capital Program includes \$23

million in Total Project Budget Authority for planning and preliminary design phases of the project as well as an identified detailed design and construction budget allocation of \$479 million.

In preparation for the 2012 Development Charges By-law update, the Region is currently exploring the most appropriate methodology to determine the post period benefit, if any, of the capital projects to be included in the 2012 update. This includes exploring the most appropriate methodology to apportion costs between growth expected up to 2031 and growth beyond 2031. Once established, post period benefit impacts of the Lake Simcoe innovative solution on downstream York Durham Sewage System projects will be fully assessed and factored into the decision on the preferred alternative.

## **6. LOCAL MUNICIPAL IMPACT**

Should the recommended Lake Simcoe Innovative Alternative ultimately be confirmed as the preferred alternative solution, servicing opportunities will still exist for all municipalities currently serviced by the existing York Durham Sewage System, including the Towns of Newmarket, Aurora, Richmond Hill and Whitchurch-Stouffville.

Should this alternative be confirmed the innovative Water Reclamation Centre would be integrated to fit within the local area and provide opportunity for enhancements to the Lake Simcoe watershed. Discussions with Lake Simcoe Region Conservation Authority and the Ministry of the Environment will be held during the Individual Environmental Assessment to further define these possible enhancements.

A comprehensive communications strategy will be initiated with local municipal stakeholders, environmental groups, developer groups, Lake Simcoe Region Conservation Authority, Ladies of the Lake and other interested parties to discuss the tentatively recommended alternative and next steps in the Individual Environmental Assessment including confirmation of a preferred alternative followed by evaluation of alternative technologies and alternative sites.

## **7. CONCLUSION**

The purpose of the Upper York Sewage Solutions Individual Environmental Assessment is to develop a sustainable sewage servicing solution to accommodate planned growth in the Towns of East Gwillimbury, Newmarket and Aurora. The study is currently assessing a viable servicing solution that incorporates an innovative Water Reclamation Centre discharging to the Lake Simcoe watershed that could accommodate the full build-out of the communities of Queensville, Holland Landing and Sharon in the Town of East Gwillimbury. The study is also assessing the need for associated enhancements to the York Durham Sewage System south of the Newmarket Pumping Station.

This possible servicing solution changes the overall sanitary servicing strategy for the Town of East Gwillimbury as envisioned in the latest Wastewater Master Plan update.

A comprehensive communications strategy will be initiated including public meetings in May and June of 2011.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at (905) 830-4444 Ext. 5070.

The Senior Management Group has reviewed this report.

*(The two attachments referred to in this clause are attached to this report.)*

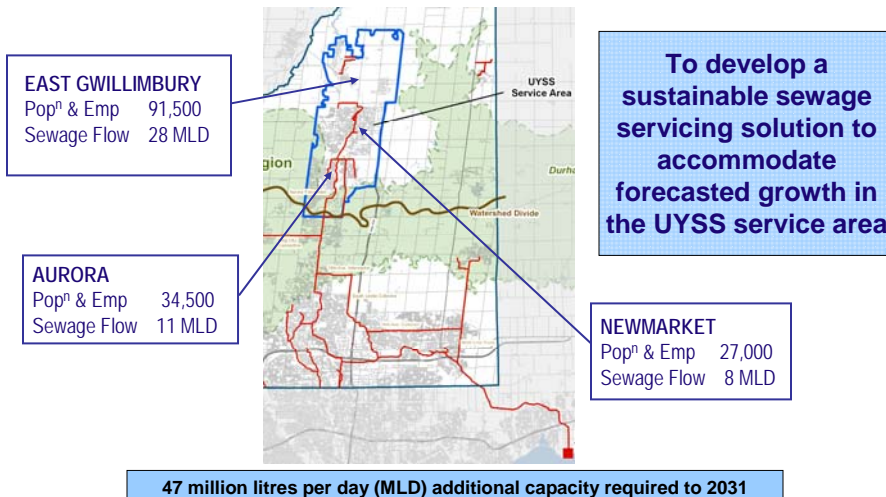


# Upper York Sewage Solutions (UYSS) Individual Environmental Assessment

Presentation to  
Environmental Services Committee

Erin Mahoney  
April 13, 2011

## UYSS Purpose / Opportunity Statement Servicing Growth By Community



## Three Alternatives Initially Identified

1. Do Nothing
2. Discharge to Lake Ontario
3. Discharge to Lake Simcoe



## Background

- ❑ Region's 2009 Wastewater Master Plan Update recognized that Provincial legislation prevented full discharge to Lake Simcoe making discharge to Lake Ontario alternative seem most viable
- ❑ Terms of Reference approved by Minister March 11, 2010 with amendment to include the following alternative:  
**“Innovative Wastewater Treatment Technologies (Innovative Alternative) such as wastewater purification and water recycling facilities; to be located in The Regional Municipality of York”**
- ❑ Innovative technologies, suggested by the MOE, may make the discharge to Lake Simcoe alternative equally viable

## MOE Supportive of Lake Simcoe Innovative Alternative



"Leading the World in Water Innovation and Conservation"



- Regular meetings with MOE staff facilitated a clear mutual understanding of the innovative alternative and associated approval requirements
- Lake Simcoe Innovative Alternative is aligned with and responsive to:
  - Lake Simcoe Protection Plan
  - Phosphorus Reduction Strategy
  - *Water Opportunities Act 2010*
  - Minister's direction for Innovative local solution
- MOE recently confirmed support for innovative alternative through written commitments on provincial approval requirements that enable a Lake Simcoe servicing solution

## Lake Simcoe Innovative Solution Commitments Received from MOE

- Recognize technology to achieve low phosphorus levels (0.01 to 0.02 mg/L)
- Compliance based on annual total phosphorus loading to surface water
- Confirm use of Holland Landing Lagoons Certificate of Approval (C of A) and Total Phosphorus cap
- Enable York Region to acquire phosphorus credits for removal of septic systems and from stormwater management improvements to increase Holland Landing Lagoon C of A Total Phosphorus cap
- Collaborate on establishing water reuse project guidelines to permit the distribution of reclaimed water to Regional customers

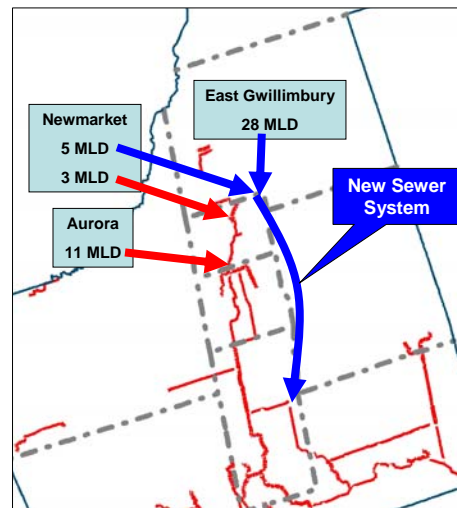
## Two Viable Alternatives

Based on recent commitments received from MOE for more flexible application of provincial approval requirements that enable a Lake Simcoe servicing solution, the IEA project team completed a detailed assessment of the two viable alternatives:

1. Discharge to Lake Ontario
2. Lake Simcoe Innovative Solution

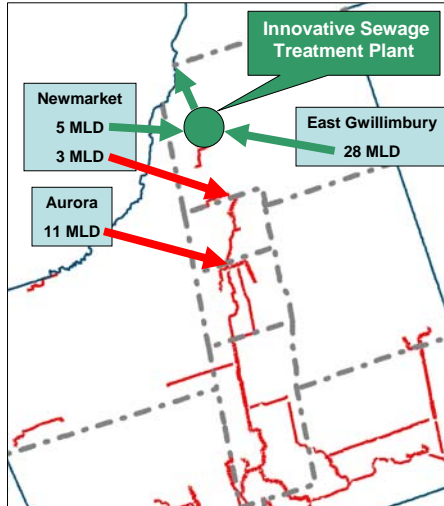
## Discharge to Lake Ontario

Connection to the YDSS at 19<sup>th</sup> Avenue via some combination of tunnel and/or pumping station(s) with forcemain(s)



## Lake Simcoe Innovative Solution

- ❑ Full build-out of East Gwillimbury serviced by Innovative Sewage Treatment Plant that includes water purification and water recycling
- ❑ Full build-out of Newmarket and Aurora serviced by discharge to innovative Sewage Treatment Plant and existing YDSS



## Innovation is a Water Reclamation Centre

- ❑ Enhanced biological secondary treatment facility
- ❑ Proven technology tertiary membranes
- ❑ Reverse Osmosis membranes to remove Phosphorus
- ❑ Education, training and research facility
- ❑ Constructed wetland, community trail, stream meander and plots of different tree varieties maintained with reclaimed water

*Working together to meet provincial growth plans while providing opportunities to restore and improve Lake Simcoe watershed*

Evaluation of Alternatives			
Discharge to Lake Ontario vs. Lake Simcoe Innovative Solution			
Criteria	Lake Ontario	Lake Simcoe	Comments
<b>Natural Environment:</b> <input type="checkbox"/> Approvable within current Provincial legislation <input type="checkbox"/> No impact to Region's intra-basin transfer approval <input type="checkbox"/> Maintains water balance in Lake Simcoe watershed <input type="checkbox"/> No major tunnel construction through Oak Ridges Moraine <input type="checkbox"/> Addresses Minister's condition to incorporate innovation <input type="checkbox"/> Water quality and quantity benefits to Lake Simcoe watershed	✓ ✓	✓ <sup>1</sup> ✓ <sup>2</sup> ✓ ✓ ✓ ✓	1. Ministry of the Environment approvability commitment on Lake Simcoe option - December 2010  2. Reduces sewage transfer from Lake Simcoe to Lake Ontario
<b>Social Environment:</b> <input type="checkbox"/> Does not require local acceptance of treatment plant & water reuse <input type="checkbox"/> Does not require public acceptance of major tunnelling across Oak Ridges Moraine <input type="checkbox"/> Potential to combine with other projects to reduce community impact	✓ ✓	✓ ✓	

Evaluation of Alternatives Cont...			
Discharge to Lake Ontario vs. Lake Simcoe Innovative Solution			
Criteria	Lake Ontario	Lake Simcoe	Comments
<b>Schedule:</b> <input type="checkbox"/> Shorter construction schedule <input type="checkbox"/> Earlier servicing capacity for unrestricted growth <input type="checkbox"/> Provides for earlier but limited interim servicing capacity <input type="checkbox"/> Able to integrate with existing/planned YDSS infrastructure	✓ ✓	✓ ✓ ✓ <sup>3</sup>	3. Potential for alternative interim servicing options may be viable – to be developed with landowners, Town & Approval Agencies
<b>Financial:</b> <input type="checkbox"/> Lower Capital Cost and 50-year Net Present Value <input type="checkbox"/> Allows for phased implementation to defer capital expenditures		✓ ✓	Potential for cost savings with Lake Simcoe Innovative Alternative
<b>Servicing Capacity:</b> <input type="checkbox"/> Provides additional capacity at Duffin Creek Water Pollution Control Plant and in York Durham Sewage System <input type="checkbox"/> No impact to Council approved servicing capacity to 2013	✓	✓ ✓	

## Tentatively Recommended Alternative

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**Lake Simcoe Innovative Solution** will be presented to the public in Q2 2011 as the tentatively recommended alternative based primarily on:

- ❑ Approvable solution with environmental benefits in Lake Simcoe watershed
- ❑ Lower capital cost and can be constructed two years earlier than Lake Ontario alternative
- ❑ Allows for phased implementation between 2016 and 2026 to defer and smooth capital expenditures
- ❑ Addresses innovation involving water purification and recycling in the long term
- ❑ No major tunnel construction through Oak Ridges Moraine
- ❑ 5 years additional treatment / conveyance capacity at Duffin Creek Water Pollution Control Plant and in lower York Durham Sewage System
- ❑ Potential to combine with other local projects to minimize community impacts and benefit from economy of scale



Environmental Services Committee / April 13, 2011

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## Risk Assessment Moving Forward

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### **MOE following through with their commitments on approvability**

- ❑ Written confirmation from MOE in-hand
- ❑ Positive follow-up meeting held with Minister's Office

### **Existence of technology to reduce phosphorus to required low levels**

- ❑ Similar operating facilities exist elsewhere in North America
- ❑ MOE to approve scope and participate in pilot project (or a first phase)

### **Local acceptance of Water Reclamation Centre**

- ❑ State-of-the-art facility with natural buffering, wetland and public education centre facilitates acceptance

### **Developer acceptance of Lake Simcoe innovative solution**

- ❑ More cost effective and enables planned development two years sooner than Lake Ontario alternative
- ❑ Potential interim servicing to accommodate near term growth may be viable
- ❑ Collaboration to explore cost effective alternative servicing options

### **Environmental stakeholder acceptance of Lake Simcoe innovative solution**

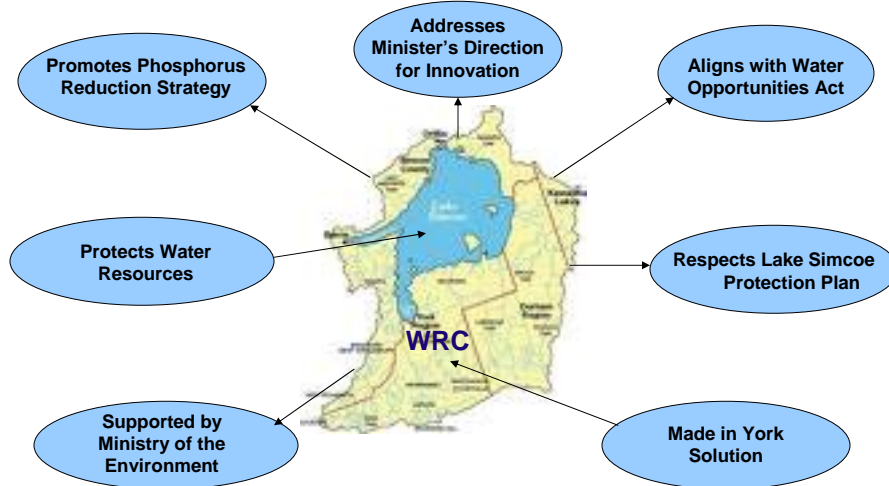
- ❑ Preliminary consultation with LSRCA has been positive
- ❑ Environmental groups advocate servicing within the watershed



Environmental Services Committee / April 13, 2011

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## Environmental Benefits of Tentatively Recommended Alternative



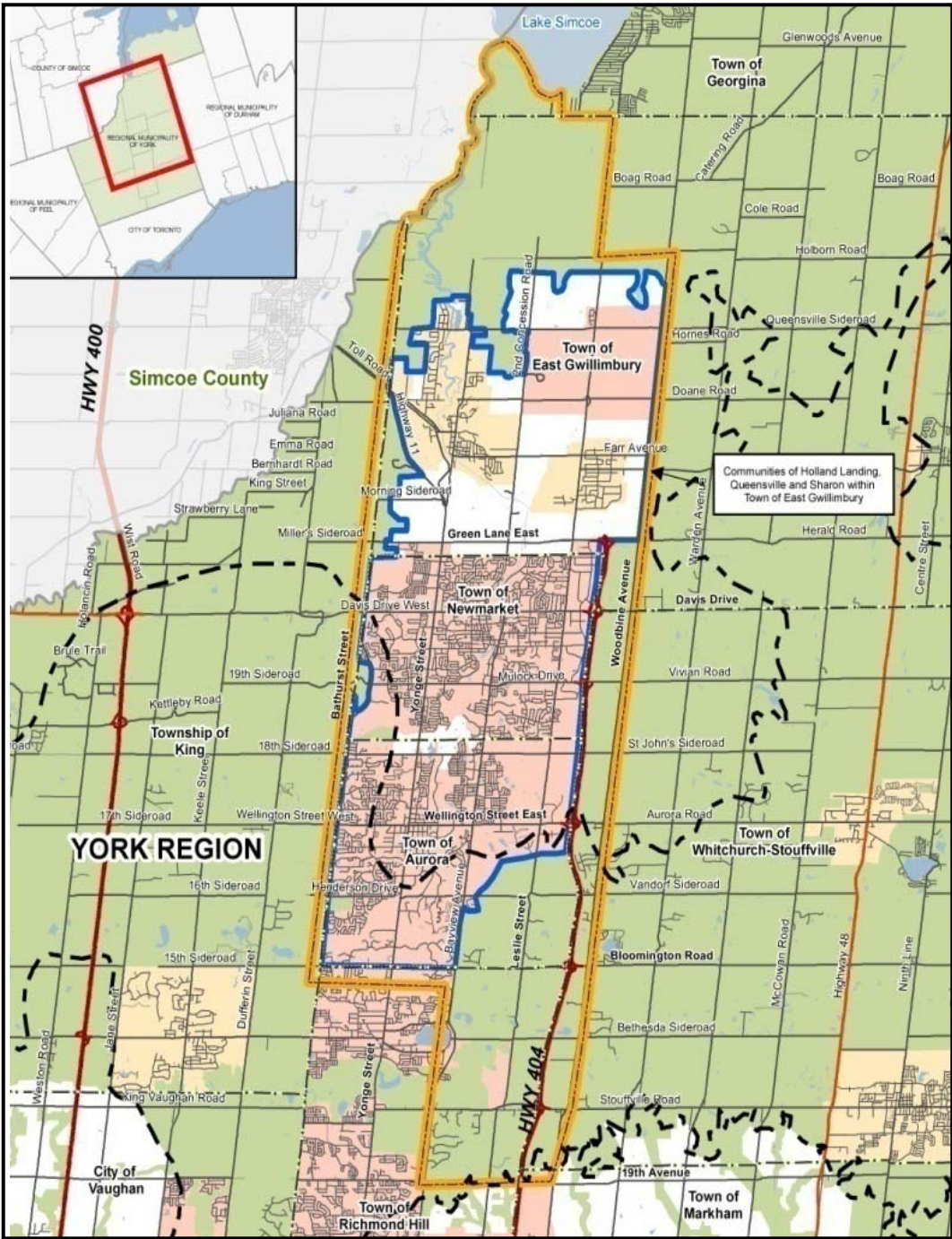
## Next Steps

- ❑ Presentation to East Gwillimbury Committee of the Whole – April 18<sup>th</sup> 2011
- ❑ Consultation with key stakeholders, such as Queensville/Holland Landing/Sharon Developer Group, LSRCA and Ladies of the Lake on recommended alternative – Q2 2011
- ❑ Public meeting to present Lake Simcoe Innovative Solution as the tentatively recommended alternative – Q2 2011
- ❑ If confirmed as Preferred Alternative report back to Environmental Services Committee in Fall 2011 and commence work on alternative methods (siting, technology details) – Q4 2011

# Thank You

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## Questions?



**LOCATION PLAN**  
**Upper York Sewage Solutions**  
**Project Update - Project 74270**

Legend	
	EA Study Area
	UYSS Service Area
	Towns and Villages
	Urban
	Oak Ridges Moraine Boundary
	Countryside
	Municipal Boundary



Criteria	Lake Ontario	Lake Simcoe	Comments
<b>Natural Environment:</b> <ul style="list-style-type: none"> <li>•Approvable within current Provincial legislation</li> <li>•No impact to Region's intra-basin transfer approval</li> <li>•Maintains water balance in Lake Simcoe watershed</li> <li>•No major tunnel construction through Oak Ridges Moraine</li> <li>•Addresses Minister's condition to incorporate innovation</li> <li>•Water quality and quantity benefits to Lake Simcoe watershed</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓<sup>1</sup></li> <li>✓<sup>2</sup></li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<p><sup>1</sup>. Ministry of the Environment approvability commitment on Lake Simcoe option - December 2010</p> <p><sup>2</sup>. Reduces sewage transfer from Lake Simcoe to Lake Ontario</p>
<b>Social Environment:</b> <ul style="list-style-type: none"> <li>•Does not require local acceptance of treatment plant &amp; water reuse</li> <li>•Does not require public acceptance of major tunnelling across ORM</li> <li>•Potential to combine with other projects to reduce community impact</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	
<b>Schedule:</b> <ul style="list-style-type: none"> <li>•Shorter construction schedule</li> <li>•Earlier servicing capacity for unrestricted growth</li> <li>•Provides for earlier but limited interim servicing capacity</li> <li>•Able to integrate with existing/planned YDSS infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓<sup>3</sup></li> </ul>	<p><sup>3</sup>. Potential for alternative interim servicing options may be viable – to be developed with landowners, Town &amp; Approval Agencies</p>
<b>Financial:</b> <ul style="list-style-type: none"> <li>•Lower Capital Cost and 50-year Net Present Value</li> <li>•Allows for phased implementation to defer capital expenditures</li> </ul>		<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	<p>Potential for cost savings with Lake Simcoe Innovative Alternative</p>
<b>Allocation:</b> <ul style="list-style-type: none"> <li>•Provides additional capacity at Duffin Creek Water Pollution Control Plant and in York Durham Sewage System</li> <li>•No impact to Council approved servicing capacity to 2013</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	

Upper York Sewage Solutions Project Update - Project 74270

