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

(Regional Council at its meeting on October 20, 2011 amended this Clause as follows:

Consideration of this report and the staff recommendations be deferred for two months pending results of the public information centre to be held in Georgina.)

The Environmental Services Committee recommends:

- 1. Receipt of the presentation by Daniel Kostopoulos, Director, Capital Planning and Delivery; and**
- 2. Adoption of the recommendation contained in the following report dated October 4, 2011, from the Commissioner of Environmental Services with the following additional recommendation:**
 - 2. Staff be directed to conduct a Public Information Centre as soon as possible in the Town of Georgina regarding the Upper York Sewage Solutions Project.**

1. RECOMMENDATION

It is recommended that:

- 1. The Regional Clerk circulate this report to the Ontario Ministry of the Environment and to the Clerks of the Towns of Aurora, East Gwillimbury, Newmarket, Georgina, Richmond Hill and Whitchurch-Stouffville.**

2. PURPOSE

This report confirms the Lake Simcoe Water Reclamation Centre (Lake Simcoe Innovative Alternative) with YDSS Improvements as the preferred alternative for the Upper York Sewage Solutions project.

3. BACKGROUND

Terms of Reference for the Upper York Sewage Solutions Individual Environmental Assessment approved with the condition that the 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 (34,500), East Gwillimbury (91,500) and Newmarket (27,000) by 2031.

The Upper York Sewage Solutions Individual Environmental Assessment commenced in late 2008. The following key understandings were developed based on circumstances existing at the time that 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 Sewage Solutions Individual Environmental Assessment) involved a solution that would convey wastewater from new growth areas within Queensville, Holland Landing and Sharon to Lake Ontario. The initial phase of this undertaking has 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 Upper York Sewage Solution's Terms of Reference submitted to the Ministry of the Environment for approval in November 2009. Ministry of the Environment's approval of 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 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 subsequently identified the potential development of a local treatment solution incorporating 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 in this application in Ontario) could make this alternative viable subject to, among other things, provincial concurrence on a number of permitting requirements to ensure approvability.

Ministry of the Environment 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 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. However, based on information recently provided by the Ministry of the Environment on provincial approval commitments that enable reclaimed water discharge 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 to 2031 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 19th Avenue.

2. Lake Simcoe Innovative Alternative:

- a) Full build-out to 2031 of East Gwillimbury (except for Mount Albert) serviced by an innovative Water Reclamation Centre, that includes wastewater purification and recycling, discharging to the Lake Simcoe watershed, and
- b) Full build-out to 2031 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 respectively. Specifically, approximately 60% of planned growth in Newmarket would be serviced by the Water Reclamation Centre. The remaining 40% of planned growth from Newmarket and 100% from Aurora would be serviced by the existing York Durham Sewage System.

The Lake Simcoe Innovative Alternative also includes improvement to the existing York Durham Sewage System through the Upper York service area to address existing capacity and operational constraints and provide needed system security. Proposed improvements include construction of additional forcemains interconnecting the existing Newmarket, Aurora and Bogart Creek pumping stations.

Two viable alternatives for the Upper York Sewage Solutions project were evaluated based on 15 pre-approved screening criterion

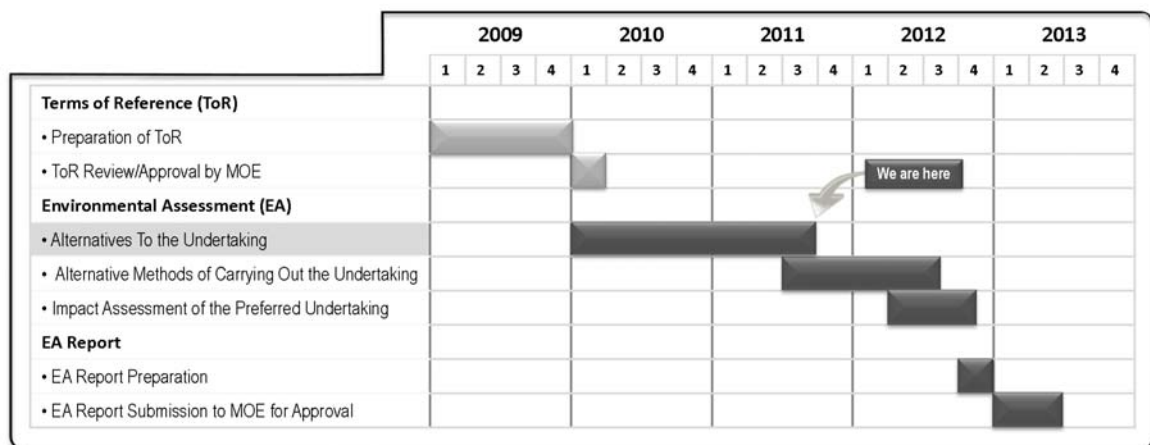
The Upper York Sewage Solutions Terms of Reference submitted to the Ministry of the Environment in November 2009 included 15 screening criterion to be used in the evaluation of alternatives. The confirmation and acceptance of these 15 criterion were included in the Ministry of the Environment's approval of the Terms of Reference received in March 2010.

In accordance with the approved Terms of Reference, all of the alternatives to the undertaking were evaluated based on the 15 pre-approved screening criterion. A full listing of the 15 screening criterion and summary of the assessment of the two viable alternatives noted above is provided in *Attachment 1*.

As detailed in this summary, while both of these alternatives can be considered viable, the Lake Simcoe Innovative Alternative provides significant additional benefits. An overview of these additional benefits and detailed description of each is provided in *Attachment 2*.

Lake Simcoe Innovative Alternative was presented to the public as the tentatively recommended alternative solution

Based on this comprehensive assessment, the Lake Simcoe Innovative Alternative, which includes security improvements to the existing York Durham Sewage System, was identified as the tentatively recommended alternative solution and was presented to the public at two Public Information Forums on June 27, 2011 and June 28, 2011 as the



4. ANALYSIS AND OPTIONS

Lake Simcoe Innovative Alternative is now confirmed as the Preferred Alternative to provide sewage servicing for Upper York Sewage Solutions project and will be hereinafter referred to as the Lake Simcoe Water Reclamation Centre

A focussed consultation effort over the last several months has conducted meetings with and provided presentations to the Lake Simcoe Science and Coordinating Committees, Watershed CAOs hosted by Lake Simcoe Region Conservation Authority, several local Municipalities, Lake Simcoe Region Conservation Authority Board of Directors, Ladies of the Lake, landowners, environmental groups, key stakeholders and many others.

Two public information forums with an open house for individual discussion followed by a presentation and fulsome discussion were held June 27, 2011 and June 28, 2011 in the Town of East Gwillimbury and the Town of Aurora council chambers respectively. Materials (13 panels, the presentation, a copy of the meeting notice, a summary assessment of all four alternatives to the undertaking against the 15 criteria as established by the approved Terms of Reference and a comment form) were posted on the project website www.uyssolutions.ca in advance of the public information forums.

Residents and participants arrived at the public information forums informed by the posted materials and ready with many more questions (most of which were answered either through the presentation or by the project team). General consensus from both the open house and discussion following the presentation was favourable to the Lake Simcoe Water Reclamation Centre alternative.

Based on the comprehensive assessment of alternatives outlined above as well as stakeholder reactions and comments received during and subsequent to the Public Information Forums, the Lake Simcoe Innovative Alternative is now confirmed as the Preferred Alternative to provide sewage servicing for the Upper York Sewage Solutions project. For the sake of clarity moving forward with the project, this preferred alternative will be hereinafter referred to as the Lake Simcoe Water Reclamation Centre. Notwithstanding the simplicity of this naming convention, the preferred alternative also includes associated capital linear infrastructure within East Gwillimbury as well as modifications to the existing York Durham Sewage System within Newmarket and Aurora to address existing capacity and operational constraints and provide needed system security.

Several activities have been initiated to provide stakeholders greater access to information moving forward

Given the revival of interest in the project following the public information forums, the project team moved forward on creating a Community Liaison Forum. Attendees at the public information forums, Tuesday Talks (monthly drop-in sessions at the project office)

and a stakeholders' mailing list were canvassed to draw together a broadly based, representative demographic group to work with the project team through the next stages of the project. The Community Liaison Forum was formed August 3, 2011 with the first meeting held on August 17, 2011.

Several activities were initiated over the summer to inform Regional residents about the Lake Simcoe Innovative Alternative and provide greater access to information on the technologies proposed.

1. An application has been made for a Certificate of Approval from the Ministry of the Environment to construct and operate a demonstration facility at the Region's Mount Albert Water Pollution Control Plant. The Ministry of the Environment require this facility to demonstrate effective removal of phosphorus through the advanced treatment stages of microfiltration/ultrafiltration and reverse osmosis and to be operational for 12 months. The Region has applied for provincial funding for this demonstration facility under the Showcasing Water Innovation program. The facility is expected to be operating in January 2012 and will be open to the public for tours.
2. The Upper York Sewage Solutions team participated in the Lake Simcoe SPLASH! Festival held in Georgina on August 13, 2011. A booth with participatory games and model displays provided a hands-on educational opportunity for families to learn about membrane technologies and reclaimed water while having fun.
3. August 15, 2011 a report "Screening Assessment of the Alternatives To the Undertaking Document" including Appendix C – Alternatives To the Undertaking Cost Estimate Report, was made available to members of the Community Liaison Forum and posted to the project website (www.uyssolutions.ca) to provide detailed information on the assessment and costing methodology.

Preferred solution will require resolution of some inherent issues including local siting of the facility and re-design of the Queensville/Holland Landing/Sharon York Durham Connection

Moving forward on the project, with the Lake Simcoe Water Reclamation Centre as the preferred solution, will require the resolution of a number of inherent issues over the coming months as outlined below:

1. Ministry of the Environment approvability
 - Further to Ministry of the Environment's written commitments in December 2010, additional follow-up with Ministry of the Environment staff on the specific criteria of required permits and Certificates of Approvals per their recent positive written confirmation

2. Siting of Water Reclamation Centre

- The Holland Landing Water Pollution Control Plant (Lagoons) is an existing Regional site with an active Ministry of the Environment Certificate of Approval
- Notwithstanding this approved site, an alternative site selection process for the Water Reclamation Centre based on Geographic Information System modelling of the required technical and environmental parameters began in August
- Using a number of criteria such as technical and engineering parameters, site requirements and provision of required buffering around environmentally sensitive or regulated areas, 25 to 30 sites were identified as compatible with and appropriate for use as a water reclamation centre (see *Attachment 3*)
- The preferred location of the 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 engagement and integration of the new Water Reclamation Centre will be critical to the siting process, particularly to residents in close proximity to the final location
- Phasing of the solution including timing for planned development will be assessed
- The Region will engage residents and stakeholders in ongoing public consultations to establish the screening criteria to reach a short list of potential sites before the end of 2011 with the goal of finalizing the preferred site later in 2012

3. Detailed assessments of implications for other planned York Durham Sewage System projects will be completed including the re-design of the Queensville/Holland Landing/Sharon York Durham Sewage System Connection to ensure:

- Ultimate long term flows from these communities can be conveyed to the new Water Reclamation Centre at minimal cost
- Short term growth needs of these communities can be accommodated in the existing York Durham Sewage System while protecting for the above ultimate long term conveyance system to the new Water Reclamation Centre
- Cost effective design that minimizes or eliminates the need for temporary or “throw-away” infrastructure needed only to meet short term growth needs

4. Required York Durham Sewage System security improvements within the Upper York service area, as outlined in section 3 above, will be fully evaluated and included in the Individual Environmental Assessment approval. These works include twinning the existing forcemain connections between Newmarket and Aurora pump stations and between Bogart Creek and Aurora pump stations. It should be noted that funding for these works have been included in the approved capital budget under project numbers 75360 and 75370 and will be updated in subsequent programs as the Upper York Sewage Solutions project progresses.

5. Environmental stakeholder engagement on Lake Simcoe Water Reclamation Centre
 - Stakeholders will continue to be engaged on the issues related to development and operation of the Lake Simcoe Water Reclamation Centre

5. FINANCIAL IMPLICATIONS

Lake Simcoe Water Reclamation Centre alternative provides numerous financial benefits as compared to the Discharge to Lake Ontario alternative

The Lake Simcoe Water Reclamation Centre alternative will provide the following financial benefits for the Region as compared to the Discharge to Lake Ontario alternative:

- Table 1 provides a breakdown of the preliminary costs estimates for each of the two alternatives. As shown, moving forward with the Lake Simcoe Water Reclamation alternative will result in an estimated direct capital saving in the order of \$300 million.

Table 1
Viable Alternatives Capital Costs ⁽¹⁾

	Discharge to Lake Ontario (\$)	Lake Simcoe Water Reclamation Centre (\$)
Water Reclamation Centre		329,000,000
Enhancement Works to Achieve Phosphorous Offset Credits ⁽²⁾		10,000,000
Outfall to Cook's Bay ⁽³⁾		65,000,000
YDSS Modifications in Aurora and Newmarket	74,000,000	93,000,000
Land Acquisition	15,000,000	15,000,000
Chambers and Tunnel Shafts	40,000,000	
Conveyance Tunnel, Pipe and Odour Control	693,000,000	
Total	822,000,000 ⁽⁴⁾	512,000,000 ⁽⁵⁾

⁽¹⁾ includes Contingency, Engineering, Legal and Administrative Costs

⁽²⁾ storm water upgrades and/or septic removals

⁽³⁾ not required with discharge to Holland River

⁽⁴⁾ excludes Upper York's cost-share for downstream York Durham Sewage System conveyance and treatment capacity (i.e. \$160,000,000 to \$180,000,000)

⁽⁵⁾ excludes reclaimed water distribution system since this system is needed only to extend Water Reclamation Centre capacity beyond 2031 requirements (i.e. \$29,000,000)

- It should be noted that the capital cost for the Discharge to Lake Ontario alternative does not include the financial investments to construct additional

downstream YDSS conveyance and treatment capacity at the Duffin Creek Water Pollution Control Plant valued between \$160 - \$180 million. Given that the Water Reclamation Centre alternative would not require this capacity, this recovered capacity would increase the total capital saving of the Lake Simcoe Water Reclamation Centre from \$310 million to approximately \$470 - \$490 million.

- A preliminary review of the overall servicing options incorporating a potential Water Reclamation Centre that would provide sewage 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. These opportunities will be fully explored during evaluation of alternative methods of implementing the Lake Simcoe Water Reclamation Centre Alternative.
- Future capital expenditures for planned expansions of the York Durham Sewage System, including the primary trunk and Phase 4 expansion of the Duffin Creek Water Pollution Control Plant, can either be deferred by up to 5 years and/or can proceed as planned with the additional sewage servicing capacity made available to accommodate additional growth in other York Region communities.
- Since the Water Reclamation Centre can be constructed in incremental phases, the capital expenditures can be spread out over multiple years more in line with the rate of growth. The Discharge to Lake Ontario alternative would require the expenditure of virtually 100% of its capital budget prior to any growth occurring.
- The lower capital costs and opportunity to defer expenditures noted above will ease current pressures on the Region's Annual Repayment Limit as well as our ability to debt finance the capital program at the same pace as our capital delivery schedule commitments to accommodate anticipated growth.

Future Development Charges By-law and Ten Year Capital Programs will be updated as project cost are refined

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 of \$479 million. As the Upper York Sewage Solutions project progresses, costs estimates will be further refined and included in the 2012 Development Charges By-law update as well as future Ten Year Capital Programs.

York Region has applied for project funding under the Showcasing Water Innovation Program

On June 24, 2011 York Region, in partnership with Dr. Scott Smith of Wilfred Laurier University and the Lake Simcoe Region Conservation Authority, submitted to Ministry of the Environment an application under the Showcasing Water Innovation Program for funding in the amount of \$998,882 towards the cost of the demonstration facility project

discussed above. A decision on the success of the Region's application is expected in Fall 2011.

6. LOCAL MUNICIPAL IMPACT

The Lake Simcoe Water Reclamation Centre alternative will provide the following specific benefits for local municipalities as compared to the Discharge to Lake Ontario alternative:

- Based on the current project schedule, the Lake Simcoe Water Reclamation Centre alternative will, subject to funding, be able to accommodate the full planned growth in the Towns of Aurora, East Gwillimbury, and Newmarket by as early as 2018. The Discharge to Lake Ontario alternative would not be able to accommodate this growth until between 2020 and 2022. This is primarily due to the inherent complexities and environmental sensitivities associated to deep tunnel sewer installation through the Oak Ridges Moraine resulting in significantly longer anticipated timelines to secure regulatory approvals and to complete construction. The construction timelines will be highly predicated on the likely need for longer tunnel drives and associated mining production rates to avoid/minimize the number of required shafts within the limits of the Oak Ridges Moraine.
- The Lake Simcoe Water Reclamation Centre alternative will free up 40 million litre per day capacity within the lower York Durham Sewage System for use by any/all local municipalities that can be serviced by the York Durham Sewage System.
- The Water Reclamation Centre would be integrated into the local area and provide opportunity for education, technology and knowledge transfer within the Lake Simcoe watershed. In partnership with Lake Simcoe Region Conservation Authority and the Ministry of the Environment, the Water Reclamation Centre would become a centre of excellence for sustainable and innovative wastewater treatment and use of reclaimed water.

Proposed improvements to the existing York Durham Sewage System within the Upper York service area, including additional forcemain interconnections between the Newmarket, Aurora and Bogart Creek pumping stations, will ensure long term capacity and system security for the existing and future residents of Newmarket and Aurora. Capital costs for these improvements, estimated between \$74 million and \$93 million, are included in Table 1.

The comprehensive communications strategy will continue with residents, local municipalities, First Nations and Métis, environmental groups, developer groups, Lake Simcoe Region Conservation Authority, provincial ministries and other interested parties to discuss the preferred alternative and next steps in the Individual Environmental Assessment including an evaluation of alternative sites for the Water Reclamation Centre.

At its meeting of September 22, 2011, Regional Council received the report “*Planning Policy Context Related to Servicing Communities Outside the Upper York Sewage Solutions Service Area*” dated August 31, 2011 from the Commissioner of Environmental Services and the Acting Commissioner of Planning and Development Services. This report was referred back to staff to provide more detailed information on technically feasible water and wastewater servicing options available for each of the three communities outlined therein (assuming all Planning requirements can be adequately addressed). A supplementary Information Report outlining technical feasibility of Servicing Options for the communities of Vandorf-Preston Lake, East Gormley and West Gormley is provided in *Attachment 4*.

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 has completed the assessment of the alternatives to the undertaking and determined that the preferred alternative is the Lake Simcoe Innovative Alternative.

The next stage in the Environmental Assessment process is the “Alternative Methods of Carrying Out the Undertaking” during which the project team will move forward with site selection, the demonstration facility, site layout and design of processes for the Water Reclamation Centre treatment trains for both liquids and solids, assessment of and routing for associated infrastructure and finally “Impact Assessment of the Preferred Method(s)”.

The draft Environmental Assessment Report is expected to be submitted to the Ministry of the Environment by the end of 2012 or early in 2013.

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 four attachments referred to in this clause are attached to this report.)

**Upper York Sewage Solutions
Screening Assessment of Alternatives
Discharge to Lake Ontario vs. Lake Simcoe Innovative Alternative**

Screening Criteria	Definition/Rationale	Discharge to Lake Ontario	Lake Simcoe Innovative Alternative	Key Findings
1. Can the alternative satisfy the problem/opportunity statement?	Must be addressed as fundamental reason for carrying out the UYSS EA.	✓	✓+	- Both alternatives satisfy the problem/opportunity statement as they are sustainable solutions, can accommodate approved growth in the UYSS service area to 2031 and comply with environmental statutes including the Oak Ridges Moraine Conservation Act. - Under Lake Simcoe Innovative alternative no new wastewater infrastructure would be required within the Oak Ridges Moraine.
2. Does the alternative represent proven technology?	Must be commercially available and have met requirements for intended use for a reasonable length of time.	✓	✓	Both alternatives represent proven technology as the technologies are both commercially available and have met performance requirements for their intended use over an extended period of time.
3. Is the alternative constructible?	Must use well established construction methods and practices and meet applicable code requirements.	✓	✓	Both alternatives would use well established construction methods and practices and meet applicable code requirements, making each constructible.
4. Is the alternative consistent with the Provincial Policy Statement (PPS)?	Must be consistent with Section 1.6: "Infrastructure and Public Service Facilities," specifically Section 1.6.4.1: "Planning for Sewage and Water Services".	✓	✓	Both alternatives are consistent with Section 1.6: "Infrastructure and Public Service Facilities," specifically Section 1.6.4.1: "Planning for Sewage and Water Services" of the PPS.
5. Is the alternative consistent with the Growth Plan for the Greater Golden Horseshoe?	Must be consistent with Section 3.2.5 "Water and Wastewater Systems," specifically Policy 3 (returning water to the Great Lake watershed from which the withdrawal originates) and Policy 4 (constructing or expanding water and wastewater systems).	✓	✓	Both alternatives are consistent with Section 3.2.5 "Water and Wastewater Systems," specifically Policy 3 (returning water to the Great Lake watershed from which the withdrawal originates) and Policy 4 (constructing or expanding water and wastewater systems).
6. Is the alternative consistent with the Lake Simcoe Protection Plan (LSPP)?	Must be consistent with the LSPP policies, including the Phosphorus Reduction Strategy to reduce	✓	✓+	- Both alternatives are consistent with the LSPP policies, including the Phosphorus Reduction Strategy to reduce phosphorus levels in Lake Simcoe. - Discharge to Lake Ontario alternatives would not convey



The Alternative satisfies the screening criterion and provides additional benefits related to the criterion relative to the other alternatives

Screening Criteria	Definition/Rationale			
		Discharge to Lake Ontario	Lake Simcoe Innovative Alternative	Key Findings
	phosphorus levels.			wastewater to Lake Simcoe. Lake Simcoe Innovative alternative would be within the phosphorus effluent limits of the Phosphorus Reduction Strategy. In addition, Lake Simcoe Innovative alternative will improve the quality and increase the quantity of water flowing into Lake Simcoe.
7. Is the alternative consistent with York Region's Official Plan?	Must be consistent with the relevant policies relating to "Water and Wastewater Servicing" in Section 7.3.	✓	✓	Both alternatives are consistent with all nine relevant policies relating to "Water and Wastewater Servicing" in Section 7.3 of York Region's Official Plan.
8. Is the alternative consistent with York Region's 2009 Water and Wastewater Master Plan Update?	Must be consistent with the Water and Wastewater Master Plan Update.	✓	✓	- Both alternatives are consistent with the Water and Wastewater Master Plan Update. - Although the Water and Wastewater Master Plan Update recommended a Lake Ontario based solution, this recommendation was subject to the outcome of a more detailed examination of alternatives as part of the Upper York Sewage Solutions Individual Environmental Assessment.
9. Is the alternative consistent with York Region's Sustainability Strategy for Water and Wastewater Servicing?	Must align with all ten underlying principles of York Region's 2008 <i>Water and Wastewater Sustainability Strategy</i> .	✓	✓+	- Both alternatives are consistent with all ten of the underlying principles of York Region's 2008 <i>Water and Wastewater Sustainability Strategy</i>. - Additionally, Lake Simcoe Innovative alternative will improve the quality and quantity of water flowing into Lake Simcoe in support of Sustainability Principle No. 2: Healthy Watersheds – and - Lake Simcoe Innovative alternative will employ environmentally and economically sound wastewater effluent recycle and reuse in support of Sustainability Principle No. 4: Wise Use of Water.
10. Is the alternative consistent with York Region's Water Efficiency and Conservation Programs?	Must support or enhance York Region's water efficiency and conservation programs.	✓	✓+	- Both alternatives support York Region's water efficiency and conservation programs. - Lake Simcoe Innovative alternative enhances these programs by making reclaimed water available for use, therefore reducing the demand for fresh/potable water resources.
11. Is the alternative consistent with the Source Water Protection – South Georgian Bay Lake Simcoe Source Protection Region?	Must avoid negatively affecting wellhead protection areas, intake protection zones, and other vulnerable areas (significant recharge areas, highly vulnerable aquifers) identified in the Upper York Sewage Solutions Environmental Assessment study area.	✓	✓	Both alternatives would avoid negatively affecting wellhead protection areas, intake protection zones, and other vulnerable areas (significant recharge areas, highly vulnerable aquifers) identified in the Upper York Sewage Solutions Environmental Assessment study area.



The Alternative satisfies the screening criterion and provides additional benefits related to the criterion relative to the other alternatives

Screening Criteria	Definition/Rationale			
		Discharge to Lake Ontario	Lake Simcoe Innovative Alternative	Key Findings
12. Is the alternative consistent with the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement (2005) as incorporated into the <i>Ontario Water Resources Act</i> (OWRA)?	Should be consistent with the intra-basin transfer provisions of the OWRA.		+	- Both alternatives are consistent with the intra-basin transfer provisions of the OWRA because they would be developed, designed, constructed, and operated to meet the seven exception criteria. - Unlike Discharge to Lake Ontario alternative, Lake Simcoe Innovative alternative promotes a water balance within the Lake Simcoe watershed situated within York Region.
13. Is the alternative financially viable?	Must be within the ability of York Region to provide financing for and cost recovery of the proposed infrastructure.		+	- Both alternatives are financially viable. - In addition, Lake Simcoe Innovative alternative can be constructed at a lower cost and provides flexibility to be phased in over time.
14. Is the alternative within the ability of York Region to implement?	York Region must be able to implement the preferred Alternative To the Undertaking either on its own or through an arrangement with another party.			Both alternatives can be implemented by York Region alone or through an arrangement with another party.
15. Is the alternative able to meet the purpose of the <i>Environmental Assessment Act</i> ?	The purpose of the <i>Environmental Assessment Act</i> is the betterment of the people of Ontario by providing for the protection, conservation and wise management of the environment in Ontario. Must meet the purpose of the <i>Environmental Assessment Act</i> to facilitate the Minister of the Environment's decision making process.			Both alternatives are consistent with the purpose of the <i>Environmental Assessment Act</i>, because the environment would be protected, conserved and wisely managed for the betterment of the people of Ontario.

September 28, 2011

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The Alternative satisfies the screening criterion and provides additional benefits related to the criterion relative to the other alternatives

Upper York Sewage Solutions Lake Simcoe Innovative Alternative Overview of Additional Benefits

Additional Benefits	Lake Simcoe Innovative Alternative	Discharge to Lake Ontario
Water Efficiency	  Enhances York Region's Water Efficiency and Conservation Programs by making reclaimed water available for use, therefore reducing the demand for fresh/potable water resources.	 Consistent with the Region's Water Efficiency and Conservation Program, but would not enhance water efficiency by including water reclamation technologies.
Intra-basin Transfer	  Consistent with the intra-basin transfer provisions of the <i>Ontario Water Resources Act</i> (OWRA) and may promote a water balance within the Lake Simcoe watershed situated in York Region.	 Consistent with the intra-basin transfer provisions of the <i>Ontario Water Resources Act</i> (OWRA), but would not offer a water balance within the Lake Simcoe watershed.
Water Quality & Quantity (Lake Simcoe Protection Plan)	  Improves the quality and increases the quantity of water flowing into Lake Simcoe.	 Improves the water quality, but would not positively affect the quantity of water in Lake Simcoe.
Financial Viability	  Financially viable; construction can be phased in over time resulting in lower initial capital costs.	 Financially viable, but the majority of the infrastructure components must be built at the outset, resulting in higher initial capital costs.
Oak Ridges Moraine Conservation Plan	  No new wastewater infrastructure would be required within the Oak Ridges Moraine.	 Wastewater infrastructure would be constructed within the Oak Ridges Moraine subject to stringent mitigation.

Water Efficiency

In particular, the Lake Simcoe Innovative alternative would provide enhanced water efficiency by permitting the production of reclaimed water for a variety of water reuse opportunities. The treated water that is reclaimed could be used for a variety of applications such as the irrigation of golf courses, sod farms, tree farms and for industrial purposes. This ability to redirect the reclaimed water to new applications is consistent with the goals of the water efficiency programs currently in place in York Region, and would assist in enhancing these programs. For example, use of reclaimed water would promote the reduction in demand for potable/fresh water thereby reducing the total volume of potable/fresh water used by York Region. Further, the Lake Simcoe Innovative alternative provides a reliable water source for reuse purposes that could mitigate potential climate change impacts, including changes in rainfall intensity and frequency.

Intra-basin Transfer

Although both alternatives would be consistent with the intra-basin transfer provisions of the OWRA and the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement (2005) as incorporated into the OWRA, the Lake Simcoe Innovative alternative could promote a water balance from a natural environment perspective within the Lake Simcoe watershed situated in York Region. Since the early 1980s, groundwater from existing municipal wells in the Lake Simcoe watershed is treated to drinking-water standards and used locally by residents and businesses before the resulting wastewater is conveyed via the York Durham Sewage System (YDSS) to the Duffin Creek Water Pollution Control Plant (WPCP) for treatment before discharge to Lake Ontario. With the Lake Simcoe Innovative alternative, the wastewater treated at the proposed Water Reclamation Centre and discharged within the Lake Simcoe watershed would serve to promote a balance with the water supply from the existing municipal wells.

Water Quality & Quantity (Lake Simcoe Protection Plan)

The Lake Simcoe Innovative alternative would improve both the quality and increase the quantity of the water flowing into Lake Simcoe. The water that would be discharged into a Lake Simcoe watercourse within York Region would be phosphorus reduced and of high quality, which would assist in restoring the water quality. In addition, the use of reclaimed water for irrigation provides a beneficial use of nutrients that would otherwise have been discharged to a local watercourse in the form of treated effluent. Many surface watercourses (e.g., rivers and creeks) in the Lake Simcoe watershed are currently experiencing seasonal low base flows. Up to 42 MLD from existing municipal wells in the Lake Simcoe watershed would be redirected to a local watercourse as high quality water beneficially augmenting surface water base flow. Furthermore, the Lake Simcoe Innovative alternative supports the Phosphorus Reduction Strategy's Long Term Actions for Sewage Treatment Plants because it incorporates innovative technologies such as water reuse of treated wastewater effluent for irrigation of golf courses and sod farms and maintaining environmental flows in watercourses. These enhanced benefits align with the policies of the Lake Simcoe Protection Plan and its Phosphorus Reduction strategy through enhanced wastewater treatment.

Financial Viability

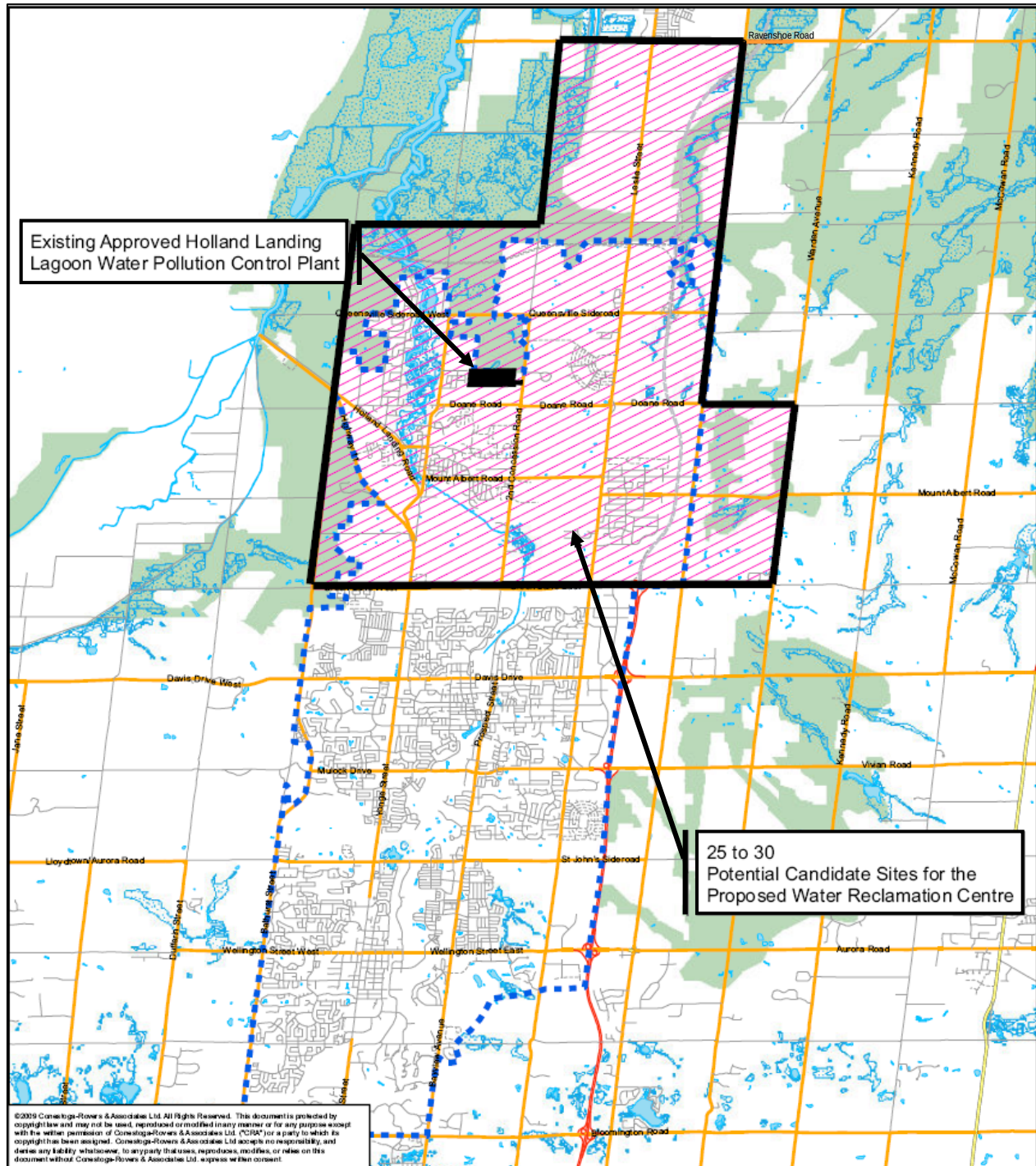
The Lake Simcoe Innovative alternative provides benefits related to financial viability. Since Lake Simcoe Innovative alternative involves a sewage treatment facility (Water Reclamation Centre), it can be built in stages to accommodate forecasted growth incrementally through 2031. Therefore, the total capital cost associated with the Lake Simcoe Innovative alternative would be allocated and spent as additional treatment capacity is required. In contrast, the sewage conveyance system associated with the Discharge to Lake Ontario alternative would need to be built in its entirety underground during a single construction phase requiring the total capital cost to be spent upfront.

Oak Ridges Moraine Conservation Plan

The Lake Simcoe Innovative alternative would require no new sewage infrastructure to be constructed within the Oak Ridges Moraine Conservation Plan (ORMCP) area, unlike the Discharge to Lake Ontario alternative, thereby avoiding potential adverse environmental effects on this feature. The Oak Ridges Moraine is an environmentally sensitive geological landform that contains the largest concentration of headwater streams in the Greater Toronto Area, acts as a recharge area for groundwater, and provides a natural habitat for sensitive and threatened plant and animal species. Although, the ORMCP allows for infrastructure to be built through the Oak Ridges Moraine, the intent is to avoid this where other feasible alternatives exist.

Prepared on September 28, 2011

YORK 3586445



Base Mapping: Produced by CRA under license from Regional Municipality of York, and Ontario Ministry of Natural Resources, Land Information Centre (LIC). 2009. © Corbridge-Rovers & Associates Ltd.



Legend

- UYSS Service Area
- Waterbody
- Wetland
- Natural Heritage System

Boundary Area for the Potential Candidate Water Reclamation Centre Sites

October 2011

WATER RECLAMATION CENTRE POTENTIAL SITE AREA

Upper York Sewage Solutions Project Update

Project 74270

Town of East Gwillimbury



ENVIRONMENTAL SERVICES

#3518611

Supplementary Information Report Servicing Options for Vandorf-Preston Lake, East Gormley and West Gormley Communities

This supplementary report provides an overview of potential water and wastewater servicing options for the three subject communities outside of the Upper York Sewage Solutions service area.

A report entitled “*Planning Policy Context related to Servicing Communities outside the Upper York Sewage Solutions Service Area*”, was presented to Regional Council on September 22, 2011. The Report outlined outstanding planning requirements that need to be addressed with respect to provision of water and wastewater services to the above mentioned communities.

Following Regional Council, staff representatives from the Town of Whitchurch-Stouffville and the Region met to review the Report and applicability of Regional policies, Provincial regulations and local Official Plan requirements. Follow-up meetings are proposed to continue the dialogue in order to address the planning requirements for servicing strategies for the Communities outside of the Upper York Sewage Solutions service area. Further updates with respect to these matters will be provided to Committee/Council as appropriate.

Subject to achieving compliance with all planning requirements and policies and completion of any Environmental Assessment studies as required, servicing of the three communities can potentially be addressed through the following options:

Vandorf-Preston Lake – Town of Whitchurch-Stouffville

Vandorf-Preston Lake is located between Highway 404 and Warden Avenue and extends from Bloomington Road to north of the Vandorf Sideroad. Location and potential options for servicing Vandorf-Preston Lake are illustrated in **Figure 1**.

Wastewater service can be extended to Vandorf-Preston Lake through connection to an existing Town of Aurora sewer along Wellington Street which currently terminates east of Leslie Street. This sewer is connected to the regional East Holland Trunk Sewer which in turn discharges to the Aurora Pumping Station. Capacity of Aurora Pumping Station is constrained. Additional wastewater capacity will not be available to service Vandorf-Preston Lake until such time as the Upper York Sewage Solutions is implemented with flows being diverted to the Water Reclamation Centre to free up capacity in the Aurora Pumping Station.

Water service can be extended to Vandorf-Preston Lake through connection to the newly constructed Leslie Street watermain at Wellington Street. Subject to detailed design and the boundary of the service area, local booster pump station(s) may be required in areas of high ground elevations.

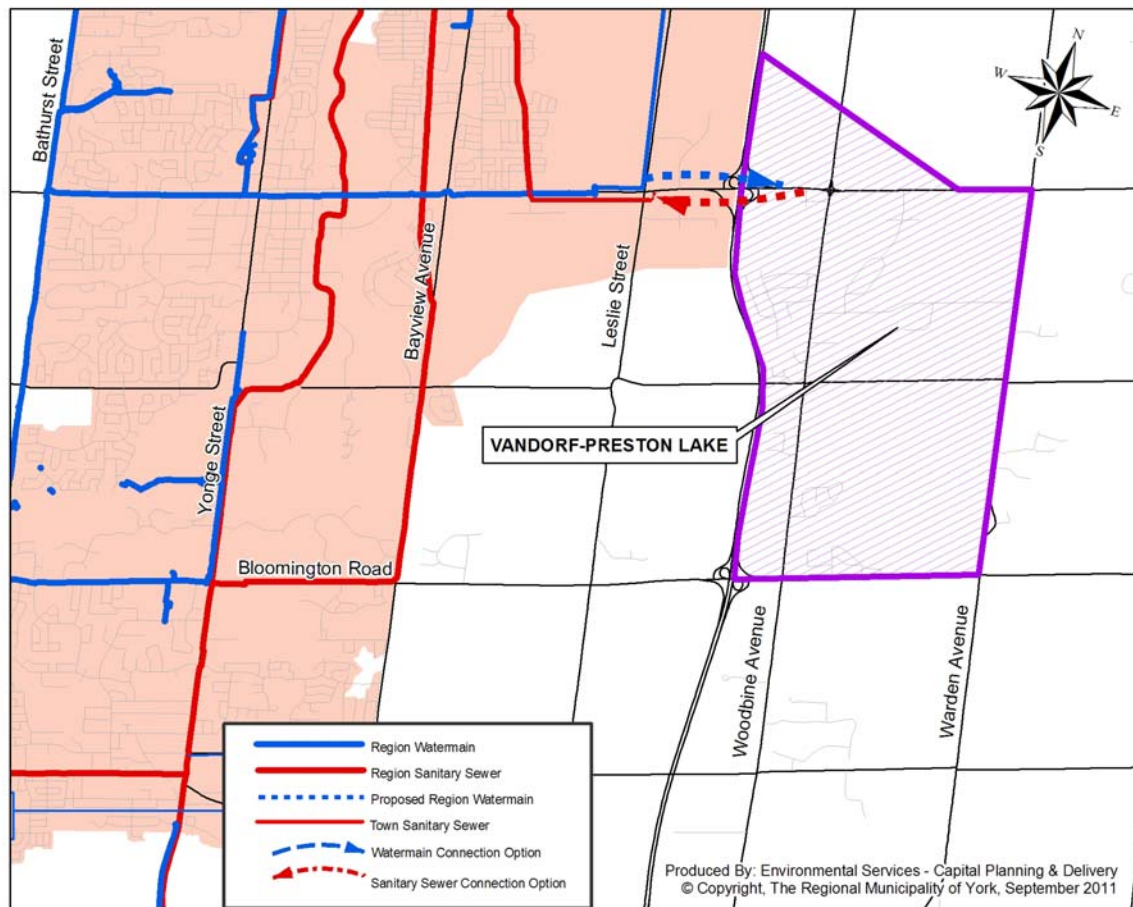


Figure 1 - Vandorf-Preston Lake location and servicing options

East Gormley – Town of Whitchurch-Stouffville

East Gormley is located on both sides of Stouffville Road from Highway 404 to east of Woodbine Avenue. Location and potential options for servicing East Gormley are illustrated in **Figure 2**.

Wastewater service to East Gormley can be achieved through connecting to the York Durham Sewage System at 19th Avenue and Leslie Street, which is approximately 4 km away from the community.

For water service, there are three potential options to extend York Water System to East Gormley:

- 1) Connection to the Stouffville water system located at McCowan Road and Stouffville Road which is approximately 5 km away from the community.

- 2) Connection to the PD7 watermain on Elgin Mills Road east of Highway 404. This connection is approximately 4 km away from the community.
- 3) Connection to the PD9 system via the Town of Richmond Hill water system. While this connection is closest to the community, it requires crossing of Highway 404 and coordination with the Town of Richmond Hill.

Detailed analysis is required to determine the preferred option and identify if any additional upgrade is required in the regional water system as well as, in the case of Option 3, the Town of Richmond Hill system. Local booster pump station(s) may also be required in areas of high ground elevations.

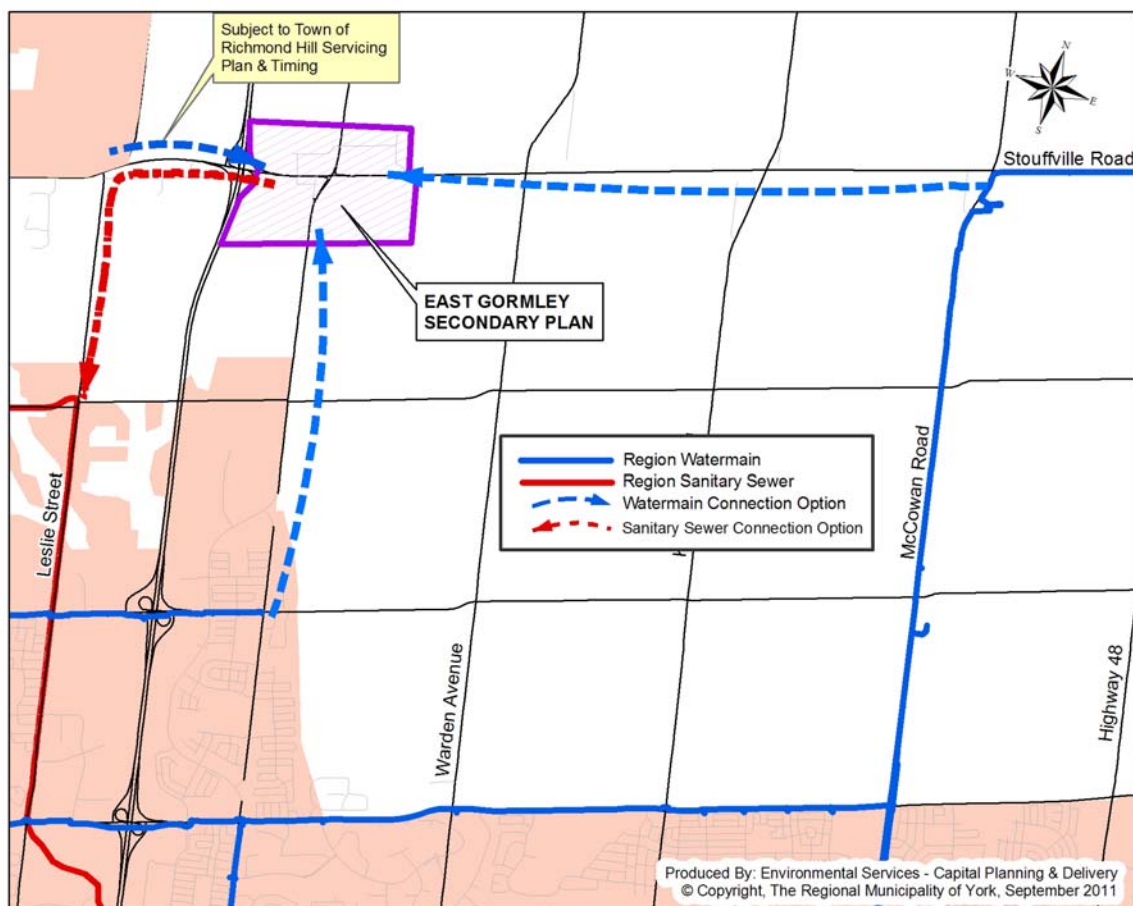


Figure 2 – East Gormley location and servicing options

West Gormley – Town of Richmond Hill

The West Gormley Secondary Plan is bounded by Leslie Street, Bayview Avenue, Stouffville Road and Bethesda Sideroad. The community also includes a hamlet located south of Stouffville Road between Leslie Street and Highway 404. Location and potential options for servicing West Gormely are illustrated in **Figure 3**.

Two major developments are planned for the West Gormley Secondary Plan:

- West Gormley (Rouge) in the east
- West Gormley (Humber) in the west

In support of the above developments, the developer groups submitted two separate functional servicing reports to York Region for review in 2009.

West Gormley (Humber)

The preferred wastewater servicing solution, as identified in the developer's functional servicing report for West Gormley (Humber), is to reconstruct the existing Town's sewage pumping station at Bayview Avenue and Sunset Beach Road and connect the subject land to the regional sewer on Yonge Street via the new pumping station. As such, any preferred alternative adopted for the Upper York Sewage Solutions should have no impact on the servicing strategy for this development.

The preferred water servicing solution is to expand the local water system which is currently connected to the Region's PD9 system.

West Gormley (Rouge)

The preferred wastewater servicing solution, as identified in the developer's functional servicing report for West Gormley (Rouge), contemplates the preferred alternative for Upper York Sewage Solutions to be a sanitary trunk sewer along Leslie Street or Highway 404 and servicing of the land facilitated through connection to the trunk sewer.

With the preferred alternative for Upper York Sewage Solutions now identified as the Lake Simcoe Water Reclamation Centre with York Durham Sewage System improvements, sewage servicing of this development will require construction of a sanitary sewer connecting the subject land to the York Durham Sewage System at 19th Avenue and Leslie Street. Subject to detailed design, a portion of this new sewer can be used to service East Gormley also.

Similar to West Gormley (Humber), the preferred water servicing solution is to expand the local PD9 water system. As identified in the functional servicing report, this development requires completion of Region's PD9 watermain on Bloomington Road and Bayview Avenue, which is expected to be constructed in two phases with the first phase on Bloomington Road scheduled for completion in late 2012 and the second phase on Bayview Avenue in late 2014.

Hamlet – south of Stouffville Road

Hamlets are normally serviced by individual private on-site water and wastewater systems. Provision of water and wastewater services to the hamlet south of Stouffville Road requires Regional Official Plan amendment. In the event that full services are to be provided, servicing options similar to West Gormley (Rouge) can be adopted.

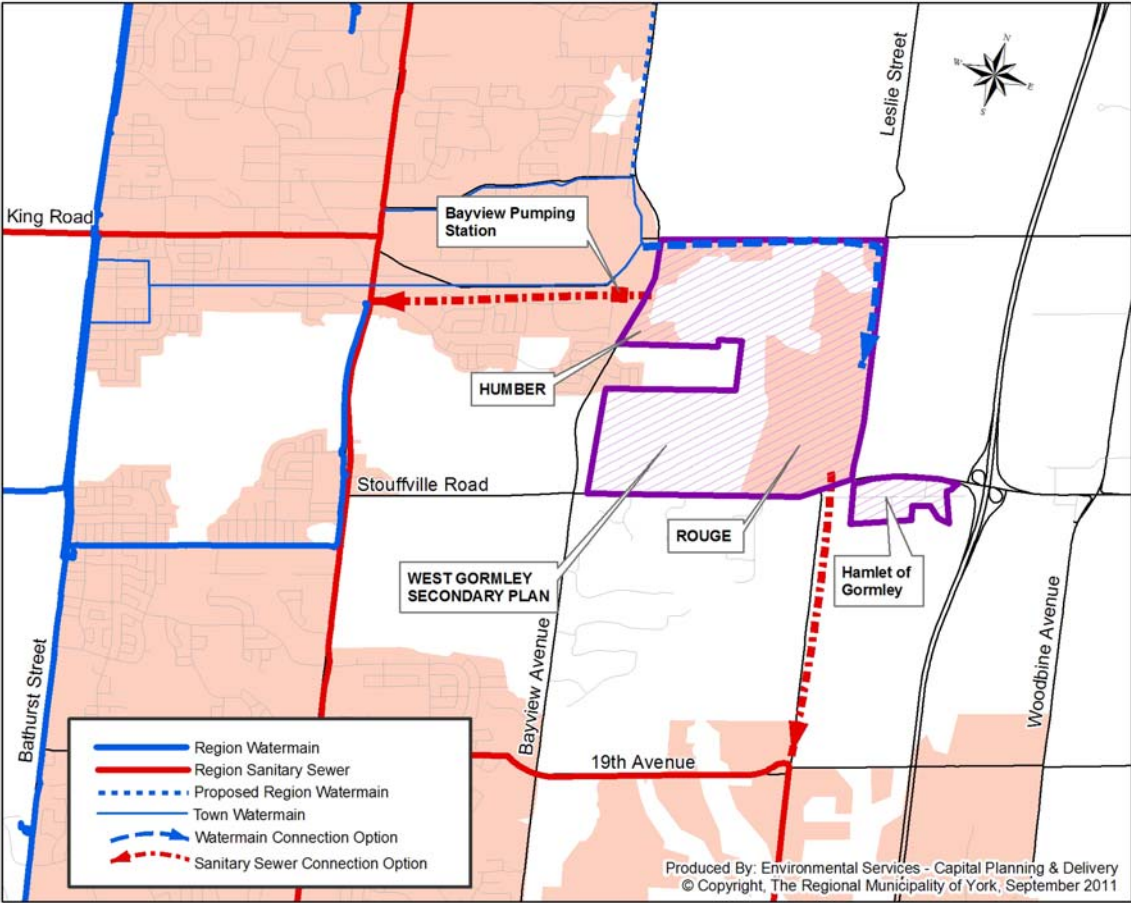


Figure 3 – West Gormley location and servicing options

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Upper York Sewage Solutions Individual Environmental Assessment

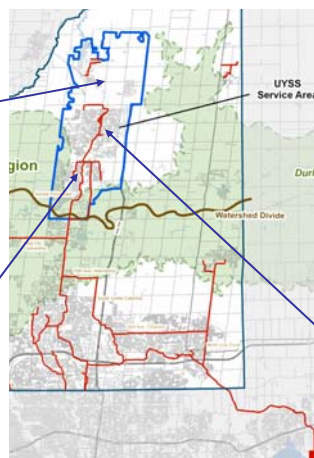
Presentation to
Environmental Services Committee

Daniel Kostopoulos
October 12, 2011

UYSS Purpose / Opportunity Statement Servicing Growth By Community

EAST GWILLIMBURY
Popⁿ & Emp 91,500
Sewage Flow 28 MLD

AURORA
Popⁿ & Emp 34,500
Sewage Flow 11 MLD



To develop a
sustainable sewage
servicing solution to
accommodate
forecasted growth in
the UYSS service area

NEWMARKET
Popⁿ & Emp 27,000
Sewage Flow 8 MLD

47 million litres per day (MLD) additional capacity required to 2031



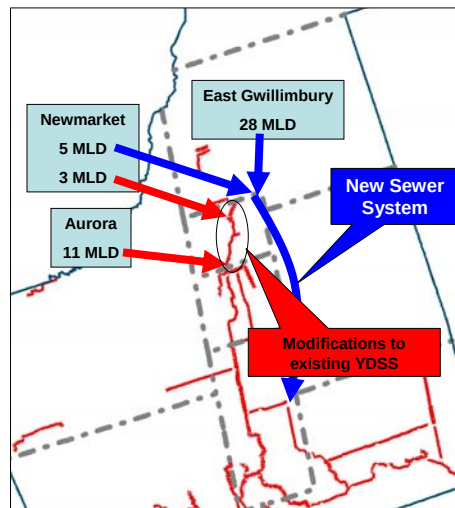
Upper York Sewage Solutions Background

- ❑ IEA Terms of Reference approved by MOE with condition that Region consider innovative technologies – March 2010
- ❑ MOE provides written confirmation on viability of Lake Simcoe based servicing – December 2010
- ❑ Regional Council advised that a Lake Simcoe Water Reclamation Centre is the tentatively recommended alternative – April 2011
- ❑ Public meetings on tentatively recommended alternative with positive feedback received – June 2011



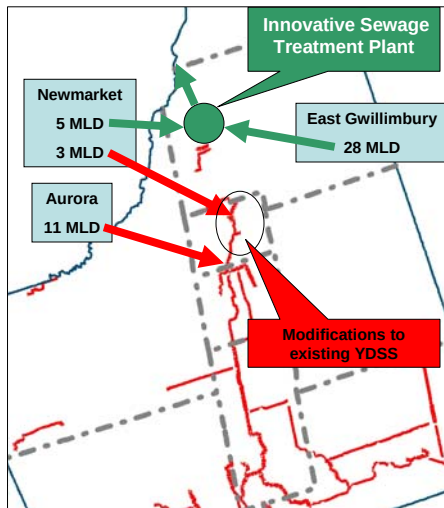
Discharge to Lake Ontario Background

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



Lake Simcoe Innovative Solution Background

- ❑ 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 hybrid discharge to innovative Sewage Treatment Plant and existing YDSS
- ❑ Modifications to existing YDSS include additional forcemains interconnecting Newmarket, Aurora and Bogart Creek pumping stations



Upper York Sewage Solutions Lake Simcoe Innovative Alternative Summary of Key Benefits

Additional Benefits	Lake Simcoe Water Reclamation Centre	Discharge to Lake Ontario
Water Efficiency	Enhances York Region's Water Efficiency and Conservation Programs by making reclaimed water available for use, therefore reducing the demand for fresh/potable water resources.	Consistent with the Region's Water Efficiency and Conservation Program, but would not enhance water efficiency by including water reclamation technologies.
Intra-basin Transfer	Consistent with the intra-basin transfer provisions of the Ontario Water Resources Act (OWRA) and may promote a water balance within the Lake Simcoe watershed situated in York Region.	Consistent with the intra-basin transfer provisions of the Ontario Water Resources Act (OWRA), but would not offer a water balance within the Lake Simcoe watershed.
Water Quality & Quantity (Lake Simcoe Protection Plan)	Improves the quality and increases the quantity of water flowing into Lake Simcoe.	Improves the water quality, but would not positively affect the quantity of water in Lake Simcoe.
Financial Viability	Financially viable; construction can be phased in over time resulting in lower initial capital costs.	Financially viable, but the majority of the infrastructure components must be built at the outset, resulting in higher initial capital costs.
Oak Ridges Moraine Conservation Plan	No new wastewater infrastructure would be required within the Oak Ridges Moraine.	Wastewater infrastructure would be constructed within the Oak Ridges Moraine subject to stringent mitigation.

Innovation is a Water Reclamation Centre in Lake Simcoe Watershed

- ❑ Centre of excellence for sustainable and innovative wastewater treatment and use of reclaimed water
- ❑ 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 with Conservation Authorities and regulatory agencies to meet provincial growth plans while providing opportunities to restore and improve Lake Simcoe watershed



Environmental Services Committee / October 12, 2011

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Lake Simcoe Innovative Alternative is Preferred Alternative

- ❑ Approvable solution with environmental benefits in Lake Simcoe watershed
- ❑ Modifications strengthen existing YDSS and accommodate growth to 2031 in Newmarket and Aurora
- ❑ Lower capital cost with phased implementation between 2016 and 2026 to defer and smooth capital expenditures
- ❑ Addresses innovation involving wastewater purification and recycling complementing Region's conservation and sustainability programs
- ❑ No major tunnel construction through Oak Ridges Moraine
- ❑ 5 years additional treatment / conveyance capacity at Duffin Creek Plant and in lower York Durham Sewage System
- ❑ Cost effective design coordinated with related water, wastewater and road projects to minimize community impacts and maximize financial benefits

Focused consultation with multiple stakeholders over summer 2011 confirmed support for Lake Simcoe innovative alternative (water reclamation centre) as preferred alternative



Environmental Services Committee / October 12, 2011

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Viable Alternatives Capital Costs ⁽¹⁾

	Discharge to Lake Ontario (\$)	Lake Simcoe Water Reclamation Centre (\$)
Water Reclamation Centre		329,000,000
Works to Achieve Phosphorous Offset Credits ⁽²⁾		10,000,000
Outfall to Cook's Bay ⁽³⁾		65,000,000
YDSS Modifications in Aurora and Newmarket	74,000,000	93,000,000
Land Acquisition	15,000,000	15,000,000
Chambers and Tunnel Shafts	40,000,000	
Conveyance Tunnel, Pipe, and Odour Control	693,000,000	
	822,000,000 ⁽⁴⁾	512,000,000 ⁽⁵⁾

(1) includes Contingency, Engineering, Legal, and Administrative Costs

(2) storm water upgrades and/or septic removals

(3) not required with discharge to East Holland River

(4) excludes Upper York's cost-share for downstream YDSS conveyance and treatment capacity (i.e. \$160M to \$180M)

(5) excludes reclaimed water distribution system since needed only to extend WRC capacity beyond 2031 (i.e. \$29M)



Environmental Services Committee / October 12, 2011

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Viable Alternatives - Schedule Comparison

LAKE SIMCOE WATER RECLAMATION CENTRE ALTERNATIVE



DISCHARGE TO LAKE ONTARIO ALTERNATIVE



Lake Simcoe WRC alternative can be completed at least 1 to 3 years earlier

Next Steps

- ❑ Continued communication and collaboration with Ministry of the Environment to ensure approvability of alternative
- ❑ Engage community and stakeholders through next phase of IEA in developing recommended solution
- ❑ Receive Certificate of Approval from Ministry of the Environment for demonstration facility at Mount Albert WPCP
- ❑ Site selection process for the Water Reclamation Centre established 25-30 candidate sites. Screening to short list expected by end of 2011
- ❑ Public workshops on Preferred Alternative and Next Steps planned by end of 2011

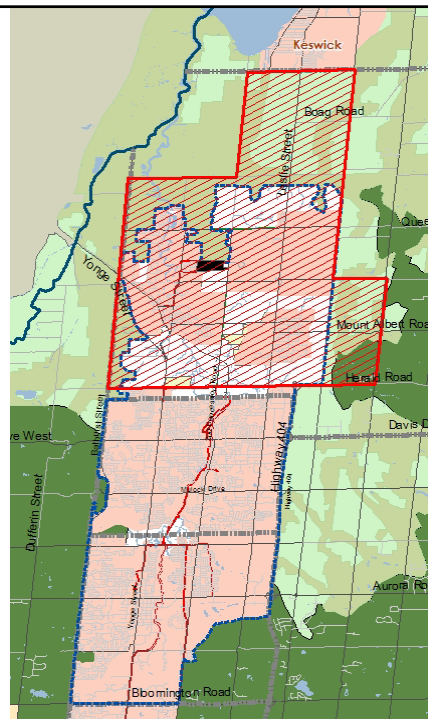
Water Reclamation Centre Potential Sites

 Existing Approved Holland Landing Lagoon Water Pollution Control Plant

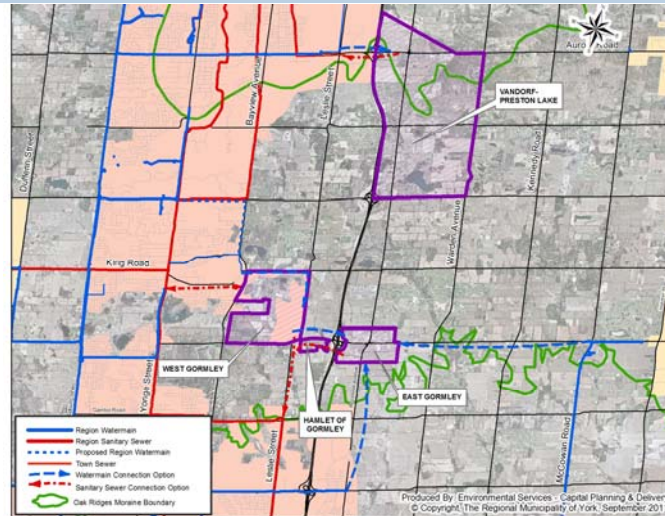
 25 to 30 potential candidate sites for the proposed water reclamation centre

 UYSS Service Area

 Oak Ridges Moraine



Servicing Communities Outside Upper York Sewage Solutions Service Area



Technically feasible to extend water and wastewater servicing to these communities provided planning approvals and funding are secured

In Summary

Lake Simcoe Water Reclamation Centre alternative:

- ❑ Is confirmed as the IEA Preferred Alternative through detailed evaluation and extensive stakeholder consultation
- ❑ Includes modifications to existing YDSS in East Gwillimbury, Newmarket and Aurora to enhance capacity and system security
- ❑ Does not preclude servicing for communities outside of the UYSS service area
- ❑ Provides direct capital savings in the order of \$300M
- ❑ Frees up capacity in downstream YDSS, valued between \$160M to \$180M, which can accommodate additional growth and/or defer planned capital expenditures by up to 5 years
- ❑ Can be completed at least 1 to 3 years earlier

Thank You

Questions?