Clause 12 in Report No. 10 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on June 23, 2016.

12
2016 Water and Wastewater Master Plan Update

Committee of the Whole recommends:

1. Receipt of the presentation by Erin Mahoney, Commissioner, Environmental Services.

2. Receipt and referral to staff of the communication from Fernando Lamanna, Municipal Clerk, Town of East Gwillimbury dated May 24, 2016 regarding "Holland Landing Lagoons".

3. Receipt and referral to staff of the communication from Don Given, Malone Given Parsons Ltd., dated June 8, 2016 regarding "2016 Water and Wastewater Master Plan Update – Comments on Behalf of the Block 41 Landowners Group".

4. Receipt and referral to staff of the communication from Nik Mracic, Vice President, Urban Development, Cole Engineering Group Ltd., dated June 8, 2016 regarding "2016 Water and Wastewater Master Plan Update – Block 27 Landowners Group – Comments/Stakeholder Participation Request".

5. Receipt and referral to staff of the communication from Mark McConville, Senior Planner, Humphries Planning Group Inc., dated June 9, 2016 regarding "2016 Water and Wastewater Master Plan Update".

6. Adoption of the following recommendations contained in the report dated May 12, 2016 from the Commissioner of Environmental Services:

    1. Council endorse the 2016 Water and Wastewater Master Plan Update Report and Executive Summary (Attachments 1 and 2).

    2. The Regional Clerk forward the 2016 Water and Wastewater Master Plan report to the Local Municipalities, Region of Durham, Region of Peel, City of Toronto, County of Simcoe, Toronto and Region Conservation Authority, Lake Simcoe Region Conservation Authority, Building Industry and Land Development Association and the Provincial Ministries of Environment and Climate Change, Municipal Affairs and Housing, Energy, and Economic Development, Employment and Infrastructure.

3. Implementation of the 2016 Water and Wastewater Master Plan be determined through the annual budget process.

Report dated May 12, 2016 from the Commissioner of Environmental Services now follows:

1. Recommendations

It is recommended that:

1. Council endorse the 2016 Water and Wastewater Master Plan Update Report and Executive Summary (Attachments 1 and 2).

2. The Regional Clerk forward the 2016 Water and Wastewater Master Plan report to Local Municipalities, Region of Durham, Region of Peel, City of Toronto, County of Simcoe, Toronto and Region Conservation Authority, Lake Simcoe Region Conservation Authority, Building Industry and Land Development Association and the Provincial Ministries of Environment and Climate Change, Municipal Affairs and Housing, Energy, and Economic Development, Employment and Infrastructure.

3. Implementation of the 2016 Water and Wastewater Master Plan be determined through the annual budget process.

2. Purpose

This report seeks Council endorsement of the 2016 Water and Wastewater Master Plan Update report. Upon Council endorsement, staff will notify stakeholders of the completion of 2016 Water and Wastewater Master Plan Update including posting the master plan report onto the Regional website.

3. Background

Master Plan is a culmination of previous work and builds upon prior studies

In June 2013, provincial amendment number 2 to the Growth Plan for the Greater Golden Horseshoe came into effect. The amended Growth Plan forecasts 1.79 million residents and 900,000 jobs in York Region by 2041. To ensure this forecasted growth is appropriately planned for, accommodated and serviced, the

Water and Wastewater Master Plan Update was initiated and undertaken in conjunction with Regional Official Plan Update and Transportation Master Plan Update.

The Water and Wastewater Master Plan is a living document, which builds upon previous master plans, completed and ongoing environmental assessments and other related studies. It is updated approximately every five years to align with proposed population forecasts in the Regional Official Plan and provide input to the Development Charge Bylaw Update. The most recent Master Plan Update was completed in 2009. A status report on the Master Plan Update, including public engagement to date and key milestones, was provided to Council on March 26, 2015. A second update on the Master Plan, including details on evaluating and selecting the Recommended Servicing Strategy, was provided to Council on April 7, 2016. Since then, the following work has been completed:

- Presentations to eight local Councils
- Final consultations with Conservation Authorities
- Completion of Master Plan Report and Executive Summary

Master Plan Update undertaken as per Provincial guidelines

The Master Plan Update was completed according to Municipal Engineers Association (MEA) Class Environmental Assessment Process, as approved by the Ministry of the Environment and Climate Change, to address the requirements of the *Environmental Assessment Act, 1990*. A Notice of Commencement was issued on July 25, 2014 as per the *Environmental Assessment Act*.

Master Plan highlights strategy to achieve service delivery excellence and long-term sustainability

The intent of updating the Master Plan is to provide a blueprint for continued success in delivering safe, reliable and efficient drinking water and wastewater services. A key driver behind this work is the need to plan for long-term growth in the Region while continuously improving service delivery. Thus, the Master Plan identified two key objectives:

1. Develop a cost-effective, resilient water and wastewater infrastructure plan to service future growth to 2041 and beyond; and
2. Develop an integrated, long-term strategy to provide sustainable water and wastewater services.

Paramount to addressing long-term growth is planning for infrastructure required to meet the increasing demand for water and wastewater services created by growth. At the core of the Master Plan is a comprehensive infrastructure plan that will service projected growth for the next twenty-five years while maintaining service to existing residents and businesses across the Region.

In addition to infrastructure, the Master Plan outlines a strategy and supporting action plan that address the long-term sustainability of water and wastewater services. This plan will highlight potential opportunities and identify areas of focus for continuous improvement as shown in Figure 1.

Figure 1
Action Plan Focus Areas

Additional details can be seen in the 2016 Master Plan Update Report and Executive Summary (Attachments 1 and 2).

4. Analysis and Options

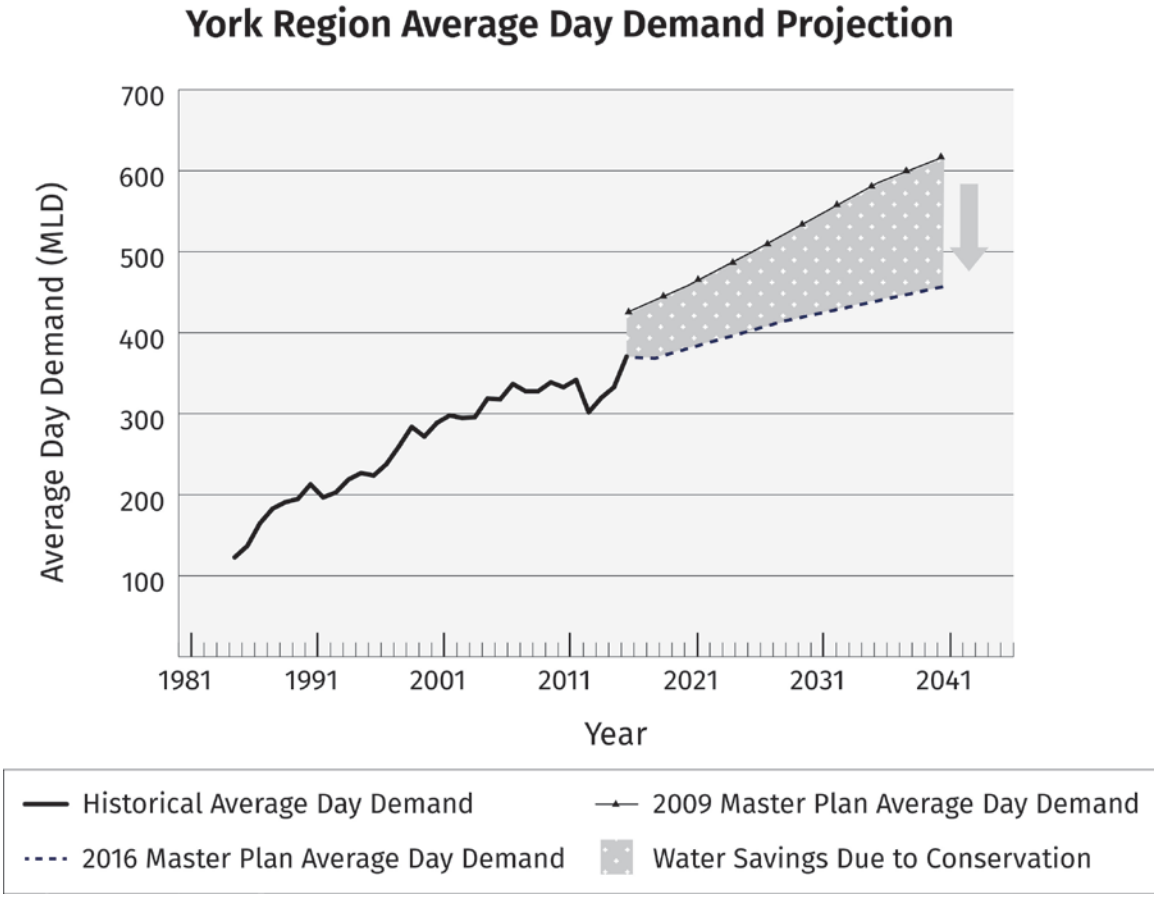
Key findings of this Master Plan Update and details on First Nations, Métis and stakeholder engagement are outlined in the following sections.

A further 20 per cent reduction on water demand is projected by 2041

Per capita water demand has decreased by approximately 20 per cent since the last Master Plan Update in 2009, due in part to successful water conservation efforts by the Region. This Master Plan Update, in conjunction with the 2016 Long Term Water Conservation Strategy Update, is projecting a further 20 per cent reduction in per capita demand by 2041 through a combination of ongoing water conservation efforts and new initiatives in water reuse. As a result of

reduction in per capita water demand, total water demand projection by this Master Plan Update has decreased significantly from the 2009 Master Plan Update as shown in Figure 2.

Figure 2
2016 vs 2009 Master Plan Demand Projections



Water conservation defers capital investment in infrastructure and will continue to be a fundamental component of the Region's long-term water and wastewater servicing strategy.

Existing servicing agreements with City of Toronto and Region of Peel support growth to 2041 and beyond

York Region relies heavily on Lake Ontario based drinking water supply from the City of Toronto and Region of Peel. These supplies are used to service part of or all the demand in a majority of local municipalities including Aurora, East Gwillimbury, King, Markham, Newmarket, Richmond Hill, Vaughan and Whitchurch-Stouffville.

With reduced per capita demand, the projected demand for Lake Ontario based drinking water in 2041 is approximately 720 ML/d, well within the combined capacity of 840 ML/d currently secured through existing servicing agreements with the City of Toronto and Region of Peel.

The Region also owns and operates two water treatment facilities in Georgina that draw water from Lake Simcoe. With reduced per capita demand, projected demand for Lake Simcoe based drinking water in 2041 is approximately 34 ML/d, well within the existing Permits to Take Water limit of 68 ML/d.

Inflow and infiltration reduction key to reducing flow to sanitary sewer system

Inflow and infiltration reduction is integral to the Master Plan Servicing Strategy. Since the implementation of Inflow and Infiltration Strategy in 2011, an estimated peak flow reduction of 9.6 ML/d has been achieved. This Master Plan Update, in conjunction with the 2016 Inflow and Infiltration Reduction Strategy Update, is projecting a total reduction of 40 ML/d by 2031 through a combination of ongoing efforts and new initiatives targeting inflow and infiltration reduction in private properties and new developments.

York Durham Sewage System services over 85 per cent of Region's population

Eight local municipalities are serviced by the York Durham Sewage System including Aurora, East Gwillimbury, King, Markham, Newmarket, Richmond Hill, Vaughan and Whitchurch-Stouffville. As part of the York Durham Sewage System, the Region co-owns the Duffin Creek Water Pollution Control Plant with Durham Region and has a servicing agreement with the Region of Peel for wastewater treatment. Together, these two agreements provide wastewater service to approximately 85 per cent of the Region's population.

The Duffin Creek Plant was recently expanded to treat 630 ML/d but is currently only permitted to operate at a capacity of 520 ML/d under the existing Environmental Compliance Approval. A Class Environmental Assessment has been completed to address the outfall constraint which is required to increase the permitted operating capacity to 630 ML/d. The combined 2041 flow from York and Durham to the Duffin Creek Plant is forecast to be within 630 ML/d, with continued water conservation and inflow and infiltration reduction efforts.

Flow of wastewater to Region of Peel is expected to increase to approximately 50 ML/d by 2041. The capacity of 53 ML/d secured through the current agreement with Peel is sufficient to meet this demand.

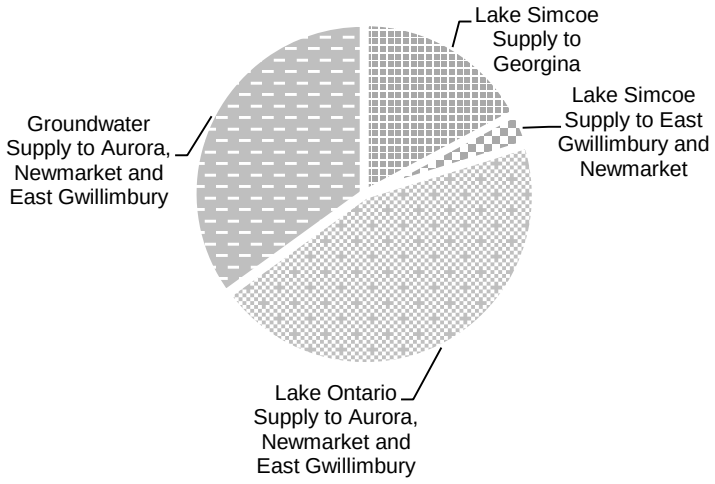
The new 40 ML/d Water Reclamation Centre proposed in the Upper York Sewage Solutions Individual Environmental Assessment will service parts of East

Gwillimbury (Holland Landing, Queensville and Sharon) and parts of Newmarket. Subject to the final long-term population growth assigned to the Water Reclamation Centre service area under the Municipal Comprehensive Review process, a plant expansion beyond 40 ML/d may be required before 2041.

Restoring watershed balance in Lake Simcoe basin

This Master Plan Update recommends connecting the water system between Georgina and East Gwillimbury through constructing a new pumping station and 6.5 km watermain in 2041. This connection will permit incremental supply of Lake Simcoe water to East Gwillimbury and Newmarket, representing approximately five per cent of the total water demand in these two municipalities in 2041. Figure 3 shows the sources of water supply to meet forecasted demands in Aurora, Newmarket, East Gwillimbury and Georgina in 2041.

Figure 3
Sources of Water Supply in 2041 to Aurora, Newmarket, East Gwillimbury and Georgina



As this work is not planned to be implemented until 2041, this proposal will be reviewed in three or four future master plans prior to that date. A Class Environmental Assessment will also be undertaken prior to its implementation.

Benefits of this water system connection between East Gwillimbury and Georgina include:

- Less intra-basin transfer: With all future wastewater generated in Holland Landing, Queensville and Sharon to be treated at the proposed Water Reclamation Centre in the Lake Simcoe watershed, incremental supply of Lake Simcoe based water will improve water balance and minimize intra-basin transfer

- Lower water age: As Newmarket and East Gwillimbury are closer to Lake Simcoe than Lake Ontario, water age is lower

- Less energy consumption and fewer greenhouse gas emissions: As Newmarket and East Gwillimbury are closer to Lake Simcoe than Lake Ontario, less pumping is required and therefore less energy consumption and greenhouse gas emissions

- Diversity of supply: An incremental supply to East Gwillimbury and Newmarket from Lake Simcoe enables less dependence on Lake Ontario based supply, and provides more resilience in long term servicing

- Operational flexibility: Allowing system interconnection provides operational flexibility in the event of a supply disruption

Capital infrastructure forms the basis of Master Plan

The overall cost of the Master Plan program is $3.1B. About 26 per cent is for water servicing and 74 per cent for wastewater servicing. The cost of new Regional infrastructure is $2.7B, representing a 51 per cent increase in the total water and wastewater infrastructure asset base owned by the Region. Implementation of the works will be staged over the next twenty-five years.

A full list of infrastructure projects can be seen in the Master Plan Update Report, (Attachment 1). A summary of 19 of the key water and wastewater projects representing a capital investment of $2.0B is highlighted below.
Water Infrastructure Projects:

- Northeast Vaughan Water Servicing ($68M)
- West Vaughan Water Servicing ($15M)
- East Gwillimbury Water Servicing ($34M)
- North Markham Water Servicing ($53M)
- Aurora East Pumping Station Expansion ($20M)
- Bloomington/Bayview Watermain ($47M)
- Georgina and East Gwillimbury Water System Connection ($22M)
- Stouffville Water System Expansion ($11M)

Wastewater Infrastructure Projects:

- Upper York Sewage Solutions ($591M)
  (*excludes future solids handling project beyond 2026*)
- Duffin Creek Water Pollution Control Plant ($265M)
- Primary Trunk Sewer Twinning ($254M)

- Northeast Vaughan Sewage Servicing ($107M)
- West Vaughan Sewage Servicing Phases 1 & 2 ($294M)
- Richmond Hill/Langstaff Gateway Urban Growth Centre Servicing ($26M)
- North Markham Trunk Sewer ($35M)
- Yonge Street Sewer Twinning ($52M)
- Expansion of Keswick Water Resource Recovery Facility ($32M)
- Expansion of Sutton Water Resource Recovery Facility ($41M)
- Expansion of Nobleton Water Resource Recovery Facility ($19M)

Overall water and wastewater servicing strategy remains unchanged for different intensification scenarios

In May 2016, the Province released the draft amendments to Places to Grow: Growth Plan for the Greater Golden Horseshoe, proposing the minimum intensification rate to be increased from 40 per cent to 60 per cent. Population and employment forecasts for York Region remain unchanged at 1.79 million residents and 900,000 jobs by 2041.

Early work on intensification impact analysis indicated that there is no significant difference in water and wastewater infrastructure needs between the 40 per cent to 60 per cent intensification scenarios. Timing of infrastructure is also not expected to change for infrastructure required within the next ten years. For infrastructure requirements beyond the next ten years, some changes in timing are expected depending on the specific population distribution.

More importantly, the overall servicing strategy is not expected to change between various intensification scenarios.

Changes on intensification scenarios affects timing of proposed infrastructure projects servicing urban expansion areas

Upon identification of the recommended servicing strategy and associated infrastructure program, staff carried out another high level assessment of the implications of intensification on the Master Plan recommendations. The overall servicing strategy detailed in this Master Plan Update is built upon long-term sustainability principles, which are applicable to all intensification scenarios. Further, non infrastructure solutions such as water conservation and inflow and infiltration reduction, and environment protection measures such as minimizing intrabasin transfer and promoting energy conservation are integral parts of this Master Plan Update servicing strategy and are equally applicable to all intensification scenarios.

While the overall servicing strategy recommended in this Master Plan Update remains unchanged, differences in intensification scenarios may change the specific timing of long term capital projects. While the timing difference between the 40 per cent and 50 per cent intensification scenarios are insignificant, there are changes in project timing under the 60 per cent intensification scenario especially for infrastructure primarily servicing urban expansion areas. Some projects may not be required until after 2041, subject to the final distribution of population under the selected intensification scenario determined by the Municipal Comprehensive Review process.

While there may be some longer term project timing changes for higher intensification scenarios, it is not expected that intensification scenarios will have any material impact to those projects planned for implementation within the next ten years. These water and wastewater projects outlined in this Master Plan Update serve an immediate need to provide capacity for imminent developments and the timing of these near-term projects is not affected by the specific intensification scenario.

Staff will continue to work with Planning and Economic Development staff, and provide input to the ongoing Municipal Comprehensive Review process. Any refinements to timing of specific infrastructure projects slated for implementation in the medium to long term will be made through capital budget process, as well as reviewed and adjusted through the next Master Plan Update.

Extensive public, stakeholder, First Nations and Métis consultation undertaken as part of Master Plan

An extensive effort was made using various sources of media to reach and engage with the public and other stakeholders as part of this Master Plan process. Social media outreach including Facebook and Twitter posts were used to promote Public Open Houses and communicate milestone achievements.

A website (www.york.ca/waterplan) was developed and maintained as a resource that included boards and presentations from open houses, information on the Master Plan and frequently asked questions. An email address (watermasterplan@york.ca) was made available to the public to ask questions and was used to send over 4,400 email notifications to stakeholders interested in the Master Plan advising of Public Open Houses.

Multiple newspaper advertisements provided information on milestone events and upcoming Public Open Houses.

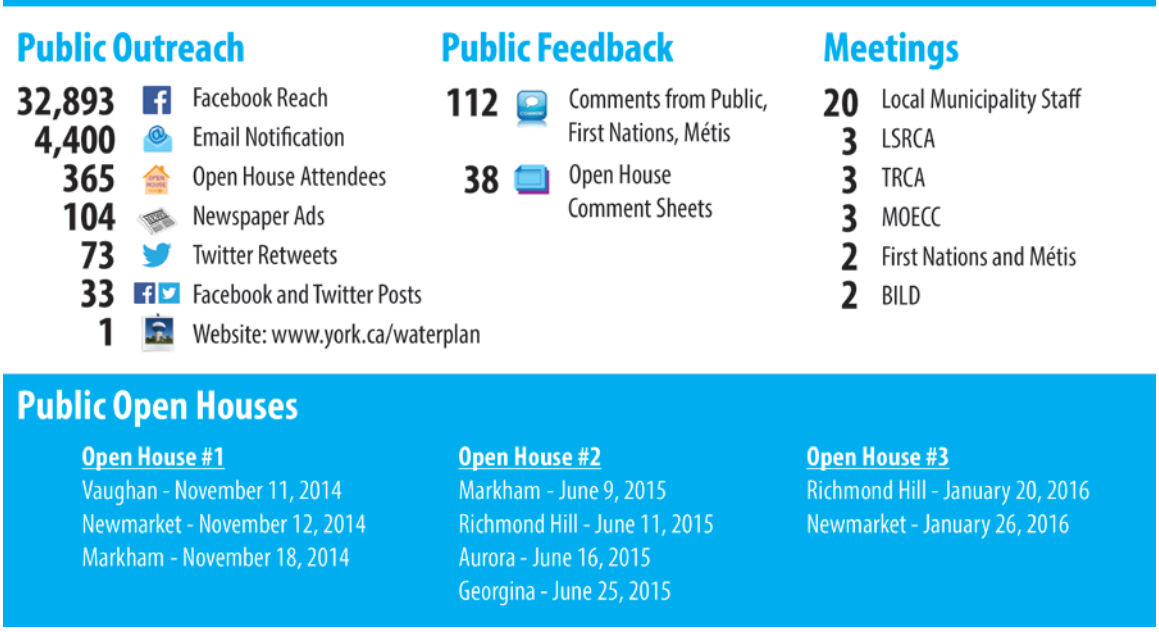
Over 300 people attended three rounds of open houses held to receive input from the public

Three rounds of open houses were held as part of the consultation process to share information on the Master Plan and provide opportunities for face-to-face feedback. Two meetings inviting First Nations and Métis to discuss the impacts of the Master Plan Update were held.

Local municipal staff, Ministry of the Environment and Climate Change, Toronto Region Conservation Authority, Lake Simcoe Conservation Authority and the Building Industry and Land Development Association (BILD) were also consulted in development of the Master Plan. A number of meetings and workshops were held to review the Master Plan and proposed infrastructure and identify any concerns with the plan.

Figure 4 summarizes results of the outreach and consultation activities undertaken as part of the Master Plan including open house attendance, email notification and a social media reach of approximately 33,000 people. A summary of the public, stakeholder, First Nations and Métis consultation meetings and events is shown in Attachment 3.

Figure 4
Summary of Master Plan Engagement and Consultation



Local Municipal Councils were consulted in development of Master Plan

An offer to present a summary of the Master Plan Update and the recommended servicing alternative was extended to each of the nine Local Municipal Councils, with eight accepting and completed. Feedback was generally positive. Comments received at these presentations and responses are provided in Attachment 4. At the request of City staff, the presentation to City of Markham Council will be made after Regional Council endorsement of the Master Plan Update Report currently slated for late June.

A list of each of the scheduled presentations is shown in Table 1 below:

Table 1
Local Municipal Council Presentations

Date	Municipality
March 1, 2016	Town of Whitchurch-Stouffville
March 21, 2016	Township of King
April 18, 2016	Town of Richmond Hill
April 26, 2016	Town of Aurora
May 3, 2016	Town of East Gwillimbury
May 9, 2016	Town of Newmarket
May 18, 2016	Town of Georgina
June 1, 2016	City of Vaughan

Feedback included commending the Region for success in water conservation. Key questions were received primarily around the Lake Simcoe Servicing Strategy including the reason, timing of implementation, amount of water transfer and sustainability of the Lake Simcoe water supply source. This has been addressed through additional information clarifying the Lake Simcoe Servicing Strategy to Local Municipal Councils including:

- Lake Simcoe Servicing Strategy has a number of environmental and operational benefits (as described previously in this Section)
- Lake Simcoe Servicing Strategy is to be implemented in 2041. Amount of water transfer from Georgina to East Gwillimbury and Newmarket is

incremental and only represents less than five per cent of the total water demand in the two municipalities in 2041

- Including water transfer to East Gwillimbury, estimated water demand for the Lake Simcoe based system is only 34 ML/d in 2041 and is well within existing Permits to Take Water limit of 68 ML/d

Link to key Council-approved plans

The 2016 Water and Wastewater Master Plan Update aligns with Vision 2051 goal areas:

- **Livable cities and complete communities** – develop a cost effective and resilient plan to serve York Region communities to 2041
- **Living sustainably** – develop a long-term strategy to provide sustainable water and wastewater service delivery

The 2016 Water and Wastewater Master Plan Update aligns with the 2015-2019 Strategic Plan Priority Areas:

- Manage Environmentally Sustainable Growth
- Provide Responsible and Efficient Public Service

5. Financial Implications

Total program costs of the 2016 Water and Wastewater Master Plan is approximately $3.1 billion

The total cost of the Master Plan program is $3.1B. Expenditures in the first ten years of the master plan program are in full alignment with the 2016 ten year capital plan, which includes approximately $1.3B expenditures on growth related projects.

Cost estimates from the Master Plan Update will be provided as inputs to the Development Charge By-law Update to be completed in June 2017. Estimates may be revised going forward if proposed amendments to the Growth Plan are finalized and result in a need for such a revision. Pace and timing of implementation of the Master Plan projects will be determined through the annual budget process.

2016 Master Plan Update represents 26 per cent decrease in program cost compared to 2009 Master Plan

The 2009 Master Plan outlined a total 23-year program cost of $3.7B (not adjusted for inflation) from 2009 through to 2031. The total 26-year program cost of the 2016 Master Plan from 2016 to 2041 represents a decrease of approximately 26 per cent on an annual basis from the 2009 Master Plan. This reduction has been achieved primarily through water conservation, inflow and infiltration reduction and the completion of major projects including the new Southeast Collector and Duffin Creek Plant Stage 3 Expansion.

6. Local Municipal Impact

This Master Plan Update provides a blueprint of future infrastructure to be delivered in the next 25 years to service growth in all nine local municipalities. Local municipalities will use the Region's infrastructure plan to guide development of their own infrastructure plans. As the Master Plan is a living document, regular consultation and collaboration between regional and local staff is essential to ensure that capital investment in infrastructure is optimized, and any constructive adjustments in the infrastructure program be reflected in the ten year capital plan process prior to implementation. Coordination will be achieved through established committees including the Municipal Liaison Committee, Water and Wastewater Steering Committee and the Water Liaison Committee as well as other partnerships between Regional and local municipality staff for specific issues.

7. Conclusion

The Master Plan outlines the Region's strategy to achieve water and wastewater service delivery excellence and long-term environmental and fiscal sustainability. Key infrastructure and programs are identified which are required to support forecasted growth in the Region. Capital expenditure of $3.1B is projected for the Master Plan program, with first ten years' expenditure at $1.3B as per 2016 ten year capital plan.

It is recommended that Council endorse the 2016 Water and Wastewater Master Plan Update report. Upon Council endorsement, Regional staff will notify the public and stakeholders of the completion of the 2016 Water and Wastewater Master Plan Update including posting the master plan report onto the Regional website (York.ca). Members of the public, stakeholders, First Nations and Métis will be provided with an opportunity to provide their comments by mid-September, 2016. Regional staff will review and respond to the comments, which

will be taken into consideration in the implementation of this Water and Wastewater Master Plan Update.

For more information on this report, please contact Stephen Fung, Director, Infrastructure Asset Management at ext. 73025.
The Senior Management Group has reviewed this report.

May 12, 2016

Attachments (4)

#6786396

Accessible formats or communication supports are available upon request

Attachment 1 to **this** Item

"2016 Water and Wastewater Master Plan Update"

is included separately
on the **main** web page

Attachment 2

The Regional Municipality of York

Water and Wastewater Master Plan

Executive Summary

York Region

Purpose

This document reports on the update of the Water and Wastewater Master Plan for The Regional Municipality of York. The updated master plan will guide investments in water and wastewater systems to support the Region's projected growth to 2041.

This document also explains how the Region will meet the goal of sustainable growth through adopting a new "One Water" approach, which aims to realize the value of water whether in a lake, river, aquifer or municipal system. One Water strives to view all water as a resource and to reduce the need to build new infrastructure by making the best use of existing infrastructure, conserving water to lessen pressure on natural and financial resources and utilizing water reuse to create markets for treated wastewater. **Figure ES.1** summarizes the One Water approach to water and wastewater servicing.

Figure ES.1 - One Water Approach

The updated Master Plan will also integrate water and wastewater initiatives with the Region's Official Plan, Transportation Master Plan and other strategies to ensure the needs to service growth are met cost-effectively.

This Master Plan Update has been completed in accordance with the Municipal Class Environmental Assessment process, and comprises phases 1 and 2 of that process.

Background

The Regional Municipality of York, also described as York Region or the Region in this report, has grown rapidly since its creation in 1971 and is expected to continue to grow through provincially mandated growth in terms of residents and jobs.

The Region, under the governance of Regional Council which represents the nine local municipalities within it, provides a range of services to more than one million residents. These services are often delivered in coordination with local municipalities.

The main role of York Region in the area of water and wastewater is to act like a wholesale service provider to local municipalities. These Regional responsibilities reside within the Environmental Services Department. **Figure ES.2** shows the different functions of the water and wastewater systems.

Communities in York Region are serviced by Lake Ontario based water, Lake Simcoe based water and/or groundwater. In the Greater Toronto Area, York Region is unique in that it is the only regional municipality which lacks direct access to Lake Ontario. As a result, the Region has entered into long-term agreements with the Region of Peel, Durham Region and the City of Toronto for various aspects of its water and wastewater service needs.

To help its water and wastewater services keep pace with provincially mandated growth while working to create sustainable communities, the Region has prepared a series of Water and Wastewater Master Plans at regular intervals, with the last released in 2009. This update reflects major developments since then, including revised population and employment direction from the Province identified in ***Amendment 2 to the Growth Plan for the Greater Golden Horseshoe, 2013***.

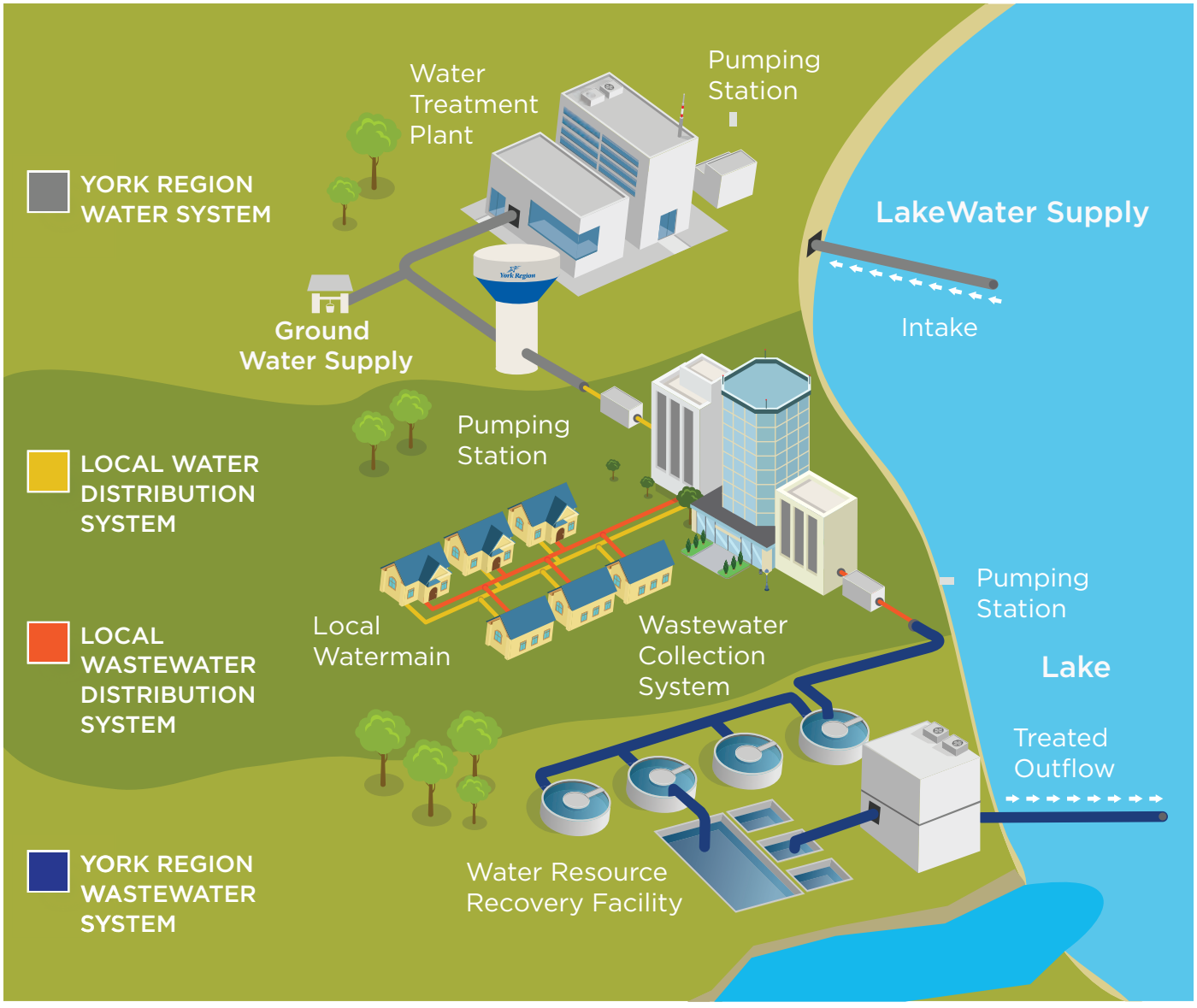


Figure ES.2 – Regional and Local Servicing System in York Region

The provincial direction, which York Region must take into account in planning its infrastructure, is for population to increase by just over 50 per cent in 2041, reaching 1.79 million people. Employment in the Region is predicted to grow at roughly the same rate over the period, reaching 900,000 (**Figure ES.3**).

The City of Markham, Town of Richmond Hill and City of Vaughan are expected to absorb a majority of the population increase – approximately two-thirds.

York Region's population is expected to grow from

1.16 million in 2015 **to** **1.79 million in 2041**

York Region's employment is expected to grow from

578 thousand in 2015 **to** **900 thousand in 2041**

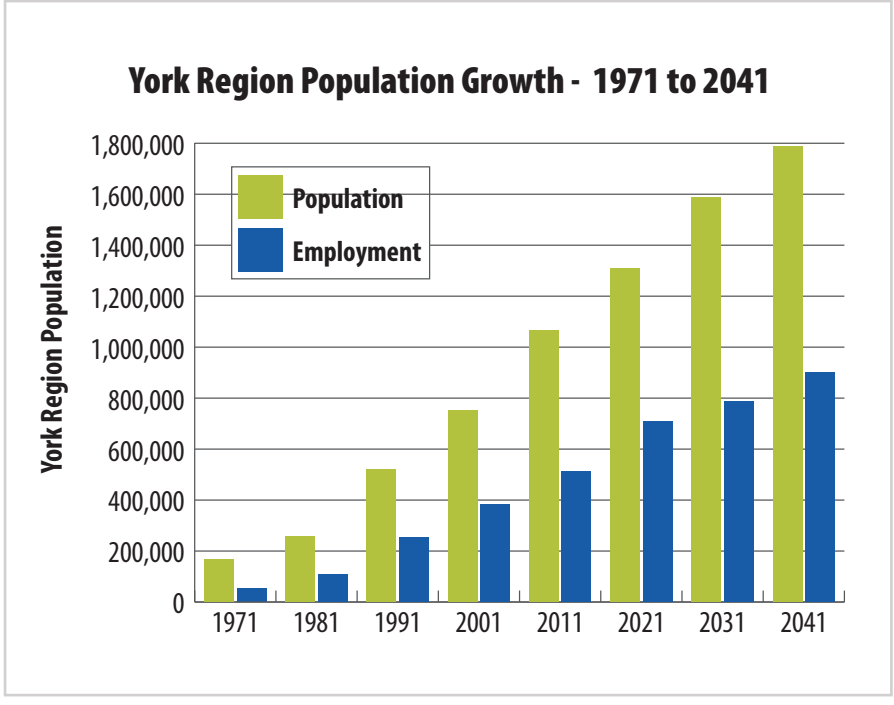


Figure ES.3 – Population and Employment Growth in York Region

A More Stringent Regulatory Environment

Across Ontario, water services continue to face greater regulatory complexity and scrutiny. This is especially true for the Region, which is subject to both province-wide regulatory regimes and additional requirements that reflect its unique geography.

- The ***Ontario Water Resources Act, 1990*** as amended by the ***Safeguarding and Sustaining Ontario's Water Act, 2007,*** bans transfers of water from one Great Lakes watershed to another except under strictly regulated conditions. This is a challenge for the Region, because it straddles the Lake Huron (Simcoe) and Lake Ontario watersheds. The Region has received permission to transfer no more than 105 million litres a day of water, and must meet ongoing conditions for this transfer.
- A protection plan released under the province's ***Lake Simcoe Protection Act, 2008***, aims to reduce contaminants in Lake Simcoe and its watershed. The plan puts more stringent limits on discharges from existing water resource recovery facilities (formerly called wastewater treatment plants), including several operated by the Region, in the Lake Simcoe watershed.
- The province's ***Oak Ridges Moraine Conservation Act, 2001*** and ***Greenbelt Act, 2005*** are intended to reduce pressure on natural and agricultural lands in the Greater Golden Horseshoe Area. As a large portion of the Region's lands are located within the Oak Ridges Moraine and Greenbelt, these Acts have significant implications on development and water and wastewater infrastructure planning. Specifically, the Oak Ridges Moraine Conservation Plan prohibits "partial servicing" of water or wastewater (except in very limited circumstances) and the Greenbelt Plan restricts the extension of lake-based water and wastewater servicing.
- The province's ***Clean Water Act, 2006*** introduced the new regulatory tool of source water protection, to safeguard Ontario's drinking water resources. The Region is recognized for its leadership in establishing the first Risk Management Official in the Province and for preparing and implementing Source Water Protection efforts for the two watersheds that lie within its boundaries.

These requirements are very important considerations for the Region in planning its future water and wastewater services.

How the Master Plan Update Is Being Carried Out

The Master Plan is being updated under the requirements of the Municipal Class Environmental Assessment process. This is a process that Ontario municipalities use to meet applicable requirements of the provincial ***Environmental Assessment Act, 1990***. The process weighs environmental, regulatory, social and other impacts of various options available to meet the goals of a project, as well as the impact of doing nothing. It also considers cultural, technical and financial implications. Public consultation is an important consideration that is integrated in each phase of the process.

As part of the Municipal Class Environmental Assessment process, the Region has consulted widely with its residents, local municipalities, First Nations and Métis, regulatory agencies and other stakeholders. This outreach helped to shape the update, especially by providing insight into the relative importance of various factors used in evaluating of servicing alternatives.

This Master Plan Update followed the requirements under phases 1 and 2 of the Municipal Engineers Association master planning process including identification of the problem and the recommended servicing strategy **(Figure ES.4)**.

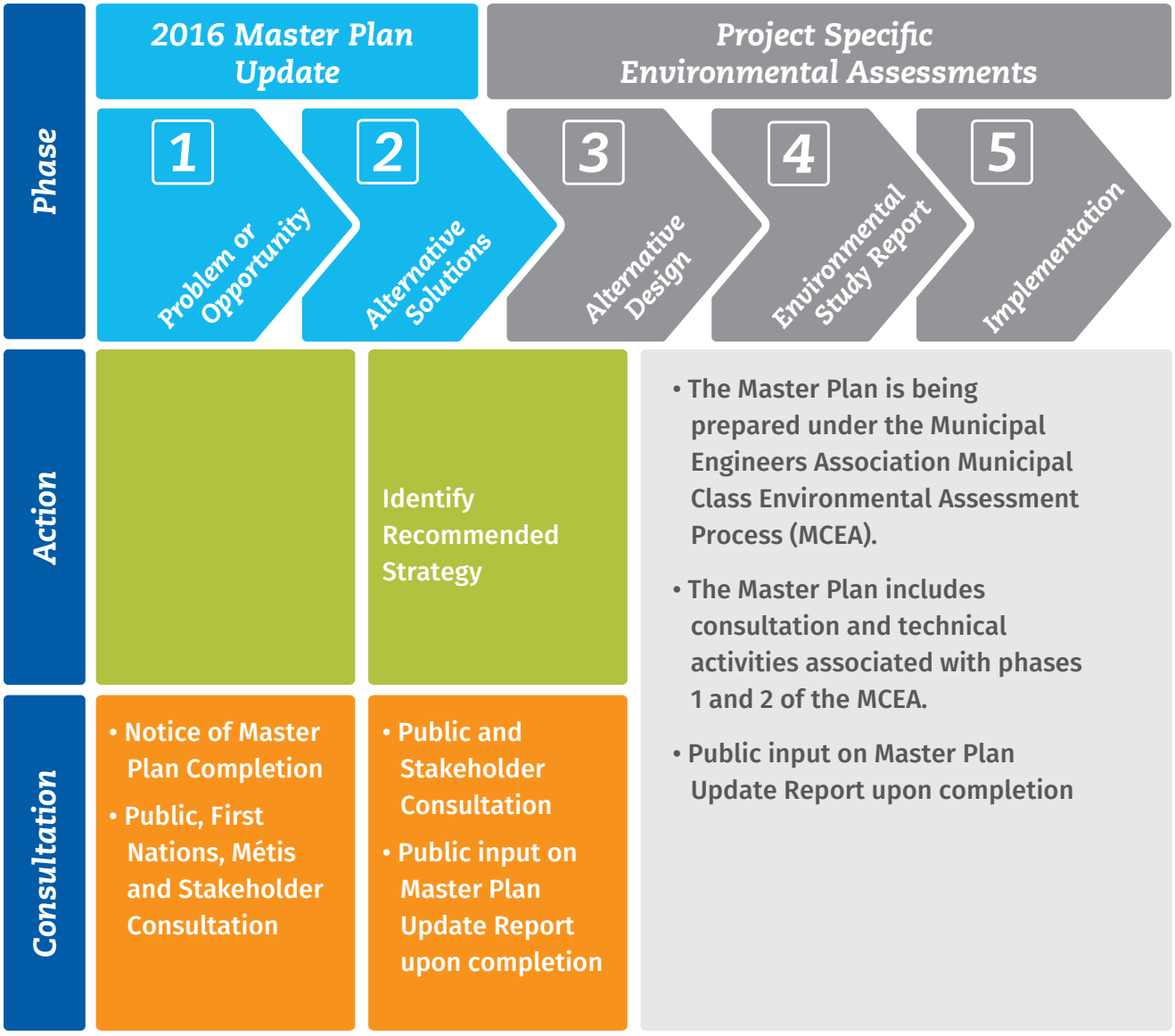


Figure ES.4 – Municipal Class Environmental Process for a Master Plan

Purpose of the Water and Wastewater Master Plan Update

The main purpose of the Master Plan Update is to determine the water and wastewater infrastructure requirements needed to support the revised growth forecasts identified in ***Amendment 2 to the Growth Plan for the Greater Golden Horseshoe,*** and to develop a long term strategy to ensure that York Region continues to serve its residents in an environmentally and economically sustainable manner.

Working with its nine local municipalities, community and government partners, York Region is updating the Master Plan through a Made-in-York ***One Water*** approach to achieve two key objectives:

Objective 1

Develop a cost-effective, resilient water and wastewater infrastructure plan to service future growth to 2041 and beyond

Objective 2

Develop an integrated, long-term strategy to provide sustainable water and wastewater services

Problem Statement

As part of the Municipal Class Environmental Assessment process, a Problem Statement has been identified for this Master Plan Update. The Problem Statement is defined as follows:

> *"In 2041, York Region's population and employment are expected to reach 1.79 million and 900,000, respectively. This growth will strain existing water and wastewater systems and require new infrastructure and servicing strategies in order to continue to provide safe, reliable and sustainable water and wastewater services."*

Recommended Servicing Strategy and Infrastructure Plan

The Master Plan Update explored options to achieve ***Objective 1 - Develop a cost effective, resilient water and wastewater infrastructure plan to service future growth to 2041 and beyond.*** Opportunities and challenges of various options and concepts were studied. Options and concepts deemed unfeasible were eliminated.

Figure ES.5 outlines the approach taken to develop and evaluate servicing strategies beginning with the problem statement and individual servicing concepts.

Problem Statement

In 2041, York Region's population and employment are expected to reach 1.79 million and 900,000, respectively. This growth will strain existing water and wastewater systems and require new infrastructure and servicing strategies in order to continue to provide safe, reliable and sustainable water and wastewater services.

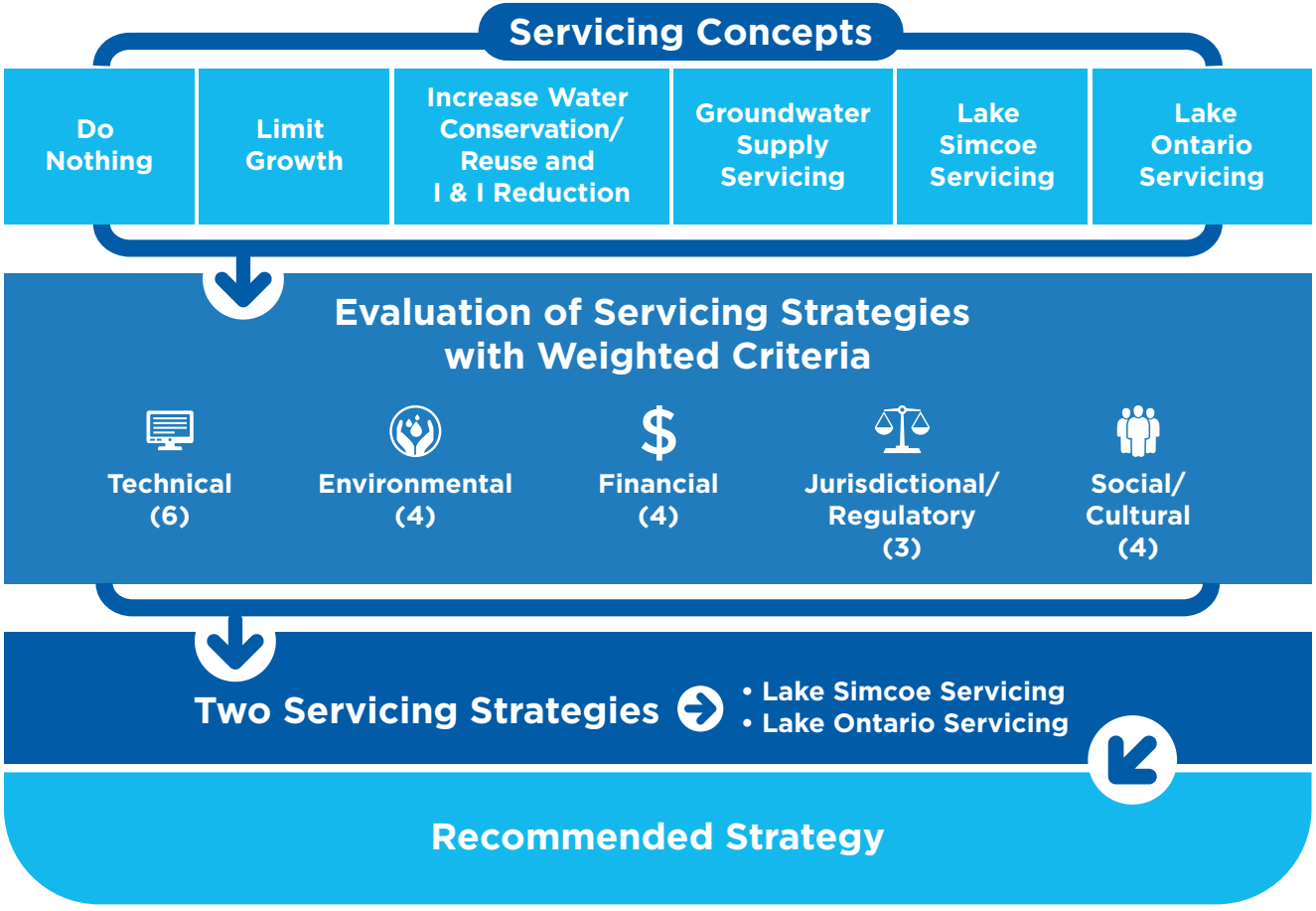


Figure ES.5 – Development and Evaluation of Servicing Strategies

Two key servicing strategy alternatives were ultimately identified for further evaluation:

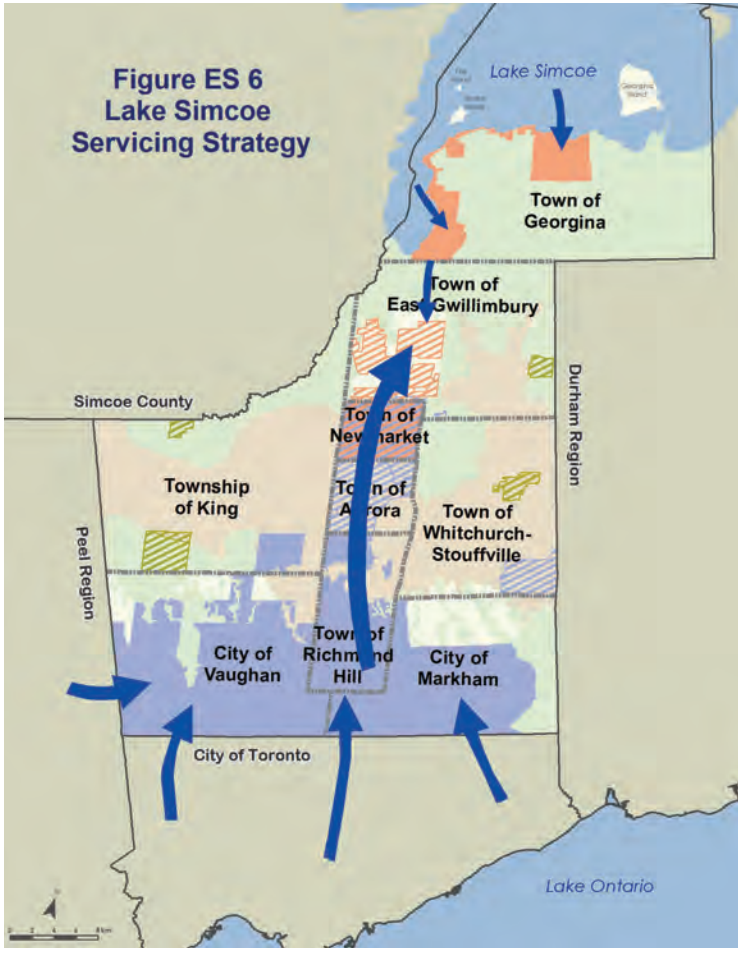
Lake Simcoe Servicing Strategy (Figure ES 6) would permit the flexibility of supplying a small portion of the incremental water demand forecasted in parts of East Gwillimbury (Holland Landing, Sharon and Queensville) and Newmarket with Lake Simcoe water, while the majority of supply for East Gwilimbury and Newmarket would continue to be from Lake Ontario. This would require construction of a new pumping station and a 6.5km watermain from Georgina to East Gwillimbury. It would also require an increase in the capacity of the Aurora East Water Pumping Station.

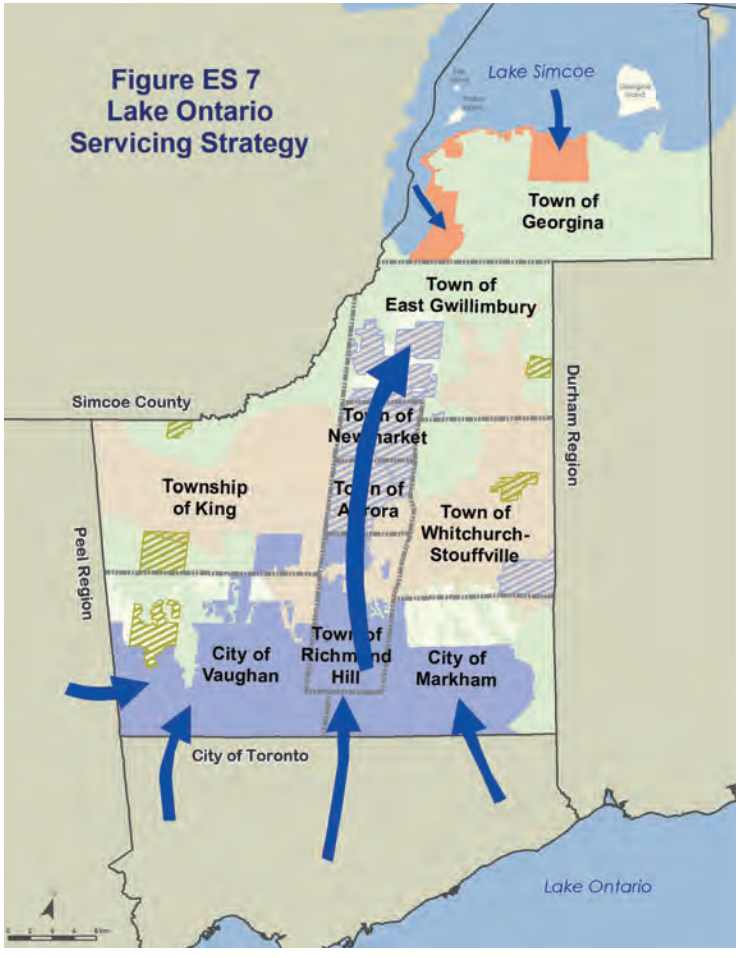
A key feature of the Lake Simcoe strategy is that it completes the link to connect the Lake Simcoe and Lake Ontario water supplies, allowing for bi-directional flow which would provide a level of security in the event of a disruption to either supply.

Lake Ontario Servicing Strategy (Figure ES 7) - would supply incremental water demand in Newmarket and parts of East Gwillimbury with Lake Ontario water only.

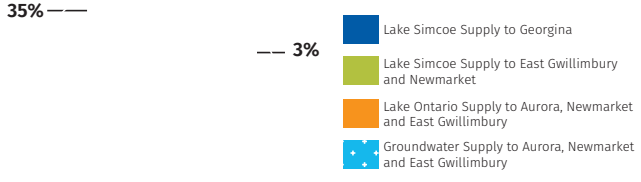
Detailed evaluation showed that the Lake Simcoe Servicing Strategy was preferable to the only other feasible option, which would be to use Lake Ontario-based water. Using Lake Simcoe water would enhance the Region's security of supply. It would also reduce energy needs for pumping and result in lower water age for the service area. Both options were very similar in cost.

Implementation of Lake Simcoe water supply to East Gwillimbury and Newmarket is projected to occur in 2041. Prior to implementation, this servicing strategy will be reviewed in subsequent master plans scheduled for 2021, 2026, 2031 and 2036. A Schedule C Class Environmental Assessment will also be undertaken to confirm the preferred water servicing strategy.

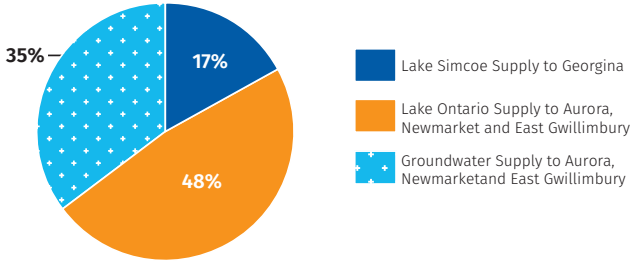


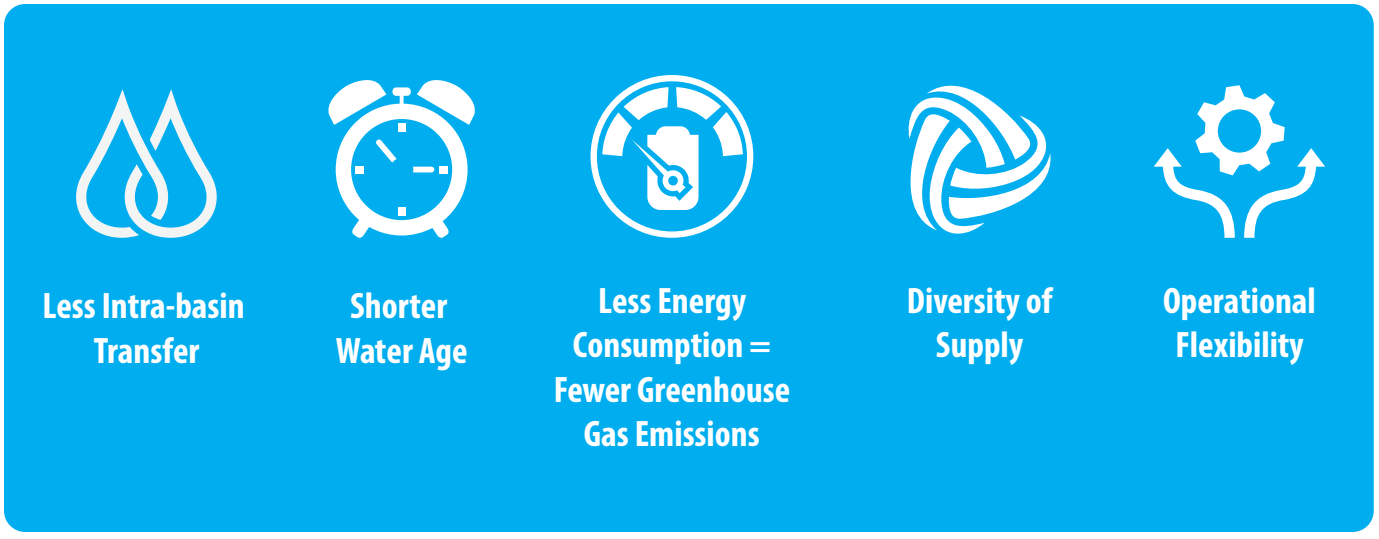


2041 Water Supply Sources for Aurora, Newmarket, East Gwillimbury and Georgina



2041 Water Supply Sources for Aurora, Newmarket, East Gwillimbury and Georgina



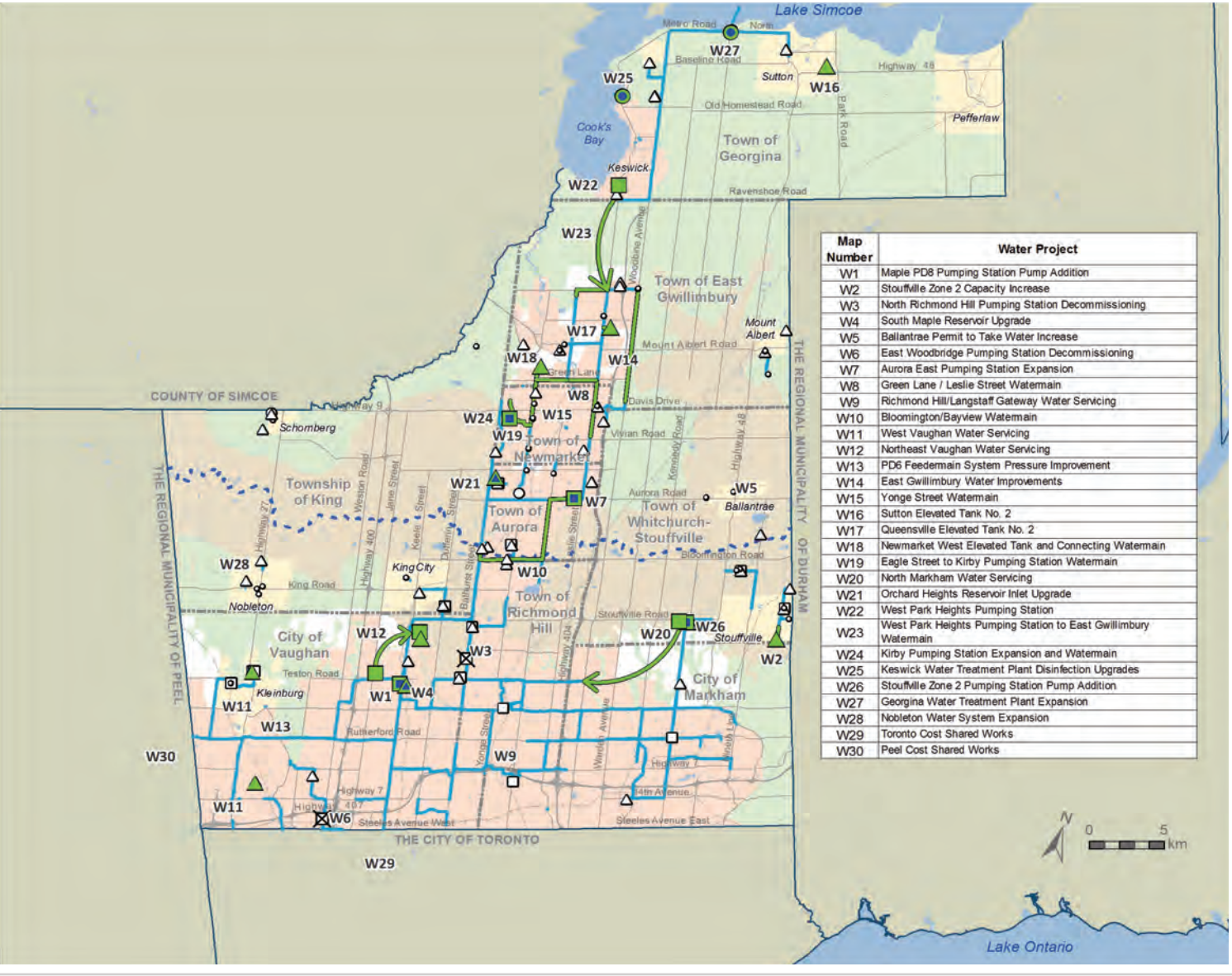


The wastewater servicing strategy is the same for both Lake Simcoe and Lake Ontario Servicing Strategies. The York Durham Sewage System (including the Peel diversion system) will continue to service Aurora, Markham, Richmond Hill, Vaughan, King City, Stouffville and the majority of Newmarket. East Gwillimbury and part of Newmarket will be serviced by the proposed Water Reclamation Centre as recommended under the Upper York Sewage Solutions Individual Environmental Assessment.

Communities currently serviced by stand-alone water and/or wastewater systems will continue to be serviced by stand-alone systems. These include Keswick and Sutton (in Town of Georgina), Mount Albert (in Town of East Gwillimbury), Ballantrae (in Town of Whitchurch-Stouffville), Ansnorveldt, Nobleton and Schomberg (in Township of King). Kleinburg water resource recovery facility will continue to service new developments up to its permitted capacity, after which all new developments will be serviced by the York Durham Sewage System.

The total cost of growth-related water and wastewater projects required to support 2041 population is $3.1 billion. About 26 per cent is for water servicing and 74 per cent for wastewater servicing. Water and Wastewater infrastucture required to implement the preferred servicing strategy is shown in Figures ES 8 and 9.

Figure ES 8
Preferred Water Servicing Strategy



Map Number	Water Project
W1	Maple PD8 Pumping Station Pump Addition
W2	Stouffville Zone 2 Capacity Increase
W3	North Richmond Hill Pumping Station Decommissioning
W4	South Maple Reservoir Upgrade
W5	Ballantrae Permit to Take Water Increase
W6	East Woodbridge Pumping Station Decommissioning
W7	Aurora East Pumping Station Expansion
W8	Green Lane / Leslie Street Watermain
W9	Richmond Hill/Langstaff Gateway Water Servicing
W10	Bloomington/Bayview Watermain
W11	West Vaughan Water Servicing
W12	Northeast Vaughan Water Servicing
W13	PD6 Feedermain System Pressure Improvement
W14	East Gwillimbury Water Improvements
W15	Yonge Street Watermain
W16	Sutton Elevated Tank No. 2
W17	Queensville Elevated Tank No. 2
W18	Newmarket West Elevated Tank and Connecting Watermain
W19	Eagle Street to Kirby Pumping Station Watermain
W20	North Markham Water Servicing
W21	Orchard Heights Reservoir Inlet Upgrade
W22	West Park Heights Pumping Station
W23	West Park Heights Pumping Station to East Gwillimbury Watermain
W24	Kirby Pumping Station Expansion and Watermain
W25	Keswick Water Treatment Plant Disinfection Upgrades
W26	Stouffville Zone 2 Pumping Station Pump Addition
W27	Georgina Water Treatment Plant Expansion
W28	Nobleton Water System Expansion
W29	Toronto Cost Shared Works
W30	Peel Cost Shared Works

Water Projects

- New - Pumping Station
- Expansion/Upgrade - Pumping Station
- Decommission - Pumping Station
- Expansion/Upgrade - Water Treatment Plant
- New - Storage
- Expansion/Upgrade - Storage
- Water Servicing Project - Alignment Subject to Further Study

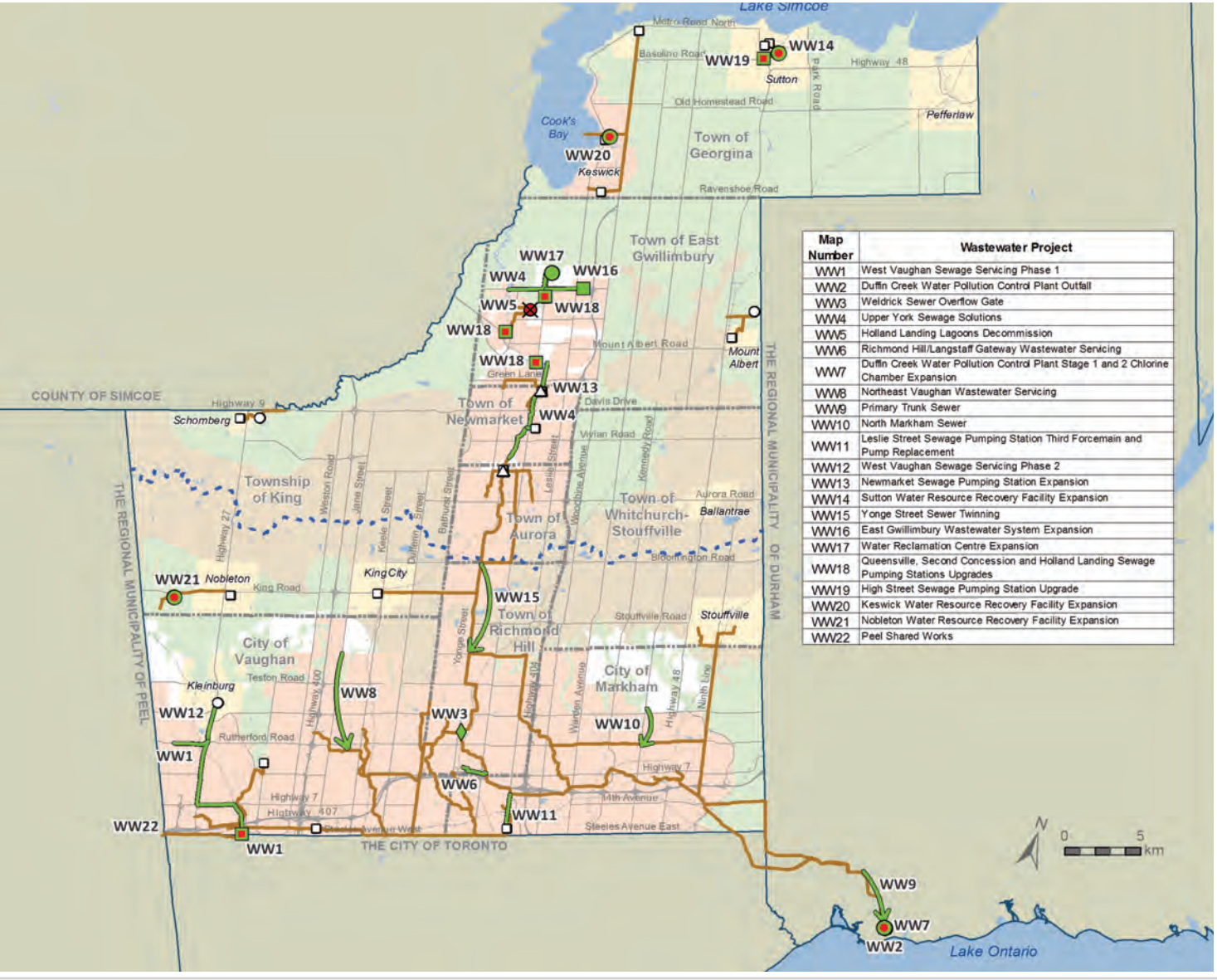
Existing Water Infrastructure

- Water Treatment Plant
- Production Well
- Storage
- Pumping Station
- Transmission

- Watershed Boundary
- Municipal Boundary
- Regional Boundary
- Town or Village
- Urban Area
- Oak Ridges Moraine
- Greenbelt Plan Area
- Whitebelt Area

York Region yorkmaps

Produced by: Infrastructure Asset Management
Environmental Services Department



Map Number	Wastewater Project
WW1	West Vaughan Sewage Servicing Phase 1
WW2	Duffin Creek Water Pollution Control Plant Outfall
WW3	Weldrick Sewer Overflow Gate
WW4	Upper York Sewage Solutions
WW5	Holland Landing Lagoons Decommission
WW6	Richmond Hill/Langstaff Gateway Wastewater Servicing
WW7	Duffin Creek Water Pollution Control Plant Stage 1 and 2 Chlorine Chamber Expansion
WW8	Northeast Vaughan Wastewater Servicing
WW9	Primary Trunk Sewer
WW10	North Markham Sewer
WW11	Leslie Street Sewage Pumping Station Third Forcemain and Pump Replacement
WW12	West Vaughan Sewage Servicing Phase 2
WW13	Newmarket Sewage Pumping Station Expansion
WW14	Sutton Water Resource Recovery Facility Expansion
WW15	Yonge Street Sewer Twinning
WW16	East Gwillimbury Wastewater System Expansion
WW17	Water Reclamation Centre Expansion
WW18	Queensville, Second Concession and Holland Landing Sewage Pumping Stations Upgrades
WW19	High Street Sewage Pumping Station Upgrade
WW20	Keswick Water Resource Recovery Facility Expansion
WW21	Nobleton Water Resource Recovery Facility Expansion
WW22	Peel Shared Works

Figure ES 9
Preferred Wastewater Servicing Strategy

Wastewater Projects

- New - Sewage Pumping Station
- Expansion/Upgrade - Sewage Pumping Station
- New - Water Resource Recovery Facility
- Expansion/Upgrade - Water Resource Recovery Facility
- Decommission - Water Resource Recovery Facility
- New - Sewer Overflow Gate
- Wastewater Linear Projects
- Wastewater Servicing Project - Alignment Subject to Further Study

Existing Wastewater Infrastructure

- Sewage Pumping Station
- Water Resource Recovery Facility
- Equalization Tank
- Conveyance
- Watershed Boundary
- Municipal Boundary
- Regional Boundary
- Town or Village
- Urban Area
- Oak Ridges Moraine
- Greenbelt Plan Area
- Whitebelt Area

York Region yorkmaps

Produced by: Infrastructure Asset Management
Environmental Services Department

Recommended One Water Approach to Sustainability

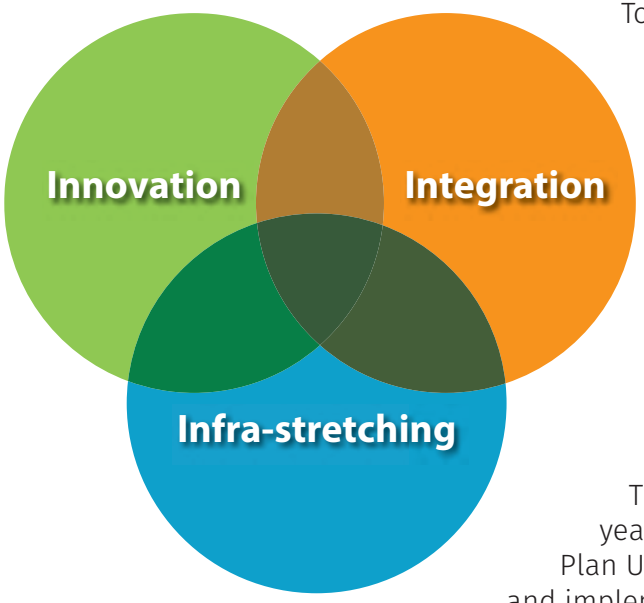
Sustainability requires York Region to be environmentally and financially responsible while meeting the needs of growth and providing outstanding water and wastewater service. With the Master Plan Update, sustainability was a major focus for the Region. The Master Plan Update is committed to achieve:

Objective 2

Develop an integrated, long-term strategy to provide sustainable water and wastewater service

Sustainability of any resource – natural, built or financial – is founded on stewardship. A central goal of the Region's strategic plan is good stewardship of assets. Building on that stewardship concept, sustainability can be defined as ***providing safe and reliable water and wastewater services*** that:

- Minimizes the environmental impacts of ***all*** water and wastewater activities; and
- Is accountable to the people of York Region through the cost-effective design and delivery of services.



Together, these two requirements form the basis of an action plan to be developed under the Made-in-York One Water approach. The Made-in-York One Water approach is inspired by an emerging concept in the water industry with an aim to unlock the value of more innovative thinking and integrated decision making on water management and the water cycle. Through this approach, the Region is on route to capitalize on cross-functional ***integration*** benefits, practice ***innovation*** to realize the value of treated wastewater as a resource, and maximize the sustainable use of existing resources (referred as ***infra-stretching*** in this document).

The Made-In-York One Water Action Plan is a five year plan and will be updated in step with the Master Plan Update timeline. The goal is to proactively identify and implement actions today to set the stage for the Region to achieve Objective 2.

Six major action areas as listed below are considered to be instrumental to achieve Objective 2. Activities identified under each action area are to be implemented within the next five years. Progress and achievements will be monitored and tracked to inform action plan enhancements for the next master plan update.

1. Implement the Long Term Water Conservation Strategy and Water Reuse
2. Implement Inflow and Infiltration Reduction;
3. Enhance Integration of Asset Renewal with Growth Projects;
4. Develop Climate Change Adaptation and Mitigation Strategies;
5. Continue Energy Optimization and Renewable Energy Initiatives; and
6. Ensure Financial Sustainability.

Impact of Intensification Scenarios on Master Plan Update

In May 2016, the Province released the draft amendments to Places to Grow: Growth Plan for the Greater Golden Horseshoe, proposing the minimum intensification rate to be increased from 40 per cent to 60 per cent. Accordingly, a high level assessment of the implications of intensification on the Master Plan recommendations was undertaken. Results of the assessment show:

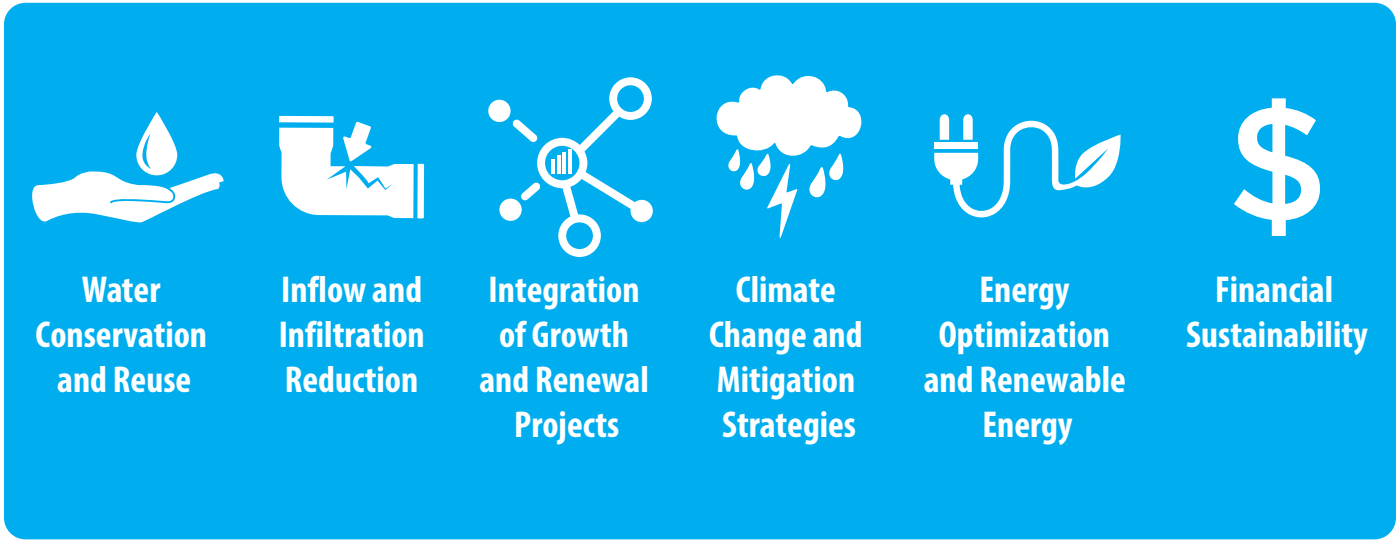
- The overall water and wastewater servicing strategy remains unchanged regardless of the intensification scenario under consideration
- The overall servicing strategy detailed in the Master Plan is built upon long-term sustainability principles, which are applicable to all intensification scenarios.
- Non-infrastructure solutions including water conservation, inflow and infiltration reduction, and environment protection measures such as minimizing intra-basin transfer and promoting energy conservation are integral parts of the Master Plan Update servicing strategy and are equally applicable to all intensification scenarios.
- While there may be some longer term project timing changes for higher intensification scenarios, it is not expected that there will be any material impact to proposed projects planned for implementation within the next ten years.

Upon finalization of the preferred growth scenario, additional analysis will be completed.
Any refinements to timing of specific infrastructure projects slated for implementation in the medium to long term will be made through the capital budget process, as well as reviewed and updated through the next Master Plan Update.

Conclusion and Next Steps

This report is a key milestone in updating York Region's Water and Wastewater Master Plan. It sets out a long-term strategy to ensure residents benefit from water and wastewater services that are safe, reliable and both environmentally and economically sustainable. Its foundation is the new One Water approach, which will reduce the need to build new infrastructure by making the best use of existing infrastructure, conserving water and creating markets to reuse treated water.

Moving ahead, the Region will develop a detailed One Water Action Plan which will lay out the steps it will take to address the six action areas and work with local municipalities, businesses, First Nations and Métis, Regional residents and other stakeholders to ensure the long-term sustainability of its water and wastewater services. Progress will be monitored until the next Master Plan Update in 2021.



We are committed to York Region residents

"York Region will continue to research and implement new infrastructure and servicing strategies in order to provide safe, reliable and sustainable water and wastewater services."

The Regional Municipality of York

Water and Wastewater Master Plan

Executive Summary

For more information on York Region's Water and Wastewater Master Plan please contact:

The Regional Municipality of York
Environmental Services

17250 Yonge Street
Newmarket, ON L3Y 6Z1

york.ca

watermasterplan@york.ca

1-877-464-9675

York Region

Consultation Summary (Public, First Nations and Métis, Stakeholders, Local Municipalities, Local Partners and Agencies)

	Consultation Event	Location	Date	Number of Attendees [(1)]
Public	Public Open House #1	Novotel Toronto Vaughan Centre, Vaughan	November 11, 2014	32
		Newmarket Community Centre, Newmarket	November 12, 2014	58
		Thornhill Community Centre, Markham	November 18, 2014	82
	Public Open House #2	Milliken Mills Community Centre, Markham	June 9, 2015	49
		Elgin West Community Centre, Richmond Hill	June 11, 2015	33
		Aurora Cultural Centre, Aurora	June 16, 2015	43
		The Recreational Outdoor Campus (ROC), Keswick	June 25, 2015	14
	Public Open House #3	York Region South Services Centre, Richmond Hill	January 20, 2016	21
		York Region Administrative Centre, Newmarket	January 26, 2016	33
	National Public Works Family Fun Day	York Region, 90 Bales Dr., East Gwillimbury	May 23, 2015	See note 2
	Canada Water Week	York Region Administrative Centre, Newmarket	March 18, 2015	See note 2
			March 22, 2016	See note 2

Attachment 3

	Consultation Event	Location	Date	Number of Attendees [1]
	World Town Planning Day	York Region Administrative Centre, Newmarket	November 7, 2014	See note 2
			November 6, 2015	See note 2
First Nations and Métis	York Region's Master Plans and Official Plan Updates - First Nations and Métis Consultation	Delta Hotel, Markham	June 19, 2015	7
	Water and Wastewater Master Plan Update Meeting with First Nations	Casino Rama, Rama	February 18, 2016	5
Stakeholders	Water Conservation Advisory Committee Meetings	Lake Simcoe Region Conservation Authority	December 3, 2014	12
		York Region Administrative Centre, Newmarket	December 2, 2015	8
	Building Industry and Land Development Association (BILD)	BILD, York Region Chapter, Concord	June 23, 2015	See note 2
			February 12, 2016	30
Local Municipalities, Local Partners, and Agencies	Staff Meetings - Aurora	Town of Aurora Municipal Office	April 29, 2015	5
			October 20, 2015	5
	Staff Meetings – East Gwillimbury	Town of East Gwillimbury Municipal Office	June 4, 2015	4
			November 19, 2015	5
	Staff Meetings – Richmond Hill	Town of Richmond Hill Municipal Office	May 25, 2015	1
			October 26, 2015	2

Consultation Event	Location	Date	Number of Attendees [(1)]
Staff Meetings - Newmarket	Town of Newmarket Municipal Office	May 13, 2015	4
		October 27, 2016	3
Staff Meetings - Georgina	Town of Georgina Operations Centre, Sutton	May 26, 2015	2
	Town of Georgina Municipal Office, Georgina	November 6. 2015	3
Staff Meetings - Markham	City of Markham Municipal Office	May 12, 2015	7
		November 3, 2015	5
Staff Meetings – Whitchurch-Stouffville	Town of Whitchurch-Stouffville Municipal Office	June 5, 2015	2
		November 16, 2015	4
Staff Meetings - Vaughan	City of Vaughan Municipal Office	May 19, 2015	9
		October 14, 2015	7
Staff Meetings - King	York Region Administrative Centre, Newmarket	June 3, 2015	2
	King Township Municipal Office, King City	November 12, 2015	2
Presentation to City of Toronto Partnership Quarterly Meeting	City of Toronto	August 20, 2015	See note 2

Consultation Event	Location	Date	Number of Attendees [1]
Presentation to York/Durham Region Capital Subcommittee	Duffin Creek Plant, Durham	August 21, 2015	See note 2
Municipal Partners, Agencies and Conservation Authorities Workshop	York Region Administrative Centre, Newmarket	October 29, 2014	17
Municipal Partners Master Plan Visioning Workshop	Aurora Cultural Centre, Aurora	October 9, 2015	15
Staff Meetings with Ministry of the Environment and Climate Change	Ministry of the Environment and Climate Change, Central Region, 5775 Yonge St., Toronto	November 24, 2015	4
		April 30, 2015	5
Staff Meetings with Toronto and Region Conservation Authority	Toronto and Region Conservation Authority Head Office, Vaughan	November 30, 2015	13
		June 2, 2015	14
Staff Meetings with Lake Simcoe Region Conservation Authority	Lake Simcoe Region Conservation Authority Head Office, 120 Bayview Parkway, Newmarket	December 7, 2015	3
		June 2, 2015	5

Notes:

(1) York Region staff not included.

(2) Attendance for these events was not recorded.

Local Council Comments

Local Municipality	Comments/Questions	Response
Town of Aurora	1. Can growth in Aurora be supported through groundwater wells?	• The groundwater wells in the Yonge Street Aquifer are at capacity. Growth in Aurora has to be accommodated through additional supply from Lake Ontario based source.
Town of East Gwillimbury	2. What purposes will re-used water be used for?	• Re-used water will likely be used for non-food related irrigation purposes initially, with new potential opportunities to be identified and evaluated.
	3. Will the commissioning date for the Water Reclamation Centre be changed from the current date of 2024?	• There are no anticipated delays in the schedule. The Region anticipates approval from the Ministry of the Environment and Climate Change in mid-2016 which may come with conditions that could impact implementation.
	4. What will the Lake Simcoe supply amount be to East Gwillimbury in 2041?	• Lake Simcoe supply will be less than 10% of the total drinking water demand in East Gwillimbury
	5. Will Lake Simcoe water supply go to Newmarket or Aurora in 2041?	• A very small portion of the Lake Simcoe water will go to Newmarket, but likely not Aurora.
	6. Will there be blending of Lake Simcoe and Lake Ontario water, when Lake Simcoe supply to East Gwillimbury is implemented?	• Yes, there would be blending of Lake Simcoe and Lake Ontario water. Further study on the Lake Simcoe supply will be undertaken prior to implementation including a Class Environmental Assessment and future Master Plan updates. A water quality assessment will form part of the Environmental Assessment study.
	7. When will the link between Lake Ontario and Lake Simcoe be constructed?	• The link will be complete in 2041, with construction beginning as early as 2035.

Attachment 4

8. What will the cost of the link between Lake Ontario and Lake Simcoe be, and how would that compare to a groundwater based solution?	• The cost of the watermain link and pump station would be approximately $22M. The Yonge Street Aquifer is at capacity based on its Permit to Take Water limit. Modeling and studies also indicated that additional groundwater taking is not sustainable.
9. What will the cost of the water supply link between Lake Ontario and Lake Simcoe be to the taxpayers?	• The project is growth related and costs are paid for by Development Charges, not the taxpayer.
10. We are very pleased with the Lake Simcoe water servicing strategy and its impact to lower intra-basin transfer. We believe this will result in a healthier environment.	• Noted
11. We are upset that the YDSS extension will not be associated with the Holland Landing Lagoons decommissioning. Request to decommission the lagoons at earliest opportunity. Complaints are still received after cleaning of large cell. Suggest working with Ministry of the Environment and Climate Change.	• No new water resource recovery facility is permitted in Lake Simcoe watershed. Maintaining operation of the Lagoons is required prior to implementation of the Water Reclamation Centre in order that the Water Reclamation Centre is regarded as a “transfer” of permit, not a new facility.
12. Is all property acquired for the Water Reclamation Centre?	• Property acquisition is on-going. Decision was made to proceed with design of the Water Reclamation Centre in parallel with property acquisitions in order to minimize schedule impacts.
13. What is the status of the reclamation aspect and/or pilot study of the Water Reclamation Centre?	• In order to realize the full benefit of the reclaimed water that will be produced at the Water Reclamation Centre, the Region will be working closely with the Ministry of the Environment and Climate Change on project specific guidelines for the production, distribution and end use of reclaimed water.

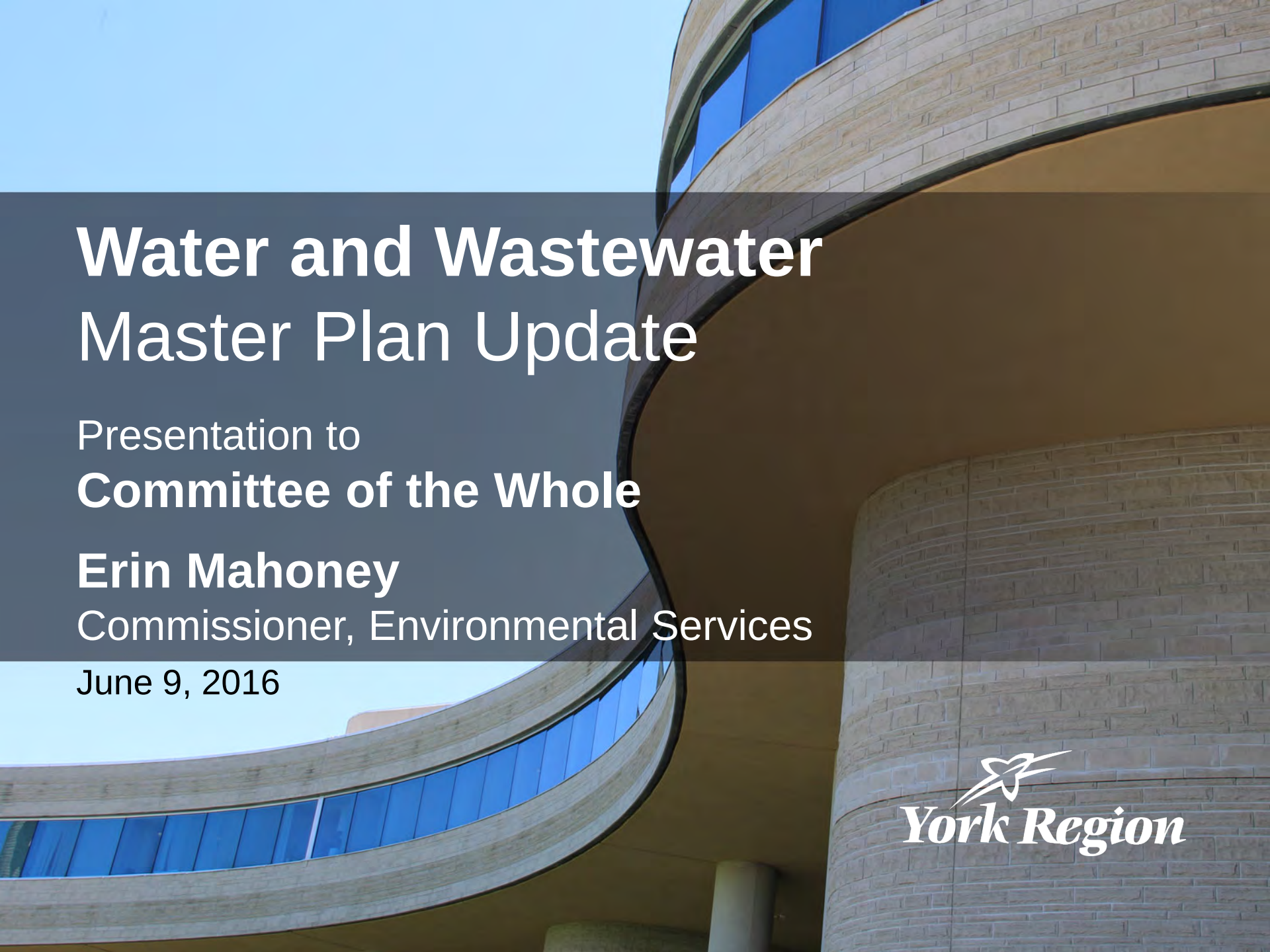
	14. It is important to have reuse as part of the Water Reclamation Centre. We are open to innovative ideas such as purple pipe systems and other options that are used around the world.	• Noted.
	15. Has the location of the Water Reclamation Centre been determined?	• Yes, the preferred location has been selected through the Environmental Assessment Process, subject to MOECC approval. The site is located on the east side of 2nd Concession Road between Queensville Side Road and Holborn Road in East Gwillimbury.
	16. We want to ensure that the area near the Water Reclamation Centre is a complete community, and that the Water Reclamation Centre adds to it, without issues such as odour affecting residents.	• The Water Reclamation Centre will include an odour control facility to mitigate potential odour. Adequate buffer zone will also be incorporated in the design of the Water Reclamation Centre providing secondary protection.
Town of Georgina	17. How far will Lake Simcoe water supply extend south?	• Lake Simcoe water supply will service East Gwillimbury and a portion of Newmarket.
	18. Will Lake Ontario Water still be discharged as treated wastewater into Lake Simcoe (i.e. intra-basin transfer)?	• Yes, small amount of Lake Ontario water will be discharged as reclaimed water into Lake Simcoe after treatment at the Water Reclamation Centre (WRC); however the WRC and the new Lake Simcoe water supply to East Gwillimbury will lower intra-basin transfer.
	19. Will there be pharmaceuticals be transferred from Lake Ontario to Lake Simcoe?	• Pharmaceutical concentrations are currently not measured and not regulated by the Province of Ontario.
	20. Do other water resource recovery facilities on Lake Simcoe discharge pharmaceuticals?	• The Region cannot speak to the specific concentrations of materials in the effluent of other municipalities

21. Does Duffin Creek Plant use reverse osmosis?	• No.
22. Will there be negative impacts on fish and wildlife in Lake Simcoe due to pharmaceuticals?	• The Region will provide a written response in relation to this comment.
23. Have First Nations been followed up with on the Upper York Sewage Solutions Individual Environmental Assessment (UYSS IEA)?	• The UYSS IEA is currently under review by the MOECC. Any further, formal correspondence will be conducted through the MOECC. First Nations will continue to be actively consulted throughout the remainder of the project.
24. Will the Holland River continue to freeze in the future?	• The Region will provide a written response in relation to this comment.
25. Do the other water resource recovery facilities in Georgina use reverse osmosis?	• No. Keswick has microfiltration.
26. Will the other water resource recovery facilities in Georgina install improved technology like reverse osmosis?	• Not in the near future unless regulation changes.
27. Is there a cap on how much water is taken from Lake Simcoe?	• Yes, the Region's Permit To Take Water is currently limited to 68 million litres per day (MLD)
28. Will there be public education initiatives such as a 'toxic taxi' to pick up pharmaceuticals before they enter the wastewater stream?	• Broad regulations continue to apply to all treatment facilities. Previous campaigns such as the "I Don't Flush" campaign will continue to play a role in educating the public on diverting pharmaceuticals from the wastewater stream.

	29. How does the planned water taking impact the Trent Severn Waterway?	• Natural factors such as evaporation account for significantly more impact than the water taking for consumption use and return to the same water body after treatment. The Ministry of the Environment and Climate Change administers the issuance of Permits to Take Water (PTTW). All proposed water taking under this Master Plan Update is within the approved limit of the Permits to Take Water. Staff has confirmed with Lake Simcoe Region Conservation Authority that no additional permit is required for water taking.
	30. Does the Region measure pharmaceuticals in the water we receive from the City of Toronto at the border?	• No.
Township of King	31. We are pleased that the Lake Simcoe Servicing Strategy will result in lower pumping costs and greenhouse gas emissions.	• Noted.
	32. Where is the water booster pump station located and what is the status of the project?	• The booster pump station will be located beside the water elevated tank on Dufferin Street, south of King Road. The work will be tendered in the summer.
	33. Does the Region treat water for aesthetic purposes?	• The Region is currently undertaking a Region-wide study to look at the feasibility of iron removal (instead of iron sequestration) from drinking water. The result of this study can be applied to Nobleton.
	34. When will the inflow and infiltration study for Nobleton be completed?	• It will be completed by end of April.
Town of Newmarket	35. What is the percentage mix of groundwater and lake based water in the water supply to Newmarket?	• The percentage of groundwater is about 60%. This is a high level estimate as there is no mechanism to measure precisely the percentage of groundwater or lake based water entering into Newmarket system through the Aurora system. This percentage will also change depending on how the system is being operated.

	36. Will the proportion of groundwater continue to increase or decrease?	• The proportion of groundwater will continue to decrease over time as the Yonge Street Aquifer (YSA) groundwater wells are at capacity and new growth will be met by lake based supply.
	37. Why is there a significant drop in water consumption around 2013 as shown in the graph 'York Region Average Day Demand Projection'?	• The drop in water consumption is believed to be a result of unseasonably wet years. Demand is monitored to confirm whether it is a seasonal or long term trend.
Town of Richmond Hill	38. We would like to commend the Region on the success of water conservation efforts and the impact on lower power consumption and greenhouse gas emissions.	• Noted.
	39. Is the Richmond Hill/Langstaff Gateway development area coordinated with the proposed subway extension?	• Water and wastewater infrastructure in the area will be sized for the full build-out of the area. Transportation capacity limitation prior to subway will constrain growth in the area regardless of availability of servicing capacity. Therefore it is important that timing of delivery of water and wastewater infrastructure be coordinated with the subway extension.
	40. Is water demand reduction due only to water conservation efforts?	• Reduced water demand is partly due to the Region's water conservation efforts and partly due to building code changes, availability of water efficient fixtures and public awareness.

	41. What changed from the Lake Ontario Strategy in the 2009 Master Plan to the Lake Simcoe Servicing Strategy now?	• The biggest change since the 2009 Master Plan was the completion of the Upper York Sewage Solutions Individual Environmental Assessment (UYSS IEA) study. The 2016 Master Plan adopts the UYSS IEA recommendation where wastewater in East Gwillimbury and parts of Newmarket will be treated in a new Water Reclamation Centre located in East Gwillimbury, instead of conveying to Duffin Creek Plant as proposed by the 2009 Master Plan Update. • Since 2009, the Ministry of the Environment and Climate Change (MOECC) placed a limit on the allowable intra-basin transfer. Using Lake Simcoe water as an incremental drinking water supply source for East Gwillimbury and parts of Newmarket will reduce the amount of intra-basin transfer.
	42. Will there be a time when we won't need groundwater in Richmond Hill?	• Groundwater will continue to be a key component of the drinking water supply through to 2041. Richmond Hill is only receiving lake based water.
Town of Whitchurch-Stouffville	43. No comments.	



Water and Wastewater Master Plan Update

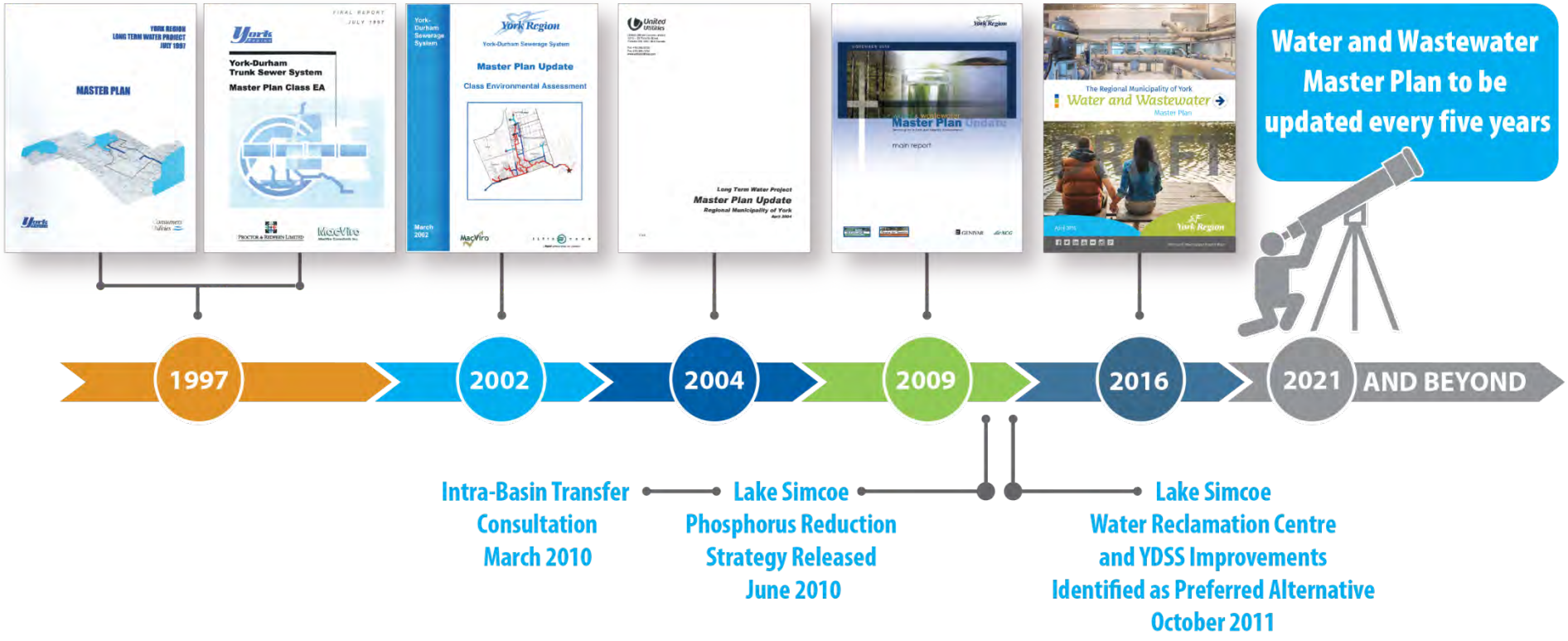
Presentation to
Committee of the Whole

Erin Mahoney
Commissioner, Environmental Services

June 9, 2016

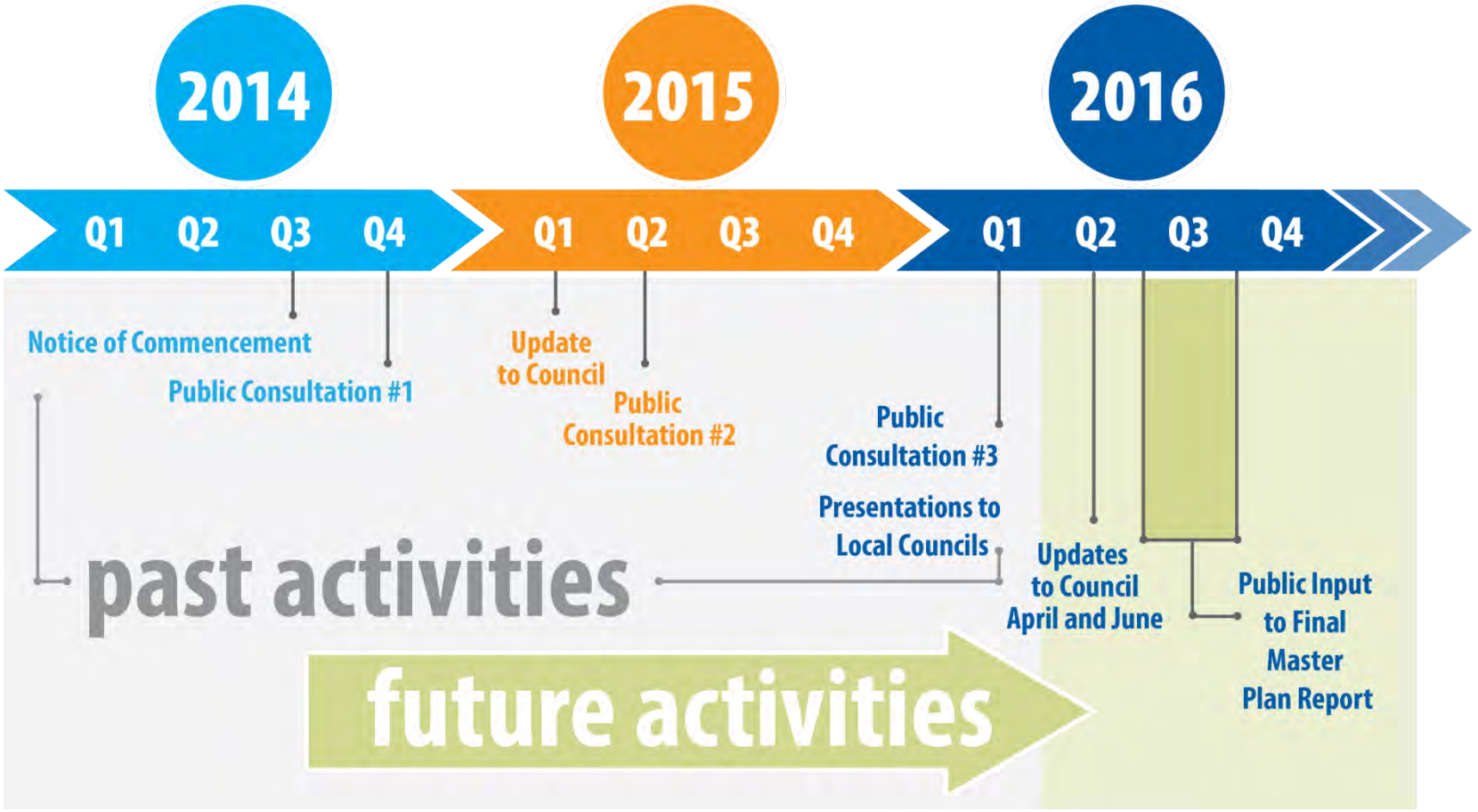
York Region

Water and Wastewater Master Plan: Living Process



Master Plan is a living document that builds on earlier work

Master Plan Schedule



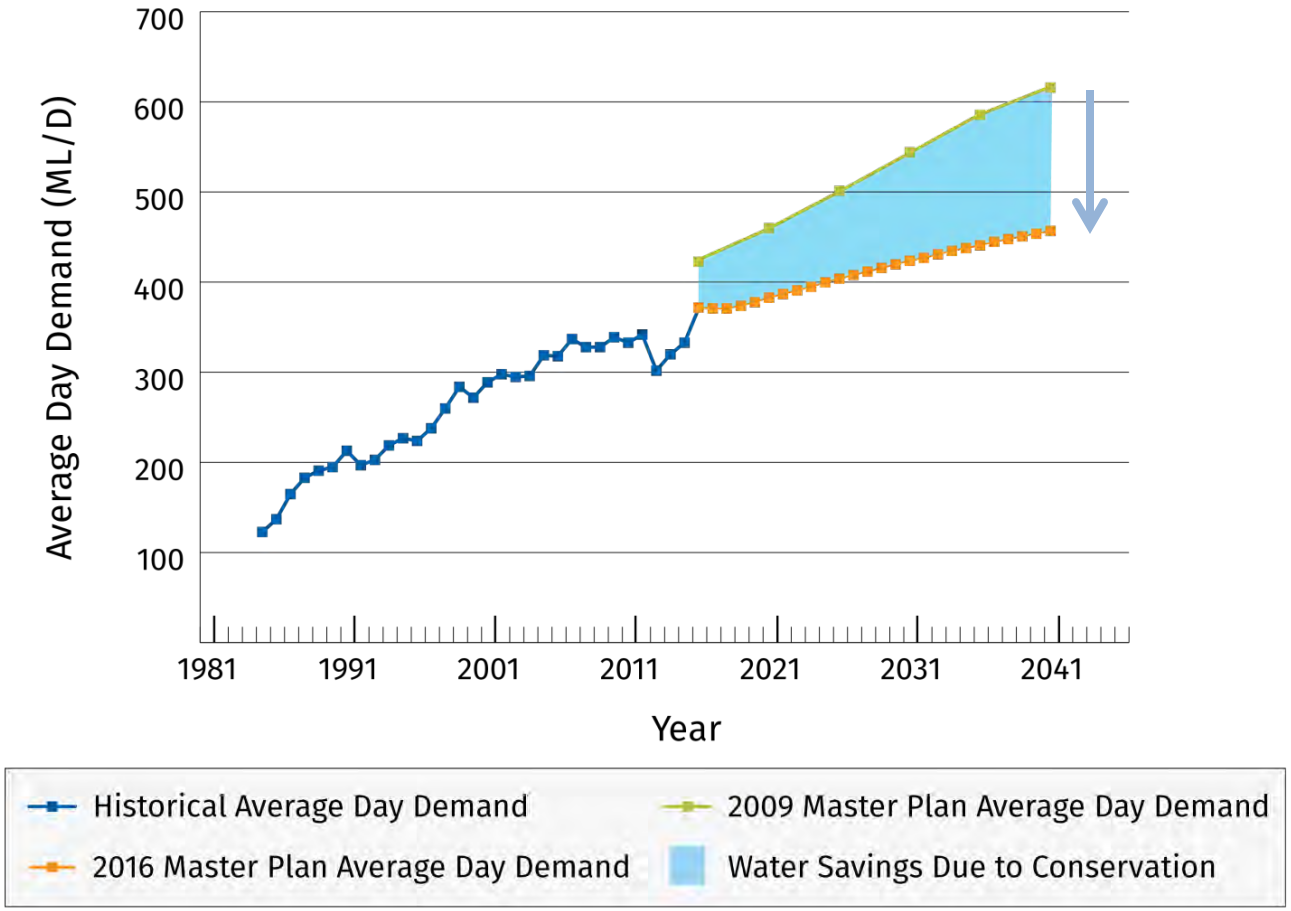
Master Plan to be published for Public Review following Council endorsement

Key Themes and Findings

- Infra-stretching solutions used for servicing:
  - Water Conservation
  - Inflow and Infiltration Reduction
- No additional water supply or wastewater treatment capacity required from Toronto or Peel
- Downstream improvements at Duffin Creek Plant provide treatment capacity to 2041
- Support for Regional Centres and intensification continue
- Protect environment and minimize intra-basin transfer

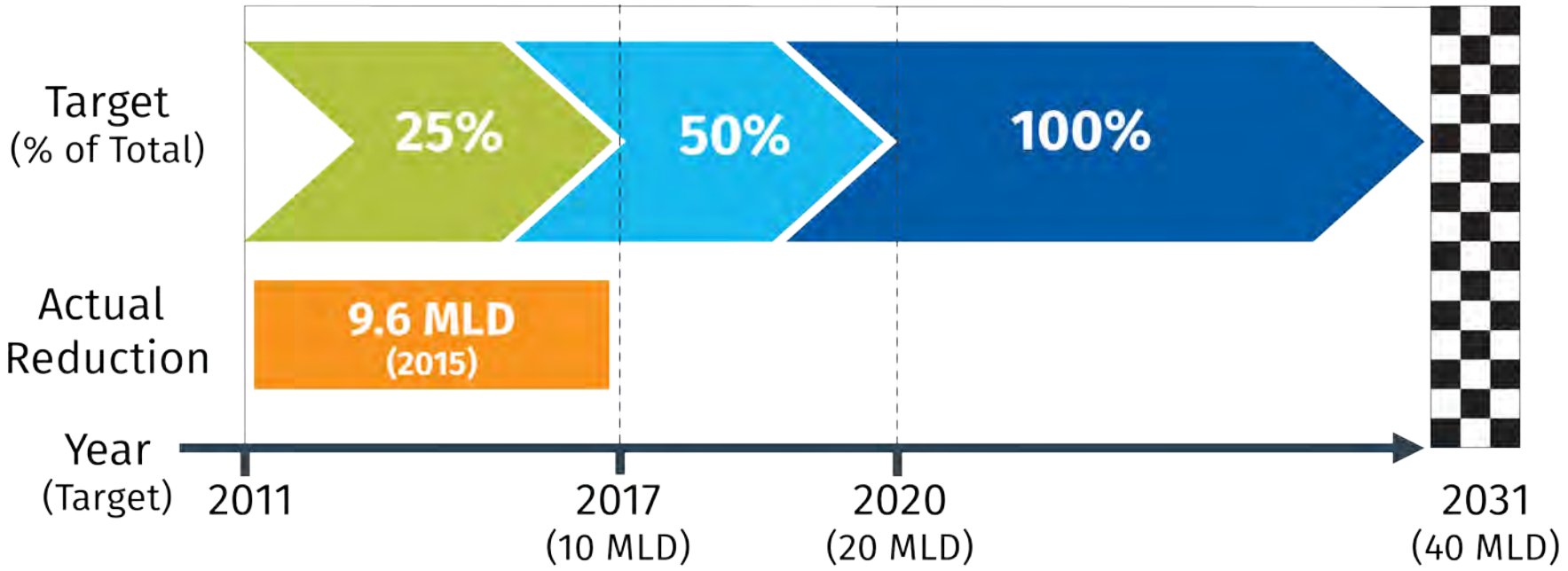
Water and wastewater system capacity supports growth to 2041 and beyond

York Region Average Day Demand Projection



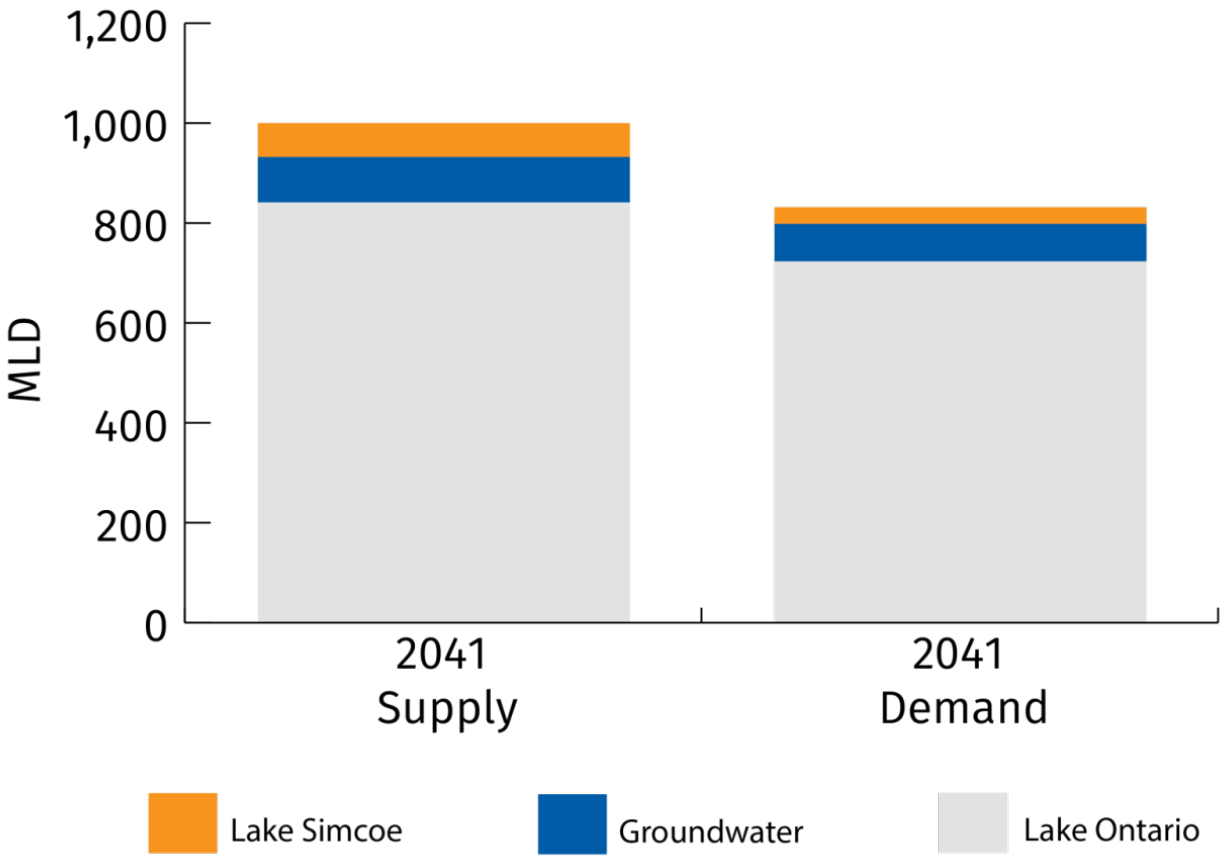
Water conservation has successfully reduced demand;
Further 20 per cent reduction projected by 2041

Inflow and Infiltration Reduction



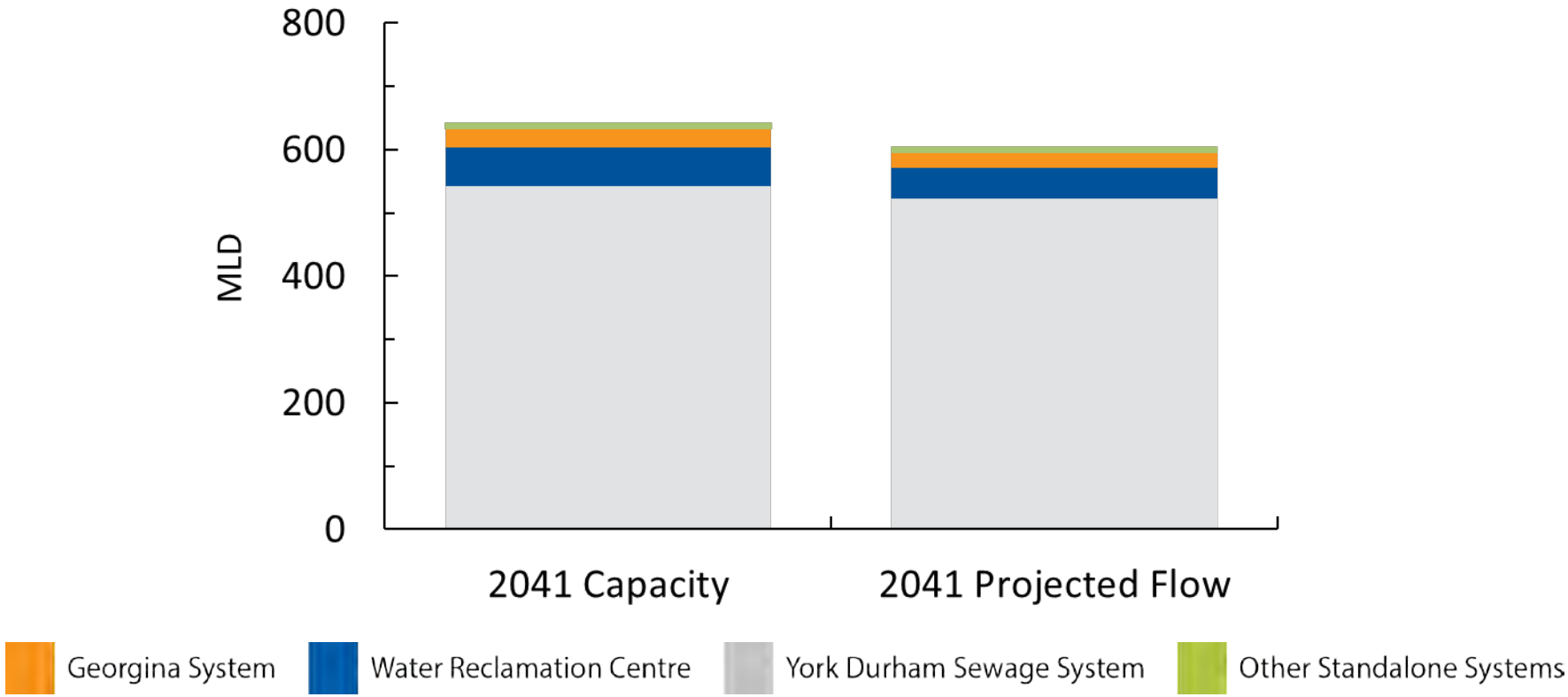
Achieved 25 per cent reduction since 2011,
nearly two years ahead of target

York Region Water Supply Sources



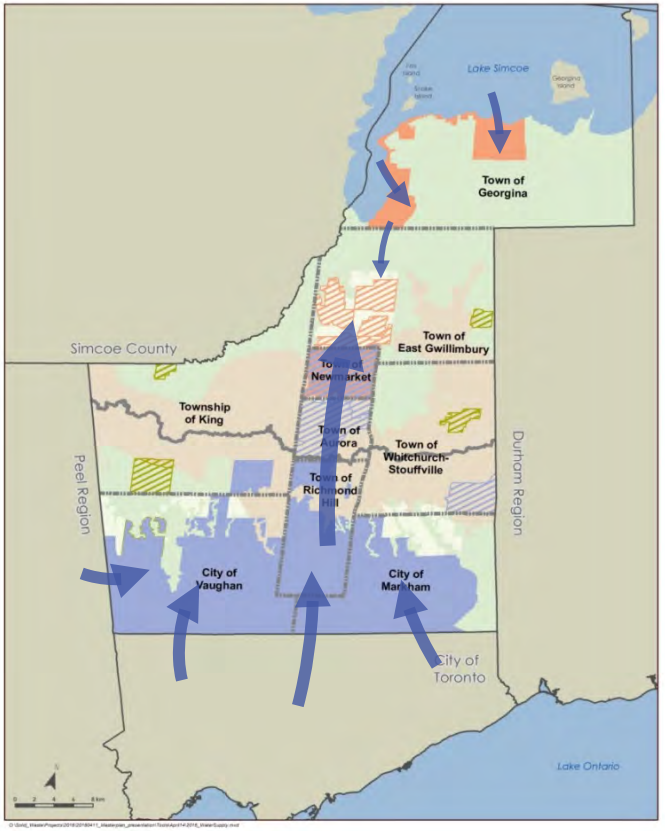
Existing servicing agreements with Toronto and Peel support growth to 2041 and beyond

York Region Wastewater System



Planned 2041 treatment and diversion capacity exceed projected flow rate

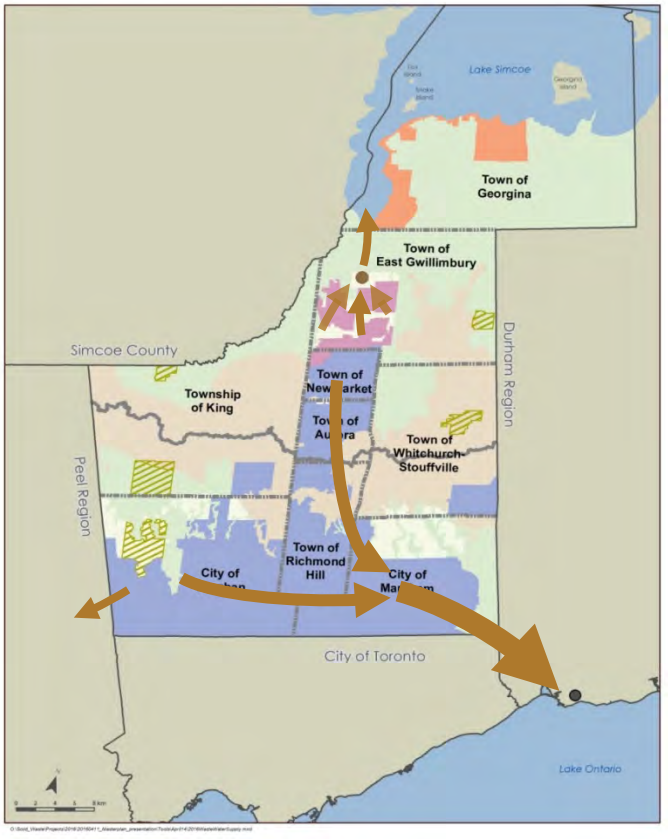
2016 Master Plan
Water Servicing Strategy



- Continue use of existing wells in Yonge Street Aquifer
- Continue servicing majority of growth with Lake Ontario water
- Incremental Lake Simcoe supply to East Gwillimbury and Newmarket in 2041

Current supply agreements with Toronto and Peel include sufficient capacity

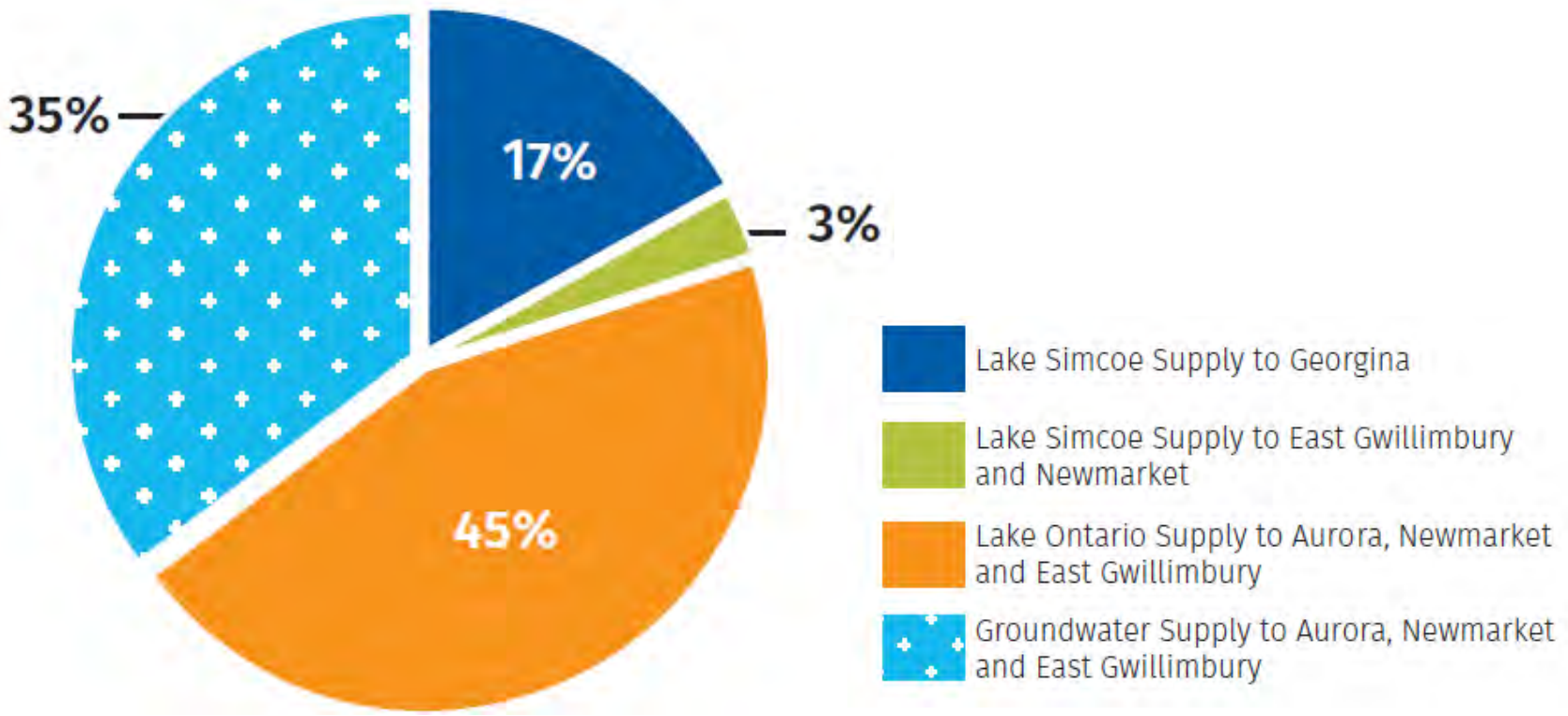
2016 Master Plan
Wastewater Servicing Strategy



- Construction and expansion of a new Water Reclamation Centre
- Continued use of Duffin Creek Plant and Peel Diversion

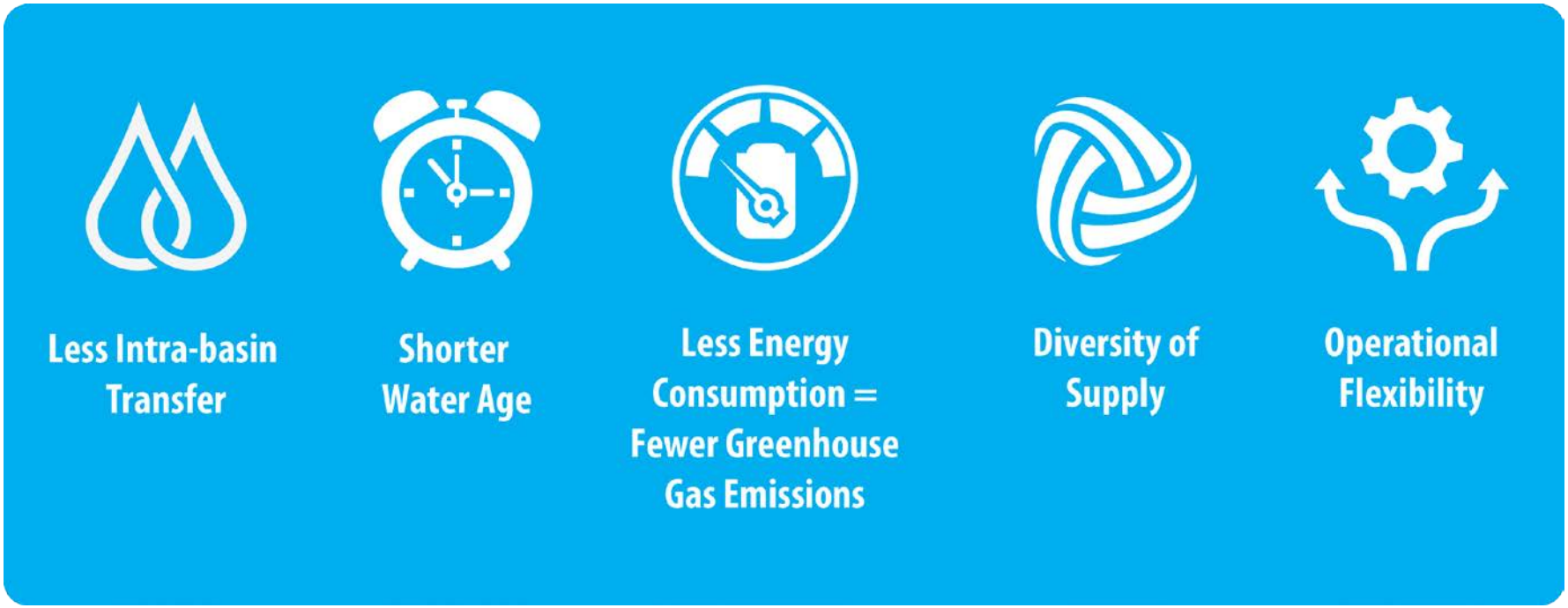
Proposed infrastructure includes 45km of new Trunk Sewers and Forcemains

2041 Water Supply Sources for Aurora, Newmarket, East Gwillimbury and Georgina



Incremental Lake Simcoe water supply
to supplement Lake Ontario supply in 2041

Benefits of Supplementing with Lake Simcoe Water

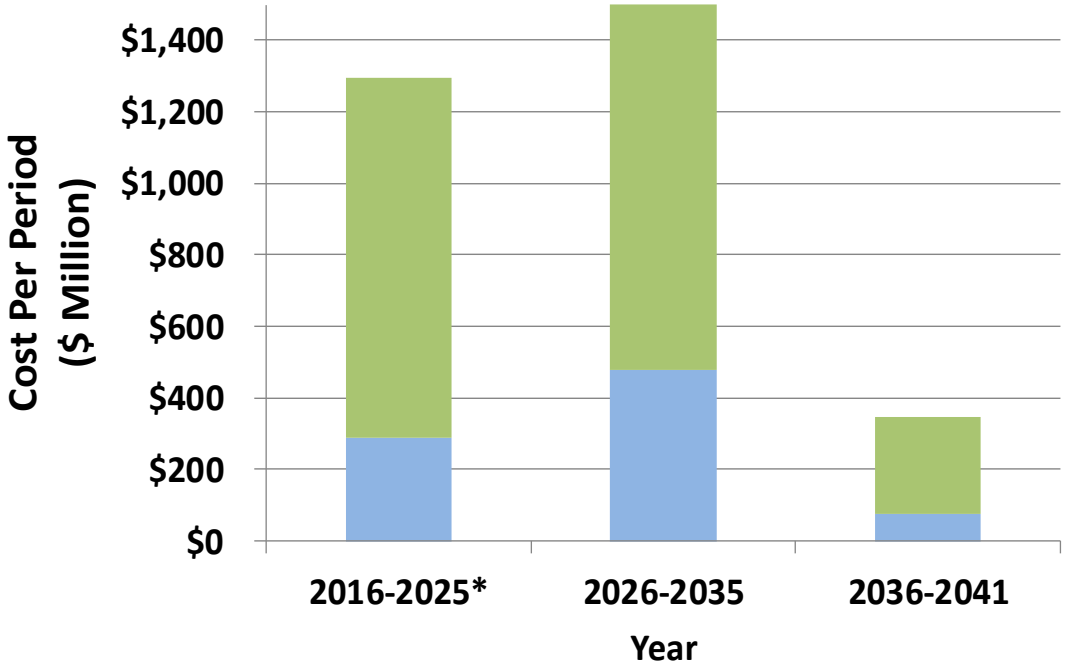


Lake Simcoe Strategy better aligns with Provincial legislation and provides technical and environmental benefits

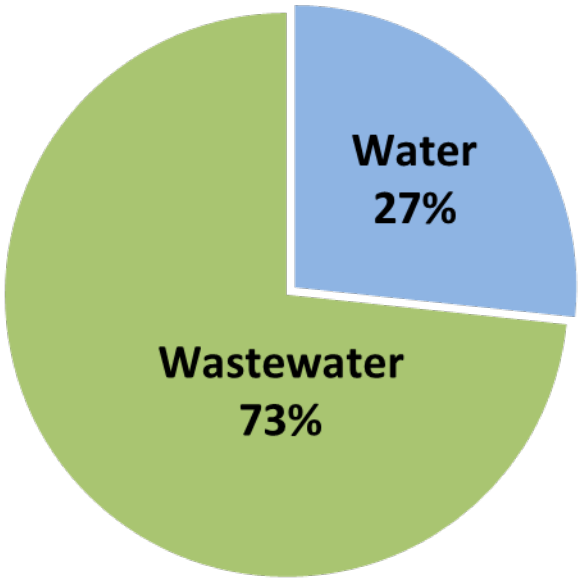
Action Plan Focus Areas

Long-term sustainability key to future servicing

Master Plan Project Costs



*First ten year cost is in line with 2016 10 year capital plan



Cost of Master Plan Projects is approximately $3.1B;
$1.3B already included in 2016 ten year capital plan



We are committed to York Region residents

"York Region will continue to research and implement new infrastructure and servicing strategies in order to provide safe, reliable and sustainable water and wastewater services."



The Communications received in relation to **this** Item

"**2016 Water and Wastewater Master Plan Update**"

are included separately on the **main** web page