

Clause 8 in Report No. 6 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on April 20, 2017.

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## Environmental Services Water and Wastewater Capital Infrastructure Status Update

Committee of the Whole recommends adoption of the following recommendation contained in the report dated March 23, 2017 from the Commissioner of Environmental Services:

1. The Regional Clerk circulate this report to the local municipalities.
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Report dated March 23, 2017 from the Commissioner of Environmental Services now follows:

1. Recommendation

It is recommended that:

1. The Regional Clerk circulate this report to the local municipalities.

2. Purpose

This report updates Council on the status of key water and wastewater infrastructure projects required to meet system demands and identified as triggers for release of servicing capacity and associated approvals.

### 3. Background and Previous Council Direction

Projects supporting capacity assignment to more than 1.3 million people are complete

In September 2016, Council approved a capacity assignment of 71,838 to local municipalities that brings the cumulative servicing capacity assigned to support Region-wide growth to over 1.3 million people.

At the end of 2015, the available servicing capacity Region-wide was 175,092 persons. Based on preliminary data, the estimated unused capacity at the end of 2016 is approximately 155,000 persons. Staff are currently working with local municipalities to confirm the specific unused capacity Region-wide, and will report to Council in the next Capital Infrastructure Status Update later this year.

The only trigger project associated with the 2016 capacity assignment is the twinning of the Newmarket forcemain that is required for the 1,500-person capacity assigned to Town of Newmarket. The work is part of the Upper York Sewage Solutions project and is currently scheduled for completion in 2019 pending environmental assessment approval.

Water and wastewater infrastructure projects required to support growth are reviewed and reported to Council regularly

On [November 17, 2016](#), Council received the last Water and Wastewater Capital Infrastructure Status Update report. The next Water and Wastewater Capital Infrastructure Update is scheduled for Q4 2017.

Water and wastewater infrastructure required to support growth to 2041 has been identified in the 2016 Water and Wastewater Master Plan Update

The 2016 Water and Wastewater Master Plan Update identified necessary water and wastewater infrastructure required to meet increasing demand for services as a result of growth to 2041 and beyond. The Master Plan Update was presented to Council for endorsement in June 2016 and issued for a sixty-day public review in July, which ended September 15, 2016 with only minor comments received.

The Water and Wastewater Master Plan Update was completed in conjunction with the Municipal Comprehensive Review process to inform the 2017 Development Charge Bylaw update scheduled for May 2017. Progress on implementation of infrastructure identified in the Water and Wastewater Master Plan Update will continue to be monitored on an annual basis.

#### 4. Analysis and Implications

Environmental Services is responsible for delivering approximately 40 per cent of the Regional 10 Year Capital Plan

The 10 Year Water and Wastewater Capital Plan remains critical for delivering capacity needed to service growth within current financial limits. The overall capital program has over 140 active projects that are progressing and focus on building the trunk system, sustaining infrastructure service levels and managing system risk and resiliency. While there are many complexities associated with infrastructure planning, design and construction, the program remains on schedule to deliver on commitments made through the capacity assignment process.

The 2017 approved budget identified a 10 Year Capital Plan totalling \$2.4 billion, 38 per cent of the Regional Capital Plan. The following provides an update on key Environmental Services projects within the 10 Year Capital Plan. A project summary and a location map are included in Attachments 1 and 2, respectively.

Duffin Creek Plant Upgrades are progressing well through commissioning in advance of Ministry deadlines

The Duffin Creek Plant Stages 1 and 2 Upgrades include work that must be completed by the end of 2017 as a condition of the Ministry of the Environment and Climate Change's (the Ministry) Environmental Compliance Approval for the Duffin Creek Plant Stage 3 Expansion.

Contracts listed in Table 1 constitute the bulk of work to be accomplished in the Stages 1 and 2 Upgrades project and include upgrades stipulated to be completed by December 31, 2017 in the Environmental Compliance Approval.

Overall substantial performance of the final contracts of the project are expected to occur in Q4 2017 (last reported: Q4 2017) in compliance with the Environmental Compliance Approval. Site restoration, including final asphalt and landscaping is expected to be complete in spring 2018.

**Table 1**  
**Contract Status for Duffin Creek Plant Stages 1 and 2 Upgrades**

<b>Contract / Progress</b>	<b>Progress Update</b>
New Stages 1 and 2 Electrical Substation Construction and associated pre-purchase contracts for generators, switchgears and transformers (\$32 Million / 100% complete)	Warranty period completed June 2016.
Disinfection Facility Construction (\$9 Million / 100% complete)	Warranty period completed December 2016.
Preliminary Treatment and Influent Pumping Station (\$85 Million / 90% complete)	Construction contract awarded March 2014 and on schedule for Q4 2017 completion.
Refurbishment and Upgrade Construction contract and associated pre-purchase contract; Clarifier Bridge Mechanisms (\$29 Million / 95% complete)	All of Stage 1 and 2 clarifier bridges commissioned. Stage 2 process works substantially performed February 2016 and under warranty until August 2017. Stage 1 process works substantial performance expected in Q2 2017.
Stages 1 and 2 Demolition and Removals contract	Demolition contract tendered in March 2017.

Duffin Creek Plant Outfall Class Environmental Assessment was submitted to the Ministry in November 2013 and is still awaiting Minister's decision

York and Durham Regions completed a joint Schedule Class "C" Environmental Assessment to address limitations in the Duffin Creek Outfall on November 19, 2013. During the public review period on the Environmental Study Report, the Ministry received 90 submissions of which 75 were Part II Order Requests seeking a ministerial order for the Regions to complete an Individual Environmental Assessment process and repeat much of the work completed under the Schedule Class "C" Environmental Assessment process.

Majority of Part II Order Requests submitted to the Ministry were form letters

The most notable Part II Order Requests came from the Town of Ajax, Lake Ontario Waterkeepers, Pickering and Ajax Citizens Together to Protect Our Water (PACT POW) and Environmental Defence. The issues raised in these Part II Order

submissions related to allegations that phosphorus discharged from the Duffin Creek Plant was responsible for a resurgence of *Cladophora* algae growth that was impacting the adjacent waterfront. The majority of the remaining Part II Order Requests were a “form letter” type of submission organized by the PACT POW stakeholder group and reflected a duplication of key issues raised by the Town of Ajax.

Bulk of scientific studies and expert opinions confirm Duffin Creek Plant is not the principal cause of *Cladophora* growth along the shoreline

Studies undertaken during the Duffin Creek Plant Outfall Class Environmental Assessment combined with the studies of independent experts have determined that phosphorus discharged from the Duffin Creek Plant is not the principal cause of *Cladophora* growth along the Ajax/Pickering shoreline. One notable study prepared by the University of Waterloo concluded that:

“Non-local and/or in-lake processes as key to development of nuisance *Cladophora* in the study area. Restriction of the dominant local sources would not eliminate (*Cladophora*) problems.”

The Ministry’s position in a 2006 letter from the Minister of the Environment and Climate Change agrees with scientific evidence provided during the Plant Stage 3 expansion Class EA and notes:

“It is my understanding that there is no evidence to suggest that the Duffin Creek WPCP discharge is the primary cause, either directly or indirectly, of elevated phosphorus concentrations and *E.coli* presence observed at the Ajax waterfront”.

Notwithstanding the Ministry’s earlier position concerning phosphorus loading from the plant and the expert opinions that the plant is not the principal cause of *Cladophora* growth, the Minister issued an order to the Regions on April 4, 2016 to undertake a Phosphorus Reduction Action Plan (PRAP) study to determine the feasibility of further reducing phosphorus discharges from the Duffin Creek Plant. The Minister’s letter indicates that in order to make a decision on the Part II Order Requests, the results of the Phosphorus Reduction Action Plan study are required.

Phosphorus Reduction Action Plan study on schedule for delivery in early 2018

The Regions have retained a team of experts to review the Duffin Creek Plant treatment processes with a focus on optimizing total phosphorus removal. The Phosphorus Reduction Action Plan study will also consider tertiary treatment options to further reduce phosphorus loading to Lake Ontario. Various optimization strategies and tertiary treatment technologies will be considered using a range of

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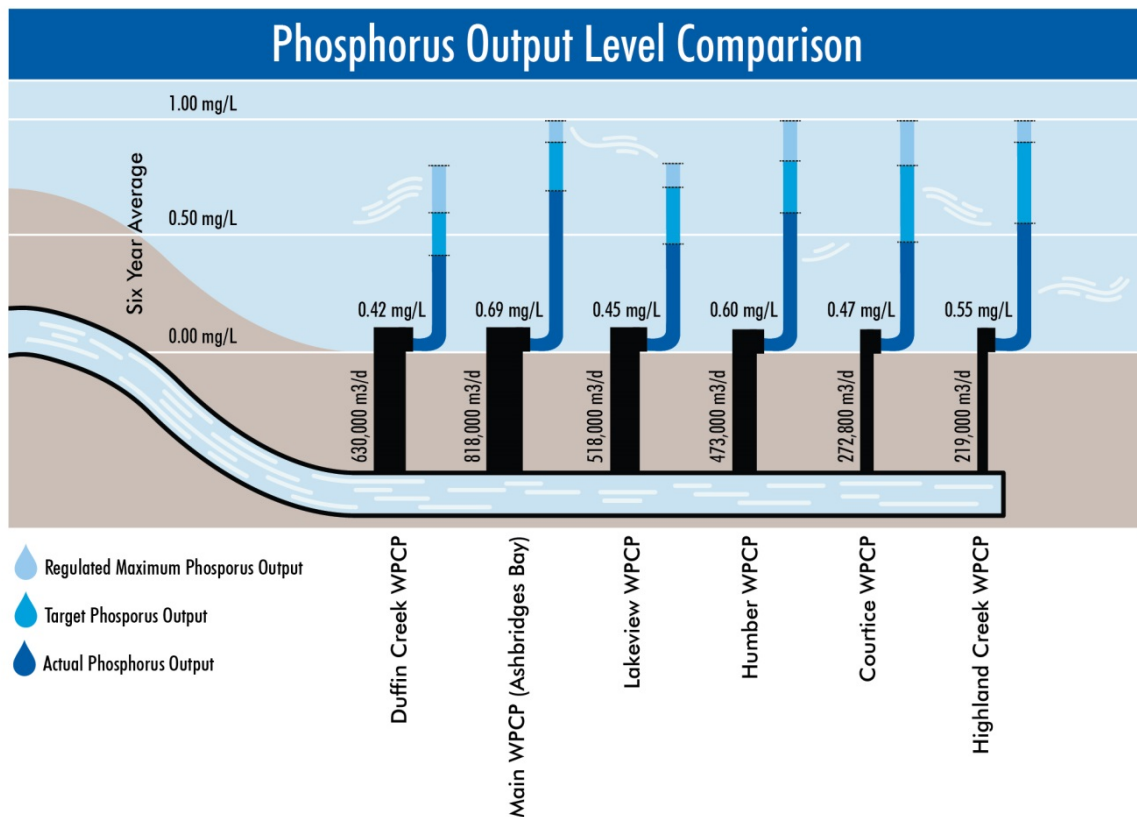
factors including performance, capital and operating cost, and affordability. The Phosphorus Reduction Action Plan study is now about 60 per cent complete and results are being shared with the Ministry. The Ministry is pleased with efforts to determine optimal performance of the plant while achieving lower phosphorus limits.

On May 18, 2016, Durham Region Council adopted a motion from the Town of Ajax to allow town staff and their hired experts to participate in the Phosphorus Reduction Action Plan study. The Town of Ajax has retained wastewater experts from the United States to collaborate with the Regions on the study. Several meetings have been held between the Regions and their respective experts on the study progress. Further meetings are planned throughout 2017 leading to a final Phosphorus Reduction Action Plan study document. Performance testing has commenced at the plant to confirm findings of the study. Testing will run parallel with the study and inform the feasibility of sustaining any lower phosphorus limits at the Duffin Creek Plant over its remaining life time. The study is on schedule for completion by March 31, 2018.

Duffin Creek Plant continues to outperform other large treatment plants on Lake Ontario

The Duffin Creek Plant has been expanded and upgraded over the past 10 years to install enhanced phosphorus removal technology that removes over 94 per cent of the raw sewage phosphorus loading entering the plant. The Duffin Creek Plant has one of the highest quality effluents of all the large wastewater plants discharging to the open waters of Lake Ontario. The Duffin Creek Plant consistently meets or surpasses discharge parameters set out by the Ministry of the Environment and Climate Change and surpasses the discharge limits of other comparable large plants discharging to Lake Ontario (see Figure 1). Furthermore, unlike most other comparable plants, the Duffin Creek Plant provides full treatment of all wastewater flows even during extreme high flow rainfall events.

**Figure 1**  
**Phosphorus Output Level Comparison**



Leading world experts agree that wastewater plants are not the principal cause of algae and *Cladophora* growth in the Great Lakes

Experts link the *Cladophora* growth phenomenon to many factors including the presence of dreissenid (zebra and quagga) mussels increased sunlight penetration from the filtering action of mussels and contribution of phosphorus to the lake from surface runoff sources. Experts also agree that wastewater plants are not a major source of phosphorus loading causing *Cladophora* and algae growth. A 2011 study of Lake Ontario estimated that wastewater treatment plants provide a 10 per cent contribution of phosphorus to the lake in comparison to a 90 per cent contribution from agricultural sources, rivers, streams and other non-point sources.

Studies undertaken on Lake Erie and Lake Simcoe further confirm that surface runoff sources are the major contributor of phosphorus that is degrading water quality. The majority of experts including provincial scientists also agree that resurgence of *Cladophora* is a lake-wide problem that cannot be solved with local sources alone such as further phosphorus reductions at the Duffin Creek Plant.

### Revised construction sequence in progress at the Leslie Street Sewage Pumping Station

The Leslie Street Sewage Pumping Station collects wastewater flow from Vaughan, Richmond Hill and Markham and pumps wastewater to the Duffin Creek Plant. The Leslie Street Sewage Pumping Station upgrade project has increased the station's pumping capacity to meet growth requirements and includes major electrical, Supervisory Control and Data Acquisition (SCADA) system, standby power and building energy upgrades.

A revised construction sequence has been developed and implemented to address power quality issues from older equipment feeding power to new equipment that was identified during construction. Work is progressing well with two new sewage pumps in service and operational, and two of the four existing sewage pumps have been refurbished and returned to service.

Work continues with overall construction expected to be complete in Q1 2018 (last reported: Q1, 2018). The project team continues to work closely with the contractor to maintain work progression and keep the schedule on track.

### Upper York Sewage Solutions project design progressing despite Individual Environmental Assessment approval being delayed

The Upper York Sewage Solutions project will provide additional servicing capacity of over 80,000 persons (40 MLD) to support growth in the Towns of Aurora, Newmarket and East Gwillimbury, and includes the following three key design elements:

- Upper York Water Reclamation Centre and associated linear conveyance infrastructure (anticipated completion 2024)
- Modifications to the existing York Durham Sewage System between the existing Newmarket, Aurora and Bogart Creek Pumping Stations (anticipated completion 2019)
- Project-specific phosphorus off-setting program (anticipated completion 2022)

All three key design elements are progressing through important stages of detailed design in advance of Individual Environmental Assessment approval. Both the Water Reclamation Centre and modifications to the York Durham Sewage System have completed 90 per cent design and modifications to the York Durham Sewage System are on track for tendering in 2017, subject to Individual Environmental Assessment approval. The performance demonstration of the pre-selected GE membrane filtration system for the future water reclamation centre has commenced at Keswick Water Resource Recovery Facility.



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To start laying the ground work for future water reuse opportunities from the Upper York Water Reclamation Centre, a Water Reuse Research Demonstration Project has been launched. This project will demonstrate and monitor the use of reclaimed water from one of the Region's Water Resource Recovery Facilities to irrigate non-food crops, like grass or trees, for two growing seasons. This project will help inform staff of the technical, regulatory and environmental implications of using reclaimed water. The Region received a \$50,000 Leadership Grant from RBC Blue Water Project to help fund this project.

Upper York Sewage Solutions project completion schedule in jeopardy if Individual Environmental Assessment approval does not happen in 2017

The final Individual Environmental Assessment (IEA) report for this project was submitted to the Minister of the Environment and Climate Change for approval on July 25, 2014.

The 2014 Environmental Assessment Report identified two distinctly unique projects required to adequately service the wastewater needs of our communities as set out in the *Places to Grow Act, 2005, Growth Plan for the Greater Golden Horseshoe, 2006* and the provincially approved, *2010 York Regional Official Plan*:

1. A new Water Reclamation Centre in the Town of East Gwillimbury
2. A second forcemain from the existing Newmarket Pumping Station (part of the York Durham Sewer System)

In December 2016, the Ministry of the Environment and Climate Change advised the Region that the Individual Environmental Assessment approval would be further delayed to late 2017 until the province fulfilled additional consultation requirements with Chippewas of Georgina Island First Nation. This element of consultation is separate from the Region's consultation requirements under the Individual Environmental Assessment. The consultation process is being undertaken by the Ministry. Individual Environmental Assessment approval is now anticipated for Q4 2017 (last reported: Q4 2016).

In the event that the Individual Environmental Assessment approval does not occur in 2017, current planned project completion dates will be in jeopardy and will require re-evaluation.

Modifications to Existing York Durham Sewage System are becoming critical for the Region to accommodate growth and provide system security to existing servicing

As part of the Individual Environmental Assessment, timing of the modifications to the York Durham Sewage System is becoming critical for the Region. Work

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involves twinning the existing single forcemain sewer from the Newmarket Sewage Pumping Station to just north of the Aurora Sewage Pumping Station, which services the Towns of Newmarket and East Gwillimbury. This forcemain twinning project is a long overdue effort to provide security through redundancy – bolstering the existing 34-year-old forcemain originally constructed by the Ministry.

The Individual Environmental Assessment approval is required for the Region to receive Environmental Compliance Approvals and complete property acquisition, construction and commissioning of the proposed new forcemain. Further delay in performing this work represents an operating risk for the larger service area, not only to service future growth but also to provide sufficient security to existing servicing.

East Vaughan Water Pumping Station construction complete and soon to be fully operational

The East Vaughan Pumping Station is a new water pumping facility required to service lands in the northeast portion of Vaughan, portions of Richmond Hill north of Major Mackenzie Drive and the northwest portion of Markham. The pumping station will provide additional water service via the East Vaughan watermains on Major Mackenzie Drive, Teston Road and Bathurst Street that were completed in November 2016.

Construction of the pumping station started in April 2014. All civil and mechanical works in both the disinfection building and main pumping station were complete as of December 2016 when manual operation was enabled. Commissioning commenced in July 2016 (last reported: Q3 2016) with electrical and natural gas internal systems and will be completed in May 2017 with automatic and remote operation control systems. The disinfection building allows the Region to boost chloramine levels in the Regional drinking water supply.

In January 2017, the project was awarded the runner up prize for 2016 Project of the Year Award from the Professional Engineers Ontario, York Chapter.

Detailed Design for West Vaughan Sewage Servicing is progressing well

The 60 per cent design for the West Vaughan Sewage Servicing project was completed in January 2017. Review of the final design submission is underway and anticipated to be complete before end of May 2017. Negotiations are ongoing to acquire several properties along the proposed alignment. The West Vaughan Sewage Servicing project includes over 14 kilometres of trunk sewer to be completed in 2028 and expansion of the Humber Pumping Station to be completed in 2025.

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The Humber Sewage Pumping Station electrical upgrades were completed and fully commissioned in late 2016. These works, in combination with recently completed modifications to forcemain controls, have improved operational flexibility and have allowed for growth in Vaughan to continue without interruption.

Needs Assessment Study for West Vaughan Water Servicing has been completed

York Region has updated the water servicing strategy for parts of West Vaughan, including Kleinburg-Nashville through optimizing the existing system and identifying required infrastructure upgrades. The Region and its consultant have extensively reviewed the capacity of existing facilities, updated the hydraulic water model, and identified existing facilities and system constraints. A thorough review of population and employment projections has been completed. The result of the assessment study has identified opportunities to optimize use of capacity in existing facilities and systems.

The study has not resulted in any immediate infrastructure needs; however, it has identified key future water infrastructure needs to service West Vaughan's projected growth, including:

- Replacement of the Kleinburg Elevated Tank and/or constructing a new storage facility (for completion in 2035)
- Replacement of the West Woodbridge Elevated Tank to provide additional storage capacity (for completion in 2035)
- Use available storage capacity in Pressure District 6 to offset identified storage deficits in Pressure District 4 West and Pressure District 5 by optimizing existing pressure reducing valve interconnections between these pressure districts (for completion in 2020)
- Option to decommission the Whisper Lane Interim Booster Station in Kleinburg-Nashville once staff is satisfied that the new Kleinburg Booster Pumping Station is running efficiently to meet capacity

Timing of the works were identified in the 2016 Water and Wastewater Master Plan Update and works to be completed in the next decade are included in the 10 Year Capital Plan as required.

Preferred locations for new water facilities, watermains and sewers in northeast Vaughan have been determined

The Northeast Vaughan Water and Wastewater Servicing project is underway to provide Regional infrastructure to service anticipated growth in northeast Vaughan to the year 2051. Under the Class Environmental Assessment study, proposed

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locations for new water facilities, watermains and sewers have been determined through a comparative evaluation of short-listed sites and routes, as follows:

- Elevated water storage and a water pumping station on the north side of Kirby Road, east of Jane Street
- Water pumping station on the northwest corner of Jane Street and Teston Road
- Watermains associated with the above storage tanks and pumping stations
- New sewer network extending from Jane Street and Teston Road to the existing Regional sewer on Langstaff Road, east of Keele Street

The northeast Vaughan servicing recommendations are being presented to the technical and stakeholder advisory committees by end of April 2017 (last reported: Q1 2017). The remainder of the Environmental Assessment will be completed over 2017 and filed in Q1 2018.

Construction cost estimates for the proposed water and wastewater solutions have been updated to reflect new information available through the Class Environmental Assessment and conceptual design work. The cost estimate will be further refined during detailed design based on recommended construction methods to protect the environment, engineering requirements at the proposed facility site locations, and refined watermain lengths.

Detailed design is progressing for an additional pump at the Maple Pumping Station that will service some early growth in northeast Vaughan on an interim basis. Commissioning of the new pump is expected by mid-2018 (last reported: mid-2018).

Detailed design for Richmond Hill/Langstaff Gateway Regional Centre in final stages

Detailed design for the Richmond Hill/Langstaff Gateway Regional Centre will be completed in Q2 2017 (last reported Q2 2017). The final tender package for construction is anticipated to be ready in Q1 2018. Commissioning of three water connection points to the existing Regional watermain and constructing new sanitary sewers to connect to the existing Regional Richmond Hill Collector sewer and a Town of Richmond Hill sewer remains planned for 2025 (last reported: 2025).

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Sutton Water Resource Recovery Facility equalization tank design works underway

The existing Sutton Water Resource Recovery Facility was commissioned in 2003 with an original design capacity to service 7,500 people. An Environmental Assessment for plant expansion to service 13,500 people was completed in 2010.

Construction of a new process tank that will serve as an interim equalization tank will be completed in 2018. This tank will later serve as a process tank within the greater plant expansion. The assignment for consulting services for detailed design and construction of the tank and miscellaneous upgrade works was awarded in July 2016. Design is now 60 per cent complete and construction tendering is expected in Q4 2017.

The Region will consider bringing the facility's expansion into the 10 Year Capital Plan when flow reaches 70 per cent of plant capacity, subject to funding availability and Council approval at that time. For the last five years, the plant has been operating at or below 55 per cent. During 2016, average flow to the plant was approximately 50 per cent of the plant capacity.

Key component of Region's long-term servicing strategy is Peel and Toronto cost-shared projects

Provision of water and wastewater services through partnerships with City of Toronto and Peel Region is a key component of the Region's long-term servicing strategy. York Region staff conducts regular meetings with City of Toronto and Peel Region staff to discuss issues regarding supply and servicing commitments, including cost-shared project delivery schedules.

Three water projects and two wastewater projects in Peel Region and three water projects in City of Toronto are currently underway to provide capacity to service growth in York Region, of these active projects three are in construction. Both Peel Region and City of Toronto are on track to meet their long-term water supply agreement commitments to York Region.

Peel Region is on track to meet its long-term wastewater servicing agreement commitments and recently accepted increased flows from the Humber Sewage Pump Station as a result of electrical upgrades completed by York Region in late 2016.

The last contract related to the Etobicoke Creek Trunk Sewer project, the installation of a trunk sewer under a runway at Lester B. Pearson International Airport, was substantially completed in June 2016.

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Hanlan Feedermain projects are scheduled to be commissioned by Q4 2017

In 2009, Peel Region completed a Schedule 'C' Class Environmental Assessment study to identify the preferred route for the new 2400mm diameter Hanlan Feedermain that will extend approximately 12 kilometres north from Lakeview Water Treatment Plant to the Hanlan Pumping Station.

York Region has secured 331 MLD in supply and transmission capacity from Peel Region. Based on preliminary results of the Water and Wastewater Master Plan Update, water supply from Peel Region combined with water supply from City of Toronto will service growth to year 2041 and beyond.

Three separate contracts were released to complete the Hanlan Feedermain. Contract No. 2 (open cut) was completed in early 2016. Contract No. 1 (tunnelling) and Contract No. 3 (open cut/tunnelling) are in construction and scheduled to achieve substantial performance in Q2 2017 (last reported: Q2 2017). Full commissioning of the entire Hanlan Feedermain is scheduled in late 2017.

Construction commenced on standby power upgrades to Ellesmere Pumping Station

In May 2016, construction commenced on the Toronto cost-shared project to add nine megawatts of standby power generation capacity at the Ellesmere Pumping Station located at Ellesmere Road and Nielson Road in Scarborough. This pumping station is a key east-end water transmission feed from City of Toronto to York Region, transferring water from the Horgan Water Treatment Plant at Lake Ontario to the Milliken Pumping Station at 14<sup>th</sup> Avenue and Kennedy Road in Markham. Ellesmere Pumping Station is the only facility in this link that does not currently have standby power capability. The project is progressing on schedule and commissioning is scheduled for Q4 2018 (last reported: Q4 2018).

These projects support the goals of the Strategic Plan and the Regional Official Plan

Timely delivery of critical infrastructure projects identified in this report is essential to ensure that water and wastewater system capacity is available to service targeted growth of the *Regional Official Plan*.

By prioritizing and integrating delivery of critical infrastructure projects with timing of planning approvals to address growth needs in an efficient manner, community benefit is being optimized in accordance with the goals of the *2015-2019 Strategic Plan* under the objectives:

- Optimizing critical infrastructure systems capacity

- Encouraging growth along Regional Centres and Corridors

## 5. Financial Considerations

\$2.4 billion of capital infrastructure works proposed in the 2017 Environmental Services Budget for next 10 years

The 2017 Environmental Services Budget and 10 Year Capital Plan includes \$2.4 billion in water, wastewater, waste management, forestry and energy projects. Of the total \$2.4 billion of capital works in the proposed program, approximately \$1.33 billion is for growth infrastructure in the water and wastewater program, \$1 billion for rehabilitation and replacement in the water and wastewater program and \$77 million for waste management, forestry and energy projects.

The 2017 Multi-year Capital Spending Authority for Environmental Services infrastructure projects is \$974 million. Additional Capital Spending Authority will be requested annually through the budget process as projects progress and specific requirements are established.

Growth capital work is debt financed and repaid through development charges. Infrastructure management work is paid through the water/wastewater rate. Waste management, forestry and energy are primarily paid through tax levy revenues. As part of the budget process, associated funding and resource requirements for operations and asset management of expanded and complex infrastructure systems are areas of focus informing financial implications of servicing growth. A summary of infrastructure project costs, based on the 2017 approved budget is provided in Table 2. Costs are subject to change based on project progression over the 10 Year Plan.

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**Table 2**  
**Cost Estimates for Key Infrastructure Projects**

<b>Project</b>	<b>Estimated Total Project Cost</b>	<b>Remaining Estimated Cost in 10 Year Plan</b>	<b>Anticipated Commissioning Date</b>
Duffin Creek Plant Stages 1 and 2 Upgrades	\$208.3M	\$30.9M	2017
Duffin Creek Plant Outfall – Diffusers	\$23.3M	\$18.7M	2021
Leslie Street Sewage Pumping Station Upgrades	\$35.1M	\$5.6M	New Pumps Commissioned
Upper York Sewage Solutions Newmarket Forcemain Twinning	\$96.4M	\$87.0M	2019
Upper York Sewage Solutions Water Reclamation Centre*	\$588.1M	\$497.3M	2024
East Vaughan Pumping Station	\$53.1M	\$0.1M	Commissioned
West Vaughan Water Servicing	\$18.1M	\$3.0M	2036
West Vaughan Sewage Servicing	\$330.8M	\$157.0M	2028
Northeast Vaughan Servicing	\$210.0M	\$91.3M**	2028
Richmond Hill/Langstaff Gateway Regional Centre Servicing	\$28.8M	\$27.1M	2025
Sutton Water Resource Recovery Facility Expansion	\$41.9M	\$2.0M	2033
City of Toronto Cost Shared Projects	\$460.4M	\$74.9M	Varies
Peel Region Water Cost Shared Projects	\$582.2M	\$24.5M	Varies
Peel Region Wastewater Cost Shared Projects	\$67.5M	\$7.9M	Varies
<b>Estimated Total Project Cost and Remaining Budget in 10 Year Plan</b>	<b>\$2,744.1M</b>	<b>\$1,027.2M</b>	

\*Includes associated linear works and phosphorus off-set program

\*\*Cost currently under review as the project advances and will be updated for future budget submissions



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Managing the longevity of existing infrastructure through comprehensive asset management

One of Environmental Services key strategic goals involves proactively managing and maintaining infrastructure to ensure short and long-term reliability and compliance with all regulatory requirements. Accordingly, the Asset Management Program manages the life cycle of Environmental Services multi-billion dollar asset base and identifies non-growth-related projects for infrastructure rehabilitation and replacement. The Asset Management Program identifies approximately \$1 billion over the next 10 years. Some of the key projects are the Duffin Creek Incinerator Replacement, Southeast Collector Rehabilitation, Supervisory Control and Data Acquisition Communication Network Upgrades and Elevated Water Tank improvements. The Asset Management Program coupled with Waste Management, Natural Heritage and Forestry and Energy Management programs areas are a key part of the 10 Year Plan. A breakdown of estimated costs for these projects is provided in Table 3.

**Table 3**  
**Cost Estimates for Environmental Services 10 Year Capital Plan**

<b>Project</b>	<b>Remaining Estimated Cost in 10 Year Plan (2017 - 2026)</b>
Key Infrastructure Projects (as detailed in Table 2)	<b>\$1,027.2M</b>
Other Water Growth Capital Projects	<b>\$112.8M</b>
Other Wastewater Growth Capital Projects	<b>\$202.0M</b>
Water Rehabilitation/Replacement	<b>\$386.1M</b>
Wastewater Rehabilitation/Replacement	<b>\$607.6M</b>
Waste Management	<b>\$47.3M</b>
Natural Heritage and Forestry	<b>\$16.6M</b>
Energy Management	<b>\$12.7M</b>
<b>TOTAL</b>	<b>\$2,412.3M</b>

Development charge collections need to increase beyond forecasts to move growth-related capital projects forward

Growth-related water and wastewater projects are funded with development charges. The project timelines established in the 2017 Capital Plan are contingent on the Region achieving its growth and development charge collection projections. If forecast development charge collections are not achieved, the Region may revisit its capital plan commitments. Development charge collections in 2016 were \$338.5 million. The Region's 2017 Capital Plan is predicated on the Region

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achieving development charge collection of \$475.4 million for 2017, and rising development charge collections beyond 2017. Moving projects forward in the 2017 Capital Plan would require the Region to collect significantly more development charges than forecasted over a sustained period of time or additional revenue and funding source (e.g., funding from Phase II of the federal government's infrastructure funding program). Currently, no additional project deferrals or further adjustments to existing projects have been planned. Staff will continue to monitor the situation and will report back to Council as needed.

The Region is currently updating its development charge bylaw

The Region is currently updating its development charge bylaw, which will help fund growth-related projects in the 2017 10 Year Capital Plan. The development charge bylaw determines the effective development charge rate, which is a key input in the collections forecast. Regional staff tabled the draft background study with Council on February 16, 2017. Staff will bring the final proposed development charge bylaw to Council for approval in May.

## 6. Local Municipal Impact

York Region continues to work closely with local municipalities affected by capital works program to facilitate planned community growth

Priority projects detailed in this report are crucial to providing timely servicing capacity to municipalities. This water and wastewater capacity is necessary to meet growth expectations while maintaining a high level of environmental and public health protection.

Additional servicing capacity for development is created through timely completion of key infrastructure projects

Release of additional capacity, as well as granting of approvals in each phase of the approval process, is contingent on projects being completed as planned. Projects are continually monitored to ensure that risk of delay is mitigated where possible and capacity made available. Staff continues to collaborate with local municipalities to ensure impacts to planned community growth are minimized to the extent possible considering any capacity constraints created by the current implementation schedule for these projects. A collaborative approach with local municipalities will continue to assist with reporting on their local capacity allocation in a timely manner to both support Regional capacity assignment and ensure fiscal sustainability.

## 7. Conclusion

\$2.4 billion Proposed 10 Year Capital Plan includes required projects for current and future capacity assignments

This report provides Council with a status of priority projects within the 10 Year Capital Plan and its relationship to timing of servicing capacity. Continuing to monitor these projects will ensure that both capacity allocation and granting of planning approvals are synchronized with project delivery schedules. The 2017 10 Year Capital Plan includes critical projects required to provide capacity to service future growth.

The Region will continue to monitor development charge collections. Also, where appropriate, the Region will continue to look for other funding sources.

For more information on this report, please contact Mike Rabeau, Director, Capital Planning and Delivery, Environmental Services at 1-877-464-9675 ext. 75157.

The Senior Management Group has reviewed this report.

March 23, 2017

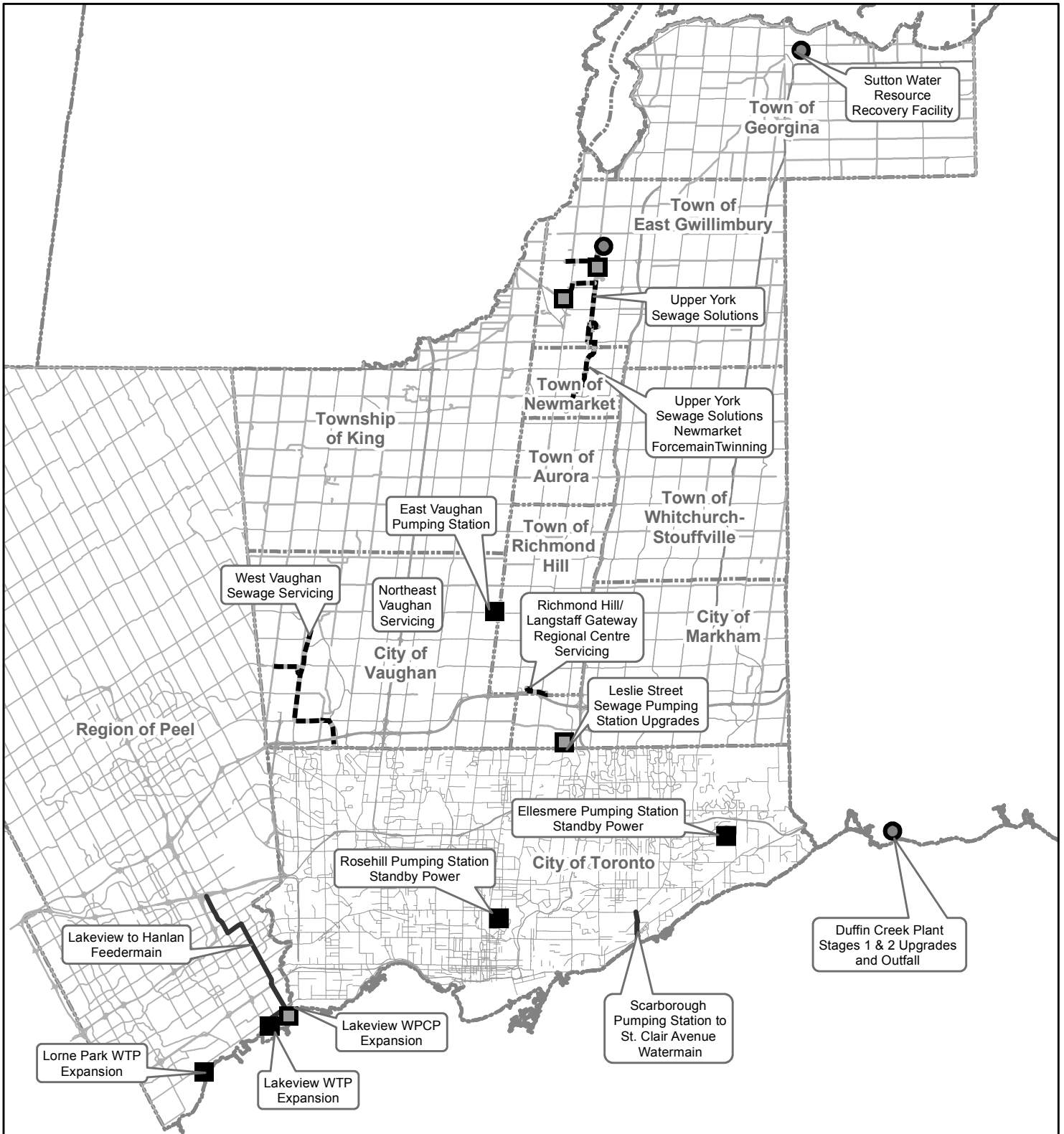
Attachments (2)

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Accessible formats or communication supports are available upon request

## Status of Key Infrastructure Projects

Project Name	Description	Current Status	Expected Project Commissioning Date
Duffin Creek Plant Stages 1 & 2 Upgrades	Upgrade and refurbish existing Stages 1 & 2	Construction	Q4 2017 (last reported: Q4 2017)
Duffin Creek Plant Outfall	EA to address diffusion requirements and increase outfall capacity to 630MLD	Class Environmental Assessment	Q1 2018 (last reported: Q1 2018)
Leslie Street Sewage Pumping Station Upgrades	Upgrades to electrical and standby power improvements, and four refurbished pumps	Construction	Q1 2018 (last reported: Q1 2018)
	Two new pumps	<b>In Service</b>	
Upper York Sewage Solutions	Water Reclamation Centre with associated linear works and phosphorus off-set program	Detailed Design	2024 (last reported: 2024)
	Newmarket Forcemain Twinning	Detailed Design	2019
East Vaughan Pumping Station	New pumping station to pump water from Pressure District (PD) 6 to PD7 and PD8	<b>In Service</b>	
West Vaughan Sewage Servicing	Sanitary servicing solution to accommodate growth in West Vaughan area	Detailed Design	2028 (last reported: 2028)
Northeast Vaughan Servicing	Water and wastewater servicing solution to accommodate growth in East Vaughan	Class Environmental Assessment	2028 (last reported: 2028)
Richmond Hill/Langstaff Gateway Regional Centre	Water and wastewater servicing solution to accommodate growth	Detailed Design	2025 (last reported: 2025)
Sutton Water Resource Recovery Facility	Expansion of existing facility to accommodate growth in Sutton	Design	2033 (last reported: 2033)

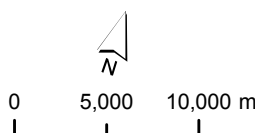


## LOCATION PLAN Key Infrastructure Projects



Environmental Services Water and Wastewater  
April 6, 2017

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### Legend

-  Priority Water Projects
-  Priority Wastewater Projects