

February 1, 2019

Ms. Kimberley Kitteringham
City Clerk
City of Markham
101 Town Centre Boulevard
Markham, ON L3R 9W3

Dear Ms. Kitteringham:

Re: Water and Wastewater Capital Infrastructure Status Update

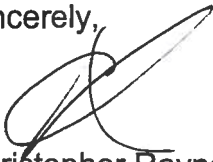
On January 31, 2019 Regional Council adopted the following recommendation:

1. The Regional Clerk circulate this report to the local municipalities, Building Industry and Land Development Association and the Minister of Municipal Affairs and Housing.

The original staff report is enclosed for your information.

Please contact Mike Rabeau, Director, Capital Planning and Delivery, Environmental Services at 1-877-464-9675 ext. 75157 if you have any questions with respect to this matter.

Sincerely,



Christopher Raynor
Regional Clerk

Attachment

The Regional Municipality of York

Committee of the Whole
Environmental Services
January 10, 2019

Report of the Commissioner of Environmental Services

Water and Wastewater Capital Infrastructure Status Update

1. Recommendation

It is recommended that:

1. The Regional Clerk circulate this report to the local municipalities, Building Industry and Land Development Association and the Minister of Municipal Affairs and Housing.

2. Summary

This annual report updates Council on the status of key water and wastewater infrastructure projects required to meet future system demands and identified as triggers for release of servicing capacity and associated approvals. Staff will report back to Council in Q3 2019 on servicing capacity for all municipalities serviced by the York Durham Sewage System.

3. Background

2016 capacity assignment approved growth to more than 1.3 million people

In September 2016, Council approved a capacity assignment of 71,838 people to local municipalities bringing the cumulative servicing capacity assigned to support Region-wide growth to over 1.3 million people. In order for local municipal growth to occur, it is essential that water and wastewater servicing is available. The amount of servicing capacity, expressed in persons, is “assigned” to local municipalities and, in turn, the local municipalities allocate that capacity to individual developments to support residential growth.

The unused capacity in the York Durham Sewage System at the end of 2017 is estimated at 132,000 persons. The capacity available for the end of 2018 will be calculated over the coming months. Twinning of the Newmarket forcemain is the only trigger project associated with the 2016 capacity assignment and is required to unlock the 1,500 persons capacity assigned to Town of Newmarket. In March 2018, the Ontario Minister of Natural Resources and Forestry signed a declaration order allowing construction of the forcemain twinning in Newmarket to proceed prior to approval of the Upper York Sewage Solutions Individual Environmental Assessment allowing allocation of 1,500 persons capacity once the forcemain is commissioned in 2021.

10,500 persons capacity assigned to Aurora, Newmarket and East Gwillimbury in 2018

In June 2018, Council authorized an assignment of 10,500 persons capacity to Aurora, Newmarket and East Gwillimbury to support forecasted growth through multiple capacity sources including two interim solution projects: Aurora Pumping Station Upgrades and a new pumping station including a connection near Yonge Street and Henderson Avenue. These projects will support growth in Aurora, Newmarket and East Gwillimbury as the Region awaits approval of the Upper York Sewage Solutions project.

Staff will report back to Council in Q3 2019 on servicing capacity for all municipalities serviced by the York Durham Sewage System.

Capital Plan focuses on building the Regional water and wastewater network, sustaining infrastructure service levels and managing system risk and resiliency

Environmental Services is responsible for delivering approximately 40 per cent of the Regional 10 Year Capital Plan. Implementation of the works identified in 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. These projects focus on building the trunk system, sustaining infrastructure service levels and managing system risk and resiliency.

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

On November 2, 2017, Council received the last Water and Wastewater Capital Infrastructure Status Update report. The next Water and Wastewater Capital Infrastructure Update is scheduled for Q1 2020.

4. Analysis

The 2018 approved budget identified a 10 Year Capital Plan totalling \$2.5 billion, 43 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

Duffin Creek Plant Stages 1 and 2 Upgrades are totally complete and in warranty phase

The Duffin Creek Plant Stages 1 and 2 Upgrades included critical work that had to be complete by the end of 2017 to satisfy conditions with the Environmental Compliance Approval for the Duffin Creek Plant Stage 3 Expansion. This deadline was achieved and final demolitions and restoration works were completed over 2018. The project is now totally complete and is in the warranty phase.

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

In 2013, York and Durham Regions filed the Duffin Creek Outfall Class Environmental Assessment and, during the review period, received 90 submissions of which 75 were Part II Order Requests seeking a ministerial order for the Regions to complete an Individual Environmental Assessment.

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

Most of the 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. 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.

Surface runoff is major contributor to algae growth throughout all the Great Lakes

Algae growth is a major concern not only on the Ajax/Pickering shoreline but throughout the Great Lakes. Scientists are consistently reporting that lowering phosphorus discharges from wastewater treatments plants or the installation of tertiary treatment are not the solutions to nuisance algae growth. Recent Lake Erie studies demonstrate that an effective phosphorus management strategy must focus on surface runoff sources as deriving the greatest benefit for reducing algae growth. There are many sources of phosphorus including water, tributaries, stormwater runoff, farmland runoff and wind currents that blow dust. Combined, these other sources contribute significantly more phosphorus to the Ajax/Pickering shoreline than Duffin Creek Plant does.

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 15 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, Conservation and Parks, and surpasses the discharge limits of other comparable large plants discharging to Lake Ontario. Furthermore, unlike most other comparable plants, the Duffin Creek Plant provides full treatment of all wastewater flows even during extreme high-flow rainfall events and unlike most of the large plants on Lake Ontario the Duffin Creek Plant can claim zero bypass discharges.

Durham and York Region jointly submitted Phosphorus Reduction Action Plan in January 2018

To assist with a decision on the Outfall Class Environmental Assessment, the Minister issued an Order to the Regions on April 4, 2016, outlining requirements for the Regions to undertake a Phosphorus Reduction Action Plan study at the Duffin Creek Plant.

The Regions retained an internationally recognized team to undertake the Phosphorus Reduction Action Plan study. Durham Regional Council also requested York and Durham staff to consult with the Town of Ajax during the Phosphorus Reduction Action Plan study. The Ministry of the Environment, Conservation and Parks subsequently granted an extension to the due date to ensure that Ajax staff and their consultants were fully engaged in the progress of the study.

Durham and York Region submitted the Phosphorus Reduction Action Plan study final report in January 2018. The Regions submitted responses to public comments received during the 45-day Phosphorus Reduction Action Plan study review period on March 16, 2018.

The final recommendation from the Phosphorus Reduction Action Plan study is to implement optimization of chemically enhanced phosphorus removal in the existing secondary treatment process at the Duffin Creek Plant. The new effluent objectives and limits proposed in the Phosphorus Reduction Action Plan study for total phosphorus are below the Great Lakes Water Quality Agreement as well as the proposed target for wastewater treatments plants that discharge to the eutrophic Lake Erie. The target suggests a concentration of 0.5 milligrams per litre of phosphorus and the Regions have proposed an objective of 0.35 milligrams per litre.

Commitment to surpass the target outlined by the Great Lakes Water Quality Agreement and Lake Erie partners demonstrates the Region's environmental stewardship and commitment to continuous improvement.

The Regions believe that all necessary and requested information has been provided for the Ministry of the Environment, Conservation and Parks to make a decision on the Part II Order Requests and the Outfall Class Environmental Assessment.

UPPER YORK SEWAGE SOLUTIONS INDIVIDUAL ENVIRONMENTAL ASSESSMENT

Region continues to communicate with the Ministry of the Environment, Conservation and Parks in anticipation of an Upper York Sewage Solutions Individual Environmental Assessment approval

The Upper York Sewage Solutions project will provide additional servicing capacity of over 80,000 persons to support growth in the Towns of Aurora, Newmarket and East Gwillimbury. The proposed sewage solution includes a new Water Reclamation Centre in the Town of East Gwillimbury, modifications to the existing York Durham Sewage System in the Town of Newmarket and a project-specific total phosphorus offsetting program.

- In July 2014, after more than five years of extensive scientific study and consultation with stakeholders and First Nations, York Region submitted the Individual Environmental Assessment report to the province for approval. The Upper York Sewage Solutions Environmental Assessment was anticipated to be approved by February 2015 with commissioning of the Water Reclamation Centre scheduled for 2024. With delays in approval of the environmental assessment, the Water Reclamation Centre is currently scheduled for commissioning in 2026; however, this timing is dependent on approval of the environmental assessment in early 2019.
- In December 2016, the Ministry of the Environment and Climate Change informed the Region that it needed to complete its own provincial Crown legal Duty to Consult obligation with First Nations and advised that this process would delay project approval. The Region continues to await completion of the provincial duty to consult.
- Upon the Ministry's request in March 2017, the Region completed a voluntary Health Impact Assessment in November 2018 in consultation with the Chippewas of Georgina Island First Nation. The assessment, however, did not include Traditional Ecological Knowledge. Staff continue to work with the Ministry of the Environment, Conservation and Parks in anticipation of approval in order to proceed with the Upper York Sewage Solutions project. At the same time, the Region is continuing with detailed design to mitigate schedule impacts caused by approval delay and be in a position to implement delivery of the Upper York Sewage Solutions upon approval.

Region is implementing modifications to the existing York Durham Sewage System in the Town of Newmarket

On March 7, 2018, the province issued a Declaration Order to exempt modifications to the York Durham Sewage System component of the Upper York Sewage Solutions project from the requirements of the *Environmental Assessment Act*. With the Declaration Order, the Region is proceeding to implement modifications to the existing York Durham Sewage System in the Town of Newmarket (twinning of the forcemains and alterations to the

Newmarket and Bogart Creek Sewage Pumping Stations). Construction of the modifications is scheduled to start in 2019 with commissioning expected in 2021.

Water Reclamation Centre and associated wastewater network design progressing in the absence of Individual Environmental Assessment approval

The design for the Water Reclamation Centre and associated linear conveyance infrastructure is nearing completion and applications for all environmental approvals and permits required for implementation of the work are being prepared for formal submission to various regulatory agencies upon receipt of environmental assessment approval.

- The performance demonstration of the pre-selected membrane filtration system and pile testing program were concluded to optimize the Water Reclamation Centre treatment process and foundation design. The air management facility was also pre-selected for future system integration.
- The Region has successfully secured the property required for the proposed Water Reclamation Centre along with various other properties associated with the linear conveyance infrastructure. Staff continue to pursue the remaining properties to facilitate construction.
- The Region has completed the pre-construction environmental monitoring programs for the Water Reclamation Centre and its outfall at the East Holland River.

Region is partnering with Lake Simcoe Region Conservation Authority in preparation for the project-specific total phosphorus offsetting program

At its meeting of November 16, 2017, Council authorized a partnership with the Lake Simcoe Region Conservation Authority to undertake a performance demonstration project for phosphorus removal by retrofitting two existing stormwater management facilities. This project will better prepare the Region for implementation of the project-specific total phosphorus offsetting program upon approval of the Upper York Sewage Solutions project. Pre-construction monitoring at the two stormwater management facilities was initiated in summer 2018 and construction of the facilities is scheduled to start in 2019.

Interim Infrastructure Solutions to provide water and wastewater servicing capacity to support growth in the Towns of Aurora, Newmarket, and East Gwillimbury

At its meeting of June 28, 2018, Council authorized two interim infrastructure solutions to provide water and wastewater servicing capacity for a population of 11,500 persons to support growth in Aurora, Newmarket, and East Gwillimbury out of which 10,500 persons were assigned subject to completion of these trigger capital projects.

- Upgrades to the Region's Aurora Sewage Pumping Station project are pre-approved under the Municipal Class Environmental Assessment. Design work commenced in summer 2018 and commissioning is scheduled for 2021.

- The Region initiated an environmental assessment to identify the preferred location for a new pumping station near the intersection of Yonge Street and Henderson Avenue in Aurora. Construction of the new Henderson Sewage Pumping Station is anticipated to commence in 2020 with commissioning expected in 2022.

VAUGHAN WATER AND WASTEWATER PROJECTS

Detailed Design for West Vaughan Sewage Servicing nearing completion

An environmental assessment for West Vaughan Sewage Servicing to service future growth of 33,200 people and 50,100 employment population was completed in 2013. The West Vaughan Sewage Servicing project includes approximately 14 kilometres of trunk sewer, with 12 kilometres to be completed by 2028 and the remaining two kilometres to be completed after 2034, as well as expansion of the Humber Sewage Pumping Station to be completed by 2025.

All permit applications are being prepared and, in consultation with permitting agencies, will be submitted prior to construction based on the timing of each construction contract. Land acquisition is underway and a number of properties have been acquired with the majority of remaining properties/easements scheduled to be acquired in 2019, subject to expropriation timelines.

Humber Sewage Pumping Station upgrades allow near-term growth in the City of Vaughan to proceed as planned

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 growth in Vaughan to continue until the need for the West Vaughan sewer.

West Vaughan Water Servicing Strategy has identified opportunities to optimize the existing infrastructure in the system to service long-term growth

York Region has updated the Water Servicing Strategy for parts of West Vaughan including Kleinburg-Nashville. The strategy has identified opportunities to optimize existing infrastructure to service West Vaughan's long-term projected growth.

The overall strategy is to use the available storage capacity in West Vaughan to offset identified storage deficits in the system. By adjusting the set points of the existing pressure reducing valves, it will supply more water to other areas in the system without building any additional infrastructure. The target completion for this work is Q4 2020.

The work was identified in the 2016 Water and Wastewater Master Plan Update. The works to be completed as part of the West Vaughan Water Servicing project are included in the 10 Year Capital Plan.

Northeast Vaughan Water and Wastewater Class Environmental Assessment Study to be filed with the Ministry of the Environment, Conservation and Parks

The Class Environmental Assessment Study will provide additional water and wastewater servicing capacity to accommodate anticipated growth in northeast Vaughan up to 2051, including approximately 155,000 persons of residential and employment within the wastewater service area and 115,000 persons of residential and employment within the water service area. The study is to be filed for public review in Q1 2019 (last reported: Q1 2018). The delay in filing the study will not impact the overall completion of the work, which is currently scheduled for 2028 (last reported: 2028). The delay is a result of challenges in confirming appropriate pumping and water storage sites.

The preferred water servicing solution includes construction of watermains to connect two new elevated water storage tanks and two new pumping stations. Preferred sites identified for water infrastructure were as follows:

- New pumping station in the Jane Street and Teston Road area
- New pumping station and elevated tank north of the Jane Street and Kirby Road intersection
- New elevated tank west of Jane Street and King-Vaughan Road intersection

The preferred wastewater servicing solution includes construction of six kilometres of new trunk sewer. The proposed trunk sewer is divided into segments and would begin at Teston Road and connect to the existing York Durham Sewage System at three specific points:

- A section of approximately 4.5 kilometres along Jane Street from Teston Road to south of Rutherford Road
- A relatively small (180-metre) relief sewer section located south of Rutherford Road, between Jane Street and Keele Street, in the existing Jane-Rutherford Sanitary Trunk Sewer easement
- A section of sewer approximately 1.9 kilometres along Keele Street from south of Rutherford Road to Langstaff Road, and then east crossing Keele Street to an area just south of Langstaff Road

Maple Pumping Station interim construction completed ahead of schedule and new pump will meet early growth demands

An additional pump has been installed at the Maple Pumping Station that will provide some capacity for near-term growth in northeast Vaughan on an interim basis and provide additional fire flow until new storage facilities identified as part of Northeast Vaughan Environmental Assessment Study are completed in 2028. The construction contract was tendered in May 2018 and installation of the new pump is complete with commissioning to be finalized in January 2019 (last reported: Q1 2019).

Nobleton Class Environmental Assessment has commenced

An Environmental Assessment has commenced to assess alternative water and wastewater servicing solutions and select the preferred alternatives to accommodate planned growth (to 10,800 people) in Nobleton. As part of the Environmental Assessment, a comprehensive groundwater exploration is underway, which will identify potential future well locations for additional water supply. The Environmental Assessment is anticipated to be complete in Q3 2020. Nobleton is currently serviced by groundwater, since the connection to the York Water System (surface water) is not permitted due to the Greenbelt Legislation, which precludes lake-based servicing for communities in the greenbelt.

Over the last year, a System Capacity Optimization Study and Hydraulic Analysis were completed for both the water and wastewater system. This analysis provides the status of the existing system, and will inform alternatives for the Environmental Assessment study. The Assimilative Capacity Study for the Humber River has been extended to include additional sampling under various rain events to better understand the current phosphorus levels in the river. The first Public Consultation Centre is scheduled Q2 2019.

Richmond Hill/ Langstaff Gateway water and wastewater servicing design is nearing completion

Design of the required water and wastewater infrastructure through a complex utility corridor along Highway 7 is nearing completion. Final construction permit approval applications are being prepared with approvals anticipated by the end of 2019. Property acquisition of 22 temporary and permanent easements is currently underway with anticipated completion in late 2019. It is expected that the tender documents for this infrastructure will be released by the end of 2019 pending completion of property acquisition. Commissioning of water and wastewater infrastructure is currently programmed for 2025 (last reported: 2025). Timing of this work will be revisited during the 2019 budget development. Until then, capacity is available to match the transportation growth triggers for the service area. The project will provide additional water and wastewater servicing capacity to accommodate anticipated growth up to 2051 in Richmond Hill and Markham of 39,425 persons..

Sutton Water Resource Recovery Facility average flow well below plant capacity

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 up to 13,500 people was completed in 2010.

The Region continues to monitor plant flows, and future capacity expansion will be brought into the 10 year capital plan when the flow reaches 70 per cent of the plant capacity. Currently, the plant is operating at 50-60 per cent capacity.

Construction of a plant optimization project is underway with detailed design complete and construction commencing in early 2019. This work includes construction of an equalization tank to address peak flow processing challenges and the new tank will subsequently serve

as a process tank in future capacity expansion. All regulatory permits have been acquired and completion of this project is anticipated by 2021. This does not change the capacity of the plant.

PEEL AND TORONTO COST-SHARED PROJECTS

Region's long-term servicing strategy includes Peel and Toronto cost-shared projects

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

Peel cost-shared projects progressing as expected

York Region has secured 331 MLD in supply and transmission capacity from Peel Region. Based on York Region's Water and Wastewater Master Plan Update, water supply from Peel Region combined with water supply from City of Toronto will service growth to year 2031 and beyond.

There are currently four water and two wastewater cost-shared projects underway in Peel Region. The Lakeview Water Treatment Plant Expansion and Lorne Park Water Treatment Plant Expansion were completed in 2018 and are currently under warranty. Construction of both the Lakeview Water Treatment Plant Standby Power and Hanlon Feedermain are ongoing with commissioning scheduled in Q2 2019. As for wastewater projects, the Lakeview Wastewater Treatment Capacity Expansion to benefit York Region was completed in 2018. Additional work is ongoing to optimize existing plant capacity to be completed in 2022.

Hanlan Feedermain projects are scheduled to be commissioned by Q2 2019

Completion of the 12-kilometre Hanlan Feedermain requires five separate contracts, of which four have been released. Contracts 1 (tunnelling) and 2 (open cut) for the new 2400mm diameter pipe are complete and in warranty period. Contract 3 (open cut/tunnelling) is in construction and currently in final restoration and scheduled to be completed in Q2 2019 (last reported: Q4 2018). The additional time to complete Contract 3 will not impact service commitments to York Region. Contract 4, commissioning of the entire newly constructed Hanlan Feedermain has been awarded and will also be completed in Q2 2019 (last reported: late 2018, delayed as a result of Contract 3). The final phase of work to interconnect the new feedermain to the existing feedermain, which is Contract 5, is anticipated for completion in 2020.

Toronto cost-shared projects progressing and no impacts to capacity commitment

There are currently five ongoing Toronto cost-shared projects with three in construction. With the exception of Ellesmere Pumping Station Standby Power Upgrades, all projects in construction are progressing on schedule. The City of Toronto is managing contractual issues on the Ellesmere Pumping Station Standby Power Upgrades. Progress on this project has been limited this year; however, this project is not related to capacity and will not impact water capacity commitments. The project is now anticipated for completion Q3 2020 (last reported: Q4 2018). The remaining projects are on schedule and progressing to planned completion dates:

- Scarborough Watermain Q2 2021 (last reported: 2021)
- Toronto Billing Meter Upgrades Q4 2019 (last reported: Q4 2019)
- Rosehill Pumping Station Standby Power Upgrades Q2 2020 (last reported: 2020)
- West Toronto and Richview Pumping Stations Q4 2021 (last reported: Q4 2021)

5. Financial

\$2.5 billion of capital infrastructure works approved in the 2018 Environmental Services Budget for next 10 years

The 2018 Environmental Services Budget and 10 Year Capital Plan include \$2.5 billion in water, wastewater, waste management, forestry and energy projects. Of the total \$2.5 billion of capital works in the approved 10 Year Capital program, approximately \$1.4 billion is for growth infrastructure in the water and wastewater program, \$989 million for rehabilitation and replacement in the water and wastewater program and \$106 million for waste management, forestry and energy projects. The 2018 Multi-year Capital Spending Authority for Environmental Services infrastructure projects is \$950 million. (This includes the re-profiling that occurred in June 2018.) 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 2018 approved budget is provided in Table 1.

Table 1
Cost Estimates for Key Infrastructure Projects

Project	Estimated Total Project Cost	Remaining Estimated Cost in 10 Year Plan	Anticipated Commissioning Date
Duffin Creek Plant Outfall – Diffusers	\$24.6M	\$17.3M	2021***
Upper York Sewage Solutions Newmarket Forcemain Twinning	\$110.6M	\$101.9M	2021
Upper York Sewage Solutions Water Reclamation Centre*	\$604.0M	\$484.8M**	2026***
West Vaughan Water Servicing	\$3.3M	\$2.6M	2036
West Vaughan Sewage Servicing	\$327.9M	\$217.1M**	2028
Northeast Vaughan Servicing	\$253.2M	\$195.9M**	2028
Richmond Hill/Langstaff Gateway Regional Centre Servicing	\$28.6M	\$26.3M**	2025
Sutton Water Resource Recovery Facility Expansion	\$42.7M	\$2.0M	2033
City of Toronto Cost-Shared Projects	\$314.4M	\$40.5M	Varies
Peel Region Water Cost-Shared Projects	\$580.0M	\$14.3M	Varies
Peel Region Wastewater Cost-Shared Projects	\$66.6M	\$5.8M	Varies
Estimated Total Project Cost and Remaining Budget in 10 Year Plan	\$2355.9M	\$1108.5M	

*Includes associated linear works and phosphorus offset program

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

***Anticipated commissioning dates based on 2018 approved budget; however, timing dependent on approval of Environmental Assessments

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 department's asset management program monitors the condition and performance of the Environmental Services Department's multi-billion

dollar asset base. Infrastructure rehabilitation and replacement needs to maintain current levels of service are estimated at approximately \$1 billion over the next 10 years. Some of the key projects and programs are as follows: Duffin Creek Incinerator Replacement Project; Southeast Collector Rehabilitation Project; Ductile Iron Watermain Replacement Program; Inflow and Infiltration Reduction Program; Primary Trunk Rehabilitation and Elevated Water Tank Rehabilitation Program. A breakdown of estimated costs for this program area is provided in Table 2 along with other components of the entire capital program.

Table 2
Cost Estimates for Environmental Services 10 Year Capital Plan

Project	Remaining Estimated Cost in 10 Year Plan (2018 - 2027)
Key Infrastructure Projects (as detailed in Table 1)	\$1108.5M
Other Water Growth Capital Projects	\$110.6M
Other Wastewater Growth Capital Projects	\$188.2M
Water Rehabilitation/Replacement	\$338.5M
Wastewater Rehabilitation/Replacement	\$686.6M
Waste Management	\$78.2M
Natural Heritage and Forestry	\$16.5M
Energy Management	\$12.3M
TOTAL	\$2,539.4M

Region received \$34.8 million in Clean Water and Wastewater Funding approval for 29 projects

In October 2016, the Region submitted an application for 29 potential projects to the Clean Water and Wastewater Fund and received funding approval in the amount of \$34.8 million for all submitted projects. This program is offered through Infrastructure Canada with the objective of accelerating immediate improvements to water distribution and treatment infrastructure with a focus on leveraging innovation opportunities. Of total approved funding, 85 per cent was allocated toward four key water and wastewater projects:

1. York Durham Sewage System Sewer Rehabilitation
2. Water Transmission Main Replacement
3. Phosphorus Offset Program and Membrane Filtration Demonstration Projects
4. Duffin Creek Plant Field Testing for Phosphorus Removal Study

The original deadline to complete these works was March of 2018. As of January 2018 Infrastructure Ontario has issued an extension on the deadline for completion of these

projects to March of 2020. Staff anticipate meeting all requirements of the program criteria to realize the full funding amount.

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 2018 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 need to revisit its capital plan commitments.

6. Local 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 their own respective capacity allocation and future growth commitments but also the Regional capacity assignment to ensure fiscal sustainability.

7. Conclusion

\$2.5 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 2018 10 Year Capital Plan includes critical projects required to provide capacity to service future growth. Staff will report back to Council in Q3 2019 on servicing capacity for all municipalities serviced by the York Durham Sewage System. Where applicable, staff will continue to optimize the water and wastewater networks through water conservation, inflow and infiltration reduction and other capacity monitoring programs to ensure we maximize potential from existing Regional systems. 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 Team has reviewed this report.

Recommended by:

Erin Mahoney, M. Eng.
Commissioner of Environmental Services

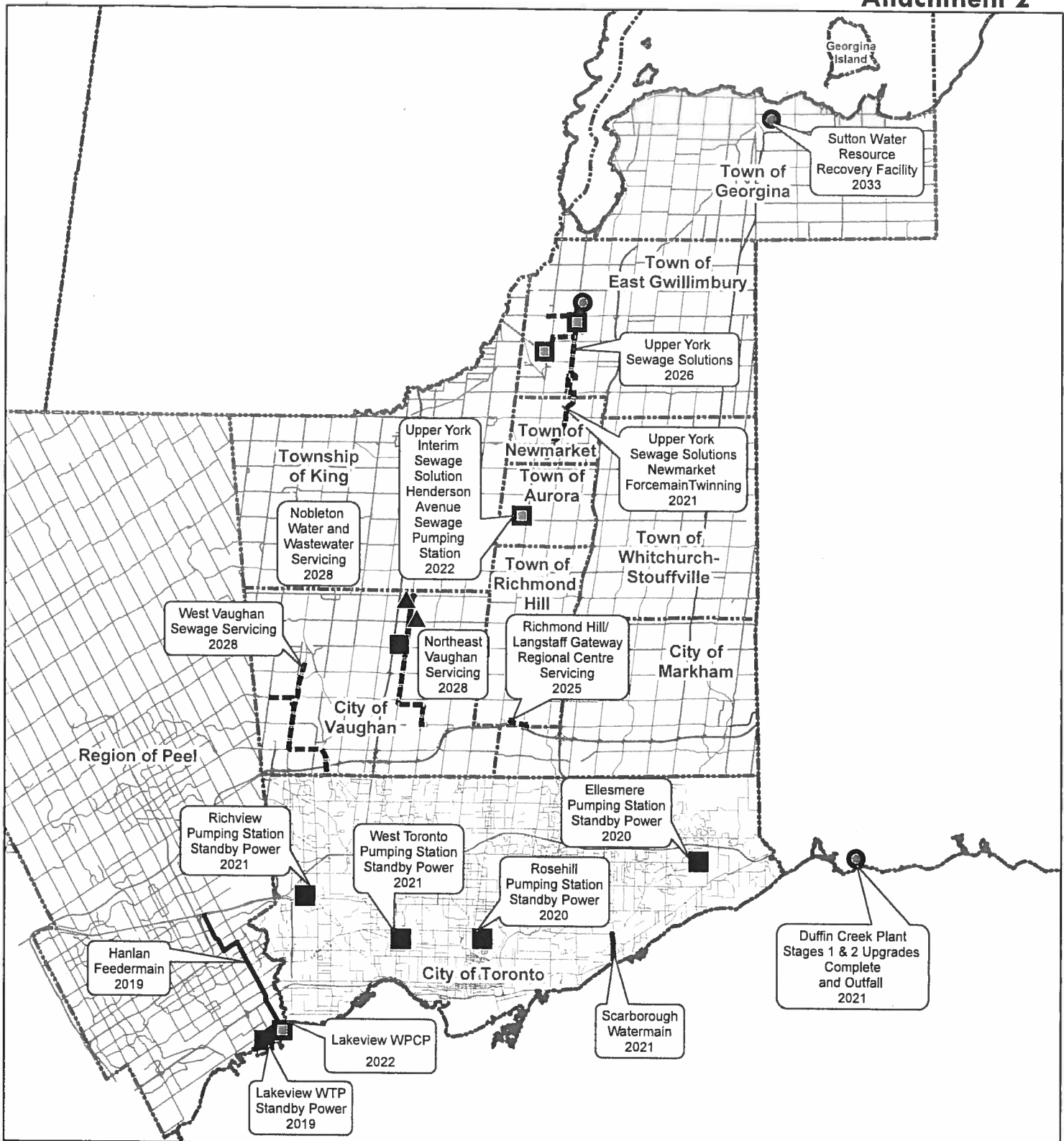
Approved for Submission:

Bruce Macgregor
Chief Administrative Officer

December 13, 2018
Attachments (2)
#8781082

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	Complete
Duffin Creek Plant Outfall	EA to address diffusion requirements and increase outfall capacity to 630MLD	Class Environmental Assessment	2021 (timing dependent on Outfall EA approval)
Upper York Sewage Solutions	Water Reclamation Centre with associated linear works and phosphorus off-set program	Detailed Design	2026 (timing dependent on Upper York Sewage Solutions Individual Environmental Assessment approval)
	Newmarket Forcemain Twinning	Detailed Design	2021 (approval through Declaration Order)
	Interim Infrastructure Solutions	Class Environmental Assessment	2022
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	Detailed Design	2033 (last reported: 2033)



LOCATION PLAN Key Infrastructure Projects

Environmental Services Water and Wastewater
January 10, 2019

Produced by: The Regional Municipality of York
Infrastructure Asset Management Branch, Environmental Services Department December 2018

Data Sources:
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See York.ca for disclaimer information.

York Region yorkmaps



Legend

- Priority Water Projects and estimated completion year
- Priority Wastewater Projects and estimated completion year