Clause 9 in Report No. 15 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on November 16, 2017.

9

Environmental Services Water and Wastewater Capital Infrastructure Status Update

Committee of the Whole recommends:

1. Receipt of the presentation by Mike Rabeau, Director, Capital Planning and Delivery, Environmental Services.
2. Adoption of the following recommendation contained in the report dated October 17, 2017 from the Commissioner of Environmental Services:
    1. The Regional Clerk circulate this report to the local municipalities, Building Industry and Land Development Association and the Ministry of the Environment and Climate Change.

Report dated October 17, 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, Building Industry and Land Development Association and the Ministry of the Environment and Climate Change.

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 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 population, is “assigned” to local municipalities, and in turn, the local municipalities allocate that capacity to developers to support residential growth.

The unused capacity in the York Durham Sewage System at the end of 2016 is approximately 147,000 persons. Twinning of the Newmarket forcemain is the only trigger project associated with the 2016 capacity assignment and is required to unlock the 1,500-person capacity assigned to Town of Newmarket. The work is part of the Upper York Sewage Solutions project and timing is dependent on environmental assessment approval.

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

On April 20, 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 2019.

4. Analysis and Implications

Regional 10 Year Capital Plan remains on schedule to deliver on commitments made through the capacity assignment process

Environmental Services is responsible for delivering approximately 40 percent 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. 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, subject to further delays in the Upper York Sewage Solutions Individual Environmental Assessment including the forcemain twinning.

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 Stages 1 and 2 Upgrades

Duffin Creek Plant Upgrades project substantially performed ahead of Ministry of the Environment and Climate Change deadlines

The Duffin Creek Plant Stages 1 and 2 Upgrades include critical work that must be completed by the end of 2017 to satisfy conditions within the Ministry of the Environment and Climate Change's Environmental Compliance Approval for the Duffin Creek Plant Stage 3 Expansion.

Several contracts listed in Table 1 include work stipulated for completion by December 31, 2017.

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

Contract / Progress	Progress Update
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 ($88 Million / 97% complete)	Construction contract was substantially performed in October 2017
Refurbishment and Upgrade Construction contract and associated pre-purchase contract; Clarifier Bridge Mechanisms ($31 Million / 99% complete)	All of Stage 1 and 2 clarifier bridges commissioned. Stage 2 process works substantially completed February 2016. Stage 1 process works substantially completed in Q3 2017
Stages 1 and 2 Demolition and Removals contract ($3 Million / 60% complete)	Demolition contract tendered in March 2017 and advancing well. Removals expected to be complete in 2017 and site restoration forecast complete in spring 2018
Odour Management Plan	Final phase of monitoring and analysis commencing and scheduled to occur throughout 2018 with plant upgrades online

The Duffin Creek Plant Stage 1 and 2 Upgrades represent a total investment of $200M in addition to $620M expended on the Stage 3 Expansion

2017 represents a major milestone in the capital program at the Duffin Creek Plant with Stages 1 and 2 Upgrades Project being substantially complete, the culmination of 12 years of major capital work at the facility that included both the Stage 3 Expansion and the Stages 1 and 2 Upgrades. The Stage 3 Expansion commenced in 2005 with a goal to ensure sewage treatment capacity for projected growth of York and Durham Regions through to the year 2036 forecast and to achieve a rated capacity of 630 MLD/day. The Stage 1 and 2 Upgrades commenced in 2010, in part driven by Stage 3 Environmental Compliance

Approval commitments to have upgrade works completed by December 2017, a commitment that has now been achieved.

Duffin Creek Outfall Class Environmental Assessment

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

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. 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.

Recent studies completed for the St. Catharines shoreline of Lake Ontario identify surface runoff as the principal source of phosphorus impacting nearshore water quality

In May 2017, a joint Canada-Ontario Draft Action Plan for Lake Erie Phosphorus Reduction was released. The Plan notes that:

> "Most of phosphorus entering the lake now comes from nonpoint sources such as agricultural, rural and urban storm runoff."

Further evidence of the impact of surface runoff can be seen in a June 2017 article published in the *Journal of Great Lakes Research* concerning the phosphorus levels in the nearshore water of Lake Ontario in the vicinity of St. Catharines. The Ministry of the Environment and Climate Change and Environment Canada research scientists determined that:

> "loadings from eastern Lake Erie via Twelve Mile Creek and the Welland Canal are a primary driver of variability in nearshore water quality, creating mixing areas enriched in particulate and dissolved phosphorus and turbidity"

The studies undertaken as part of the Duffin Creek Plant Outfall Class Environmental Assessment similarly identified surface runoff as one of the principal sources of phosphorus that has caused the resurgence of *Cladophora* growth along the Ajax/Pickering shoreline. One notable study prepared by the University of Waterloo and referenced in the Outfall Class EA 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 study to determine the feasibility of further reducing phosphorus discharges from the Duffin Creek Plant. The Minister's letter indicates that the results of the Phosphorus Reduction Action Plan study are required to make a decision on the Part II Order Requests.

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

The Phosphorus Reduction Action Plan has been in progress for the past 17 months using a team of world-class experts in phosphorus removal. Work is underway to field test phosphorus reduction strategies within a live plant operating environment and confirm the feasibility of further phosphorus reduction limits. The Phosphorus Reduction Action Plan study will also consider tertiary treatment options to further reduce the plant's phosphorus loading to Lake Ontario. Consideration of capital and operating costs will be included in the study for all options along with impacts on water rates and development charges for both Regions. The Ministry requires the completed study to be posted for a 45-day public review period prior to the scheduled completion date of March 31, 2018.

Town of Ajax reviewing the Phosphorus Reduction Action Plan

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. Generally, progress meetings have been constructive; however, fundamental differences of opinion remain on the claims by Ajax and their experts that the Duffin Creek plant is the principal cause of *Cladophora* growth on the Ajax/Pickering waterfront. The Ministry has asked that the major areas of agreement and areas of difference be noted in the Phosphorus Reduction Action Plan study.

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. 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 has no ability to bypass treatment.

Upper York Sewage Solutions

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 dependent on Upper York Sewage Solutions Individual Environmental Assessment approval. Timing is dependent on the Upper York Sewage Solutions Environmental Assessment Approval (last reported: 2024).

- Modifications to the existing York Durham Sewage System between the existing Newmarket, Aurora and Bogart Creek Pumping Stations dependent on the Upper York Sewage Solutions Individual Environmental Assessment

approval Timing is dependent on Upper York Sewage Solutions Environmental Assessment Approval (last reported: 2019).

- Project-specific phosphorus off-setting program dependent on Upper York Sewage Solutions Individual Environmental Assessment approval (last reported: 2022)

Key design elements of the proposed work have been advancing through various stages of detailed design. The water reclamation centre design is approaching its 100 per cent completion while the York Durham Sewage System forcemain twinning design is in the construction tender preparation stage. Applications of all environmental approvals and permits required for implementation of the work are being prepared for formal submission to various regulatory agencies upon environmental assessment approval. The performance demonstration of the pre-selected GE membrane filtration system for the future water reclamation centre is progressing as planned at Keswick Water Resource Recovery Facility.

Key property for plant site has been acquired

To date, the Region has successfully secured the property required for the proposed water reclamation centre along with various other properties. Staff continues to pursue the remaining properties.

Forcemain critical to alleviating system risk of sewage overflow and surcharge

One particular risk that the Region is faced with is the delay in implementing the proposed modifications to the existing York Durham Sewage System (twinning of the sewage forcemain through the Town of Newmarket). These proposed modifications will not only increase sewage service capacity but also alleviate inherent system risk of sewage overflow and surcharge during high-flow conditions in the Town of Newmarket.

These flow conditions materialized during the prolonged and high-intensity storm event on June 23, 2017 that resulted in sewage spillage and surcharge in local collection systems. The Region reported the spill event to the Ministry. This is the only pumping station of its size in York Region with a single forcemain discharging from the facility. Regional staff have advised the Ministry in writing of the risks associated with this single forcemain system.

The Region is partnering with Lake Simcoe Region Conservation Authority to work on a phosphorus removal demonstration project

The Region is partnering with the Lake Simcoe Region Conservation Authority to undertake a performance demonstration project for phosphorus removal by retrofitting two existing stormwater management facilities. This work will assist in

preparing the Region for efficient implementation of the phosphorus offsetting program for the Upper York Sewage Solutions project upon approval. Despite challenges caused by the approval delay and unknown approval conditions, implementation of the phosphorus offsetting program remains on schedule prior to commissioning of the Upper York Water Reclamation Centre. A separate report on this agenda has been prepared by Environmental Services staff, titled "Phosphorus Removal Demonstration Partnership with Lake Simcoe Region Conservation Authority".

Demonstration project underway to better understand and increase water reuse

A Water Reuse Research Demonstration project is underway to establish a foundation for future water reuse opportunities in York Region, including those from the Upper York Water Reclamation Centre. This project will demonstrate and monitor the use of reclaimed water from one of the Region's Water Resource Recovery Facilities to irrigate sod for two growing seasons. This project will help inform the Region of the technical, regulatory and environmental implications of using reclaimed water

Vaughan Water and Wastewater Projects

Detailed design for West Vaughan Sewage Servicing is progressing well

The project is on schedule and is currently approaching 90 per cent detailed design. Negotiations to acquire various properties along the proposed alignment continue in conjunction with the recently initiated expropriation process. The West Vaughan Sewage Servicing project includes over 14 kilometres of trunk sewer of which 11 kilometres will be completed by 2028 (last reported: 2028) and the Humber Sewage Pumping Station expansion to be completed in 2025 (last reported: 2025). A significant number of permits are required for this project, and extensive consultation and preplanning with agencies to secure permits is underway.

Humber Sewage Pumping Station upgrades complete to 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 for growth in the City of Vaughan to continue without interruption.

West Vaughan Water Servicing project to optimize pressure reduction valve interconnections to meet near-term servicing requirements

York Region has updated the water servicing strategy for parts of West Vaughan, including Kleinburg-Nashville. The strategy has not resulted in any immediate infrastructure needs; however, it has identified opportunities to optimize the use of capacity in existing facilities and systems to service West Vaughan's long-term 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 was 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.

Public consultation for the recommended northeast Vaughan water and wastewater servicing solution is nearing completion and the class environmental assessment report is being drafted

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. Preferred locations for new water facilities, watermains and sewers have been presented to stakeholders and the public in June 2017 as follows:

- Elevated water storage on the south side of King Vaughan Road, west of Jane Street
- 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 Class Environmental Assessment report is anticipated to be filed in Q3 2018 (last reported: Q1 2018). This additional time was required to further assess optimal water storage locations, which have now been determined.

Construction cost estimates for the proposed water and wastewater solutions will be updated in the 2018 proposed capital budget to reflect new information generated 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.

Maple Pumping Station interim solution in progress to meet early growth demands

Detailed design is complete for an additional pump at the Maple Pumping Station that will service some near-term growth in northeast Vaughan on an interim basis. The construction contract is scheduled for tender by the end of 2017 with the new pump expected to be commissioned by Q1 2019 (last reported: mid-2018). This schedule change is a result of additional time for manufacturing specialized pumps required at this pumping station and is not expected to impact servicing commitments. The overall project is currently scheduled for completion in 2028 (last reported: 2028).

Nobleton Class Environmental Study underway

York Region is undertaking a Class Environmental Assessment Study to assess alternative water and wastewater servicing solutions to accommodate growth within the Town of Nobleton and Township of King. An engineering consultant has been retained to complete the study, which will include technical work to effectively identify and evaluate potential alternatives. Currently, the consultant is conducting the Assimilative Capacity Study, which will determine current phosphorus levels in the Humber River and estimate future phosphorus levels in the event that the Nobleton Water Resource Recovery Facility is expanded and more treated effluent is discharged.

Leslie Street Sewage Pumping Station construction is progressing well and the facility has received LEED Certification

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.

The new facility achieved Leadership in Energy and Environmental Design (LEED) Certification, which is a rating system that recognizes the international mark of excellence for green buildings in over 160 countries.

Work continues and substantial performance is anticipated in Q1 2018 (last reported: Q1 2018). The project team continues to work closely with the contractor and consultant to maintain work progression.

Richmond Hill/ Langstaff Gateway water and wastewater servicing 90 per cent detailed design complete

The 90 per cent detailed design phase for the Richmond Hill/Langstaff Gateway Regional Centre was completed in March 2017. Given the complex urban setting of the proposed infrastructure, staff conducted value engineering on various design alternatives and consulted with local municipalities on the outcomes. The value engineering exercise resulted in realizing efficiencies, which are currently being incorporated in the design. Commissioning of the water and wastewater infrastructure remains planned for 2025 (last reported: 2025). Until then, capacity is available to match the transportation growth triggers for this service area.

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 13,500 people was completed in 2010.

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.

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 conducts 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

There are currently four water and two wastewater cost-shared projects underway in Peel Region. The Lakeview Water Treatment Plant Expansion, Lakeview Water Treatment Plant Standby Power, Lorne Park Water Treatment Plant Expansion, Hanlan Feedermain and the Lakeview Wastewater Treatment Facility Capacity Expansion project are all nearing completion.

Hanlan Feedermain projects are scheduled to be commissioned by Q4 2017

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 2041 and beyond.

Completion of the 12-kilometre Hanlan Feedermain will require five separate contracts of which three have been released. Contracts No. 1 (tunnelling) and 2 (open cut) for the new 2400mm diameter pipe are complete and in the warranty period. Contract No. 3 (open cut/tunnelling) is in construction and encountered unanticipated ground conditions during the tunnelling portion. A different drilling approach was implemented and substantial performance is now scheduled for Q4 2017 (last reported: Q2 2017). Additional time to complete Contract No. 3 will not impact service commitments to York Region. Contract No. 4 to commission the newly constructed Hanlan Feedermain is in the tender phase and is now scheduled to be completed by Q2 2018 (last reported: late 2017) due to the additional time required to complete Contract No. 3. Contract No. 5 (feedermain interconnections) is scheduled for tender in Q1 2018 and is anticipated for completion in Q4 2018.

Toronto cost-shared projects progressing well

There are currently five ongoing Toronto cost-shared projects with three in construction. The Scarborough Pumping Station is on schedule for completion in Q2 2021 (last reported: Q4 2020). Additional time was required to acquire construction easements to perform the work. This change will not affect water capacity commitments. The remaining projects are on schedule and progressing to planned completion dates: Toronto Billing Meter Upgrades (Q4 2019), Ellesmere Pumping Station (Q4 2018), Rosehill Pumping Station standby power upgrades (Q2 2020) and West Toronto and Richview Pumping Stations (Q4 2021).

These projects support the goals of the 2015-2019 Strategic Plan and the Regional Official Plan, 2010

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, 2010.

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 approved in the 2017 Environmental Services Budget for next 10 years

The 2017 Environmental Services Budget and 10 Year Capital Plan include $2.4 billion in water, wastewater, waste management, forestry and energy projects. Of the total $2.4 billion of capital works in the approved 10 Year Capital program, approximately $1.34 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.

Table 2
Cost Estimates for Key Infrastructure Projects

Project	Estimated Total Project Cost	Remaining Estimated Cost in 10 Year Plan	Anticipated Commissioning Date
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***
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
Estimated Total Project Cost and Remaining Budget in 10 Year Plan	**$2,744.1M**	**$1,027.2M**	

*****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 2017 approved budget, however, timing dependent on approval of the Individual Environmental Assessment

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 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:

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

The deadline to complete these works is March 2018. Due to delayed approval of funding, the Region will be requesting an extension for completion on most projects up to March 2019 per revised guidelines from Infrastructure Canada.

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; and Elevated Water Tank Rehabilitation Program. A breakdown of estimated costs for this program area is provided in Table 3 along with other components of the entire capital program.

Table 3
Cost Estimates for Environmental Services 10 Year Capital Plan

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

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 10 Year Capital Plan is predicated on the Region achieving forecasted development charge collection. 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. To date, no additional project deferrals or further adjustments to existing projects due to development charge collections have been planned.

New revenue sources or increased third-party funding (funding from Phase II of the federal government's infrastructure funding program or through provincial funding initiatives) could allow projects to be moved forward. Staff will continue to monitor the situation and will report back to Council as needed.

The Region's 2017 development charge bylaw was passed on May 25, 2017

On May 25, 2017, Regional Council passed the 2017 Development Charge Bylaw (No. 2017-35) and approved the accompanying background study. The new rates came into effect on June 17, 2017. The 2017 Development Charge Bylaw and

Background Study included approximately $6.5 billion in gross, growth-related capital projects of which nearly $2.4 billion was for water and wastewater servicing. Council also directed staff to bring back a report and a proposed bylaw amendment on or before March 31, 2018 to include additional road projects to the rate calculation. This amendment will not affect the water or wastewater capital program included in the 2017 bylaw.

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 their own respective capacity allocation and future growth commitments but also the Regional capacity assignment to 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.

October 17, 2017

Attachments (2)

#7929909

Accessible formats or communication supports are available upon request

Attachment 1

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	In Service	
Upper York Sewage Solutions	Water Reclamation Centre with associated linear works and phosphorus off-set program	Detailed Design	Timing dependent on Upper York Sewage Solutions Individual Environmental Assessment Approval (last reported: 2024)
	Newmarket Forcemain Twinning	Detailed Design	Timing dependent on Upper York Sewage Solutions Individual Environmental Assessment (last reported: 2019)
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)

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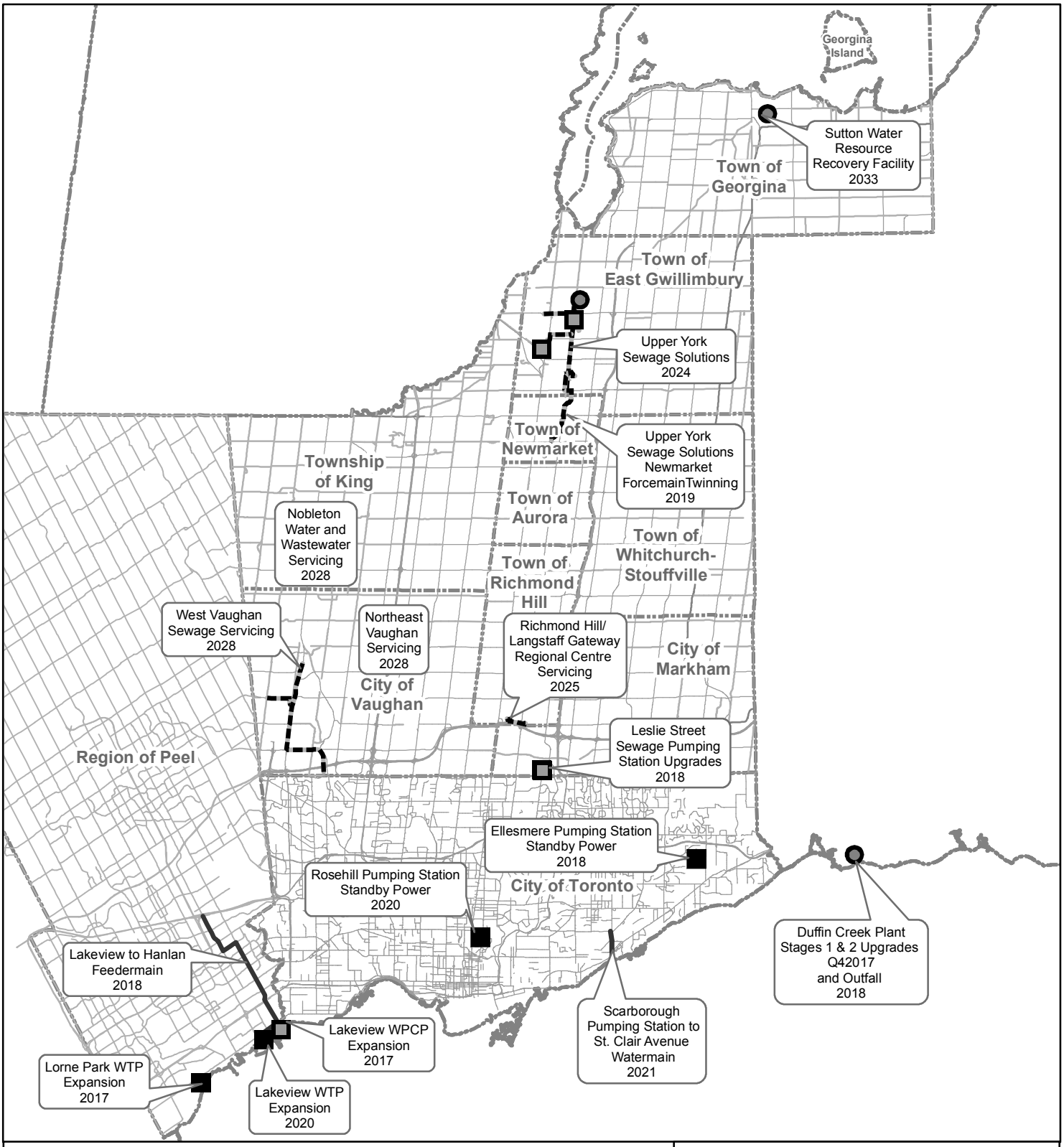

LOCATION PLAN
Key Infrastructure Projects

Environmental Services Water and Wastewater
November 2, 2017

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Data Sources:

York Region yorkmaps

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Priority Water Projects and estimated completion year

Priority Wastewater Projects and estimated completion year

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