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WATER AND WASTEWATER CAPITAL INFRASTRUCTURE STATUS UPDATE

The Environmental Services Committee recommends the adoption of the recommendation contained in the following report dated April 20, 2012, from the Commissioner of Environmental Services.

1. RECOMMENDATION

It is recommended that:

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

2. PURPOSE

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

3. BACKGROUND

Capacity assigned to local municipalities serviced by York Durham Sewage System totaling 1,098,984 people to facilitate growth to the beginning of 2016

In 2003, delays to key infrastructure projects were impacting the Region's ability to allocate sewage capacity to local municipalities. Between 2003 and 2005, staff completed extensive investigations to determine the allowable increase in servicing capacity in the York Durham Sewage System. In June 2005, Regional Council assigned capacity up to 970,000 people to local municipalities serviced by the York Durham Sewage System and Peel Diversion System for growth up to 2010. Subsequently, between 2007 and 2010, additional capacity assignments were made to accommodate growth to 2013. With the recent capacity assignment in April 2012, Council has cumulatively granted release of servicing capacities up to 1,098,984 persons within the York Durham Sewage System and Peel Diversion service areas that will allow each municipality to maintain a minimum of 4-year supply. Past capacity assignments are summarized in Table 1.

Table 1
Capacity Assignment in York Durham Sewage System Service Area

Date	Capacity Assignment (People Equivalent)	Cumulative Assignment	For Growth Up To
23-Jun-05	970,000	970,000	2010
15-Nov-07	35,737	1,005,737	2011
18-Dec-08	36,264	1,042,001	2012
18-Feb-10	36,328	1,078,329	2013
11-Apr-12	20,655	1,098,984	2016

In communities outside the York Durham Sewage System service area, the Region is either in the process of completing or has completed major water and wastewater system upgrades. Upon completion of works identified in Table 3 of this report, a total servicing capacity of over 75,000 people exists in Schomberg, Mount Albert, Nobleton, Kleinburg, Keswick, and Ballantrae.

The last update to Council on trigger projects was provided on January 26, 2012 in Clause 2 of Report No. 1 of Environmental Services Committee. The next update is scheduled for October 2012.

4. ANALYSIS AND OPTIONS

Capacity triggers ensure timing of new home occupancy coincides with available water and wastewater services

Monitoring the progress of trigger projects assists the Region in better controlling two key steps in the planning approvals process:

- Pre-sales of homes
- Final plan approvals

Capacity trigger control is required to avoid premature occupancy of new dwellings in advance of completion of municipal water and wastewater services.

In general, pre-sales of homes are only permitted if the required infrastructure is expected to be in place within one year and final plan approvals are granted if the required infrastructure is expected to be in place within six months. At the discretion of the local municipality, high-density development may move to final approval within eighteen months of completion of required infrastructure and complex high-rise developments within thirty-six months of completion of required infrastructure.

Final approval granted for developments up to 2012 capacity assignment except for Queensville/Holland Landing/Sharon

For all developments pertaining to 2012 and pre-2012 capacity assignments, the Region advised local municipalities that final plan approval can proceed for all service areas with the exception of Queensville/Holland Landing/Sharon which is contingent on the completion of the Queensville/Holland Landing/Sharon servicing project.

For developments pertaining to the 2013 capacity assignment, the Region advised local municipalities that issuance of building permits for all high-rise units can proceed. Subject to no reported delays to the Southeast Collector Trunk Sewer completion date, the projected date for permitting pre-sales for low-rise residential units is June 2012.

Key project status highlights for York Durham Sewage System service area

The only remaining project required to service growth up to 2013 is the Queensville/Holland Landing/Sharon servicing. Status of this project is summarized below and its location is illustrated in *Attachment 2*.

Amended agreement for Queensville/Holland Landing/Sharon servicing has been executed

Given that the tendered cost for the York Durham Sewage System connection project was significantly higher than the original budget, on June 23, 2011, Council adopted the recommendations of Clause 2 of Report No. 6 of Finance and Administration Committee to cancel the procurement process and proceed with negotiating the terms of a prepaid development charge amending agreement with revised principles. The Amended Agreement for York Durham Sewage System connection was executed and Queensville Elevated Tank No. 1 contract awarded in early April 2012. The York Durham Sewage System connection and Queensville Elevated Tank No. 1 projects are expected to be commissioned as early as 2015 and 2014 respectively.

Status of key projects required to service growth beyond 2013 is summarized below and in *Attachment 1*. Project locations are illustrated in *Attachment 2*. Details on the proposed schedule of pre-sales and final approval for developments pertaining to post-2013 will be provided in upcoming reports.

Shaft construction for Southeast Collector Trunk Sewer has commenced

The Southeast Collector Trunk Sewer Individual Environmental Assessment was approved by the Ministry of the Environment on March 31, 2010, subject to several conditions that must be met within stipulated timelines. As required by the approval conditions, the first annual report entitled “*Long Term Water Conservation Strategy and Inflow and Infiltration Reduction Strategy*” was submitted to the Ministry of the Environment in March 2012 along with several other annual reports.

Construction of the Southeast Collector Trunk Sewer is now underway and the commissioning date is forecast to occur in late 2014 (last reported: late 2014). Work already underway or completed includes:

- Phase 1 and Phase 2 of Bob Hunter Memorial Park/Rouge Park enhancements are complete. Phase 3 has been under implementation since January 2012
- Reconstruction and realignment of York Durham Line is complete
- Construction has commenced for all the mining shafts located in the City of Pickering
- Site works are underway for the Odour Control Facility
- Intersection upgrades at York Durham Line and Steeles Avenue are in progress
- Tunnel construction is expected to start in June 2012

Construction of Duffin Creek Stages 1 and 2 Upgrades underway in 2012

Duffin Creek Water Pollution Control Plant Stages 1 and 2 Upgrades are required as a condition of the Ministry of the Environment Certificate of Approval (Air) for Duffin Creek Water Pollution Control Plant Stage 3 Expansion. The project is currently in detailed design. Since the last report, pre-purchase of Electrical Substation High Voltage Transformers and Switchgear has been awarded and pre-purchase for Emergency Power Generators has been tendered. Construction is scheduled to start as early as 2012 with substantial performance expected in late 2016 (last reported: 2016).

To comply with the Certificate of Approval (Air) conditions, the interim report on ambient odour sampling and odour source testing conducted through the summer of 2011 was submitted to the Ministry of the Environment in the first quarter of 2012. The Best-in-Class Technology Review to guide odour mitigation measures for Stages 1 and 2 Upgrades are now approved by the Ministry of the Environment. Emissions testing, ambient odour monitoring, odour dispersion modeling and updating the Odour Management Plan continue and are scheduled for completion in 2017.

Detailed design completed for Duffin Creek Stage 3 Influent Pumping Station

The new Duffin Creek Stage 3 Influent Pumping Station is required to facilitate connection of the new Southeast Collector Sewer to the existing York Durham Sewage System and to prevent surcharge conditions during construction. Detailed design of the new Stage 3 pumping station is complete and the excavation - foundations contract was awarded in February 2012. Construction is now getting underway with substantial performance expected in late 2013 (last reported: project now added due to its importance in completing the Southeast Collector Trunk Sewer project).

Environmental Assessment for Duffin Creek Plant Outfall is underway

York Region and Durham Region jointly initiated a Schedule C Class Environmental Assessment study in December 2010 to identify the preferred solution for addressing limitations of the existing outfall and diffuser system at the Duffin Creek Water Pollution Control Plant. The present flow capacity limit is 520 ML/day and the preferred solution will permit the Duffin Creek Water Pollution Control Plant to operate at a capacity of at least 630 ML/day.

Since the last report, geotechnical investigations have been completed and will be used in the assessment of potential outfall locations. Public input through Stakeholder Advisory Committee meetings and public information forums are planned for 2012. The Environmental Assessment Study is expected to be completed in 2013 and construction is scheduled for completion in 2016 (last reported: 2016).

Alternative Methods of Carrying Out the Undertaking Stage of Upper York Sewage Solutions Environmental Assessment now underway

The Upper York Sewage Solutions project is required to accommodate provincially approved growth within the Towns of Aurora, Newmarket and East Gwillimbury by 2031. As part of the Environmental Assessment Study currently underway, a “Water Reclamation Centre” with associated collection and conveyance infrastructure systems to be located in East Gwillimbury, in addition to modifications to the existing York Durham Sewage System in Newmarket and Aurora, has been identified as the preferred alternative for the Upper York Sewage Solutions project. An extensive public consultation program was undertaken in 2011 to allow timely input from the public and key stakeholders. Following selection of the preferred alternative, a public workshop was held on December 14, 2011 to introduce the next stage of the environmental assessment, Alternative Methods of Carrying Out the Undertaking. At this meeting, potential sites to locate the water reclamation centre were presented to the public and key stakeholders and input was sought on site evaluation criteria.

Completion of the overall project is scheduled for late 2018 (last reported: late 2018). The completion date will be reviewed and updated following approval of the Individual Environmental Assessment by the Minister of the Environment, which is projected to occur in late 2013 or 2014.

Construction of tunnel contract for Kennedy Road Watermain to commence in June 2012

The Toronto East Water Supply project involves construction of a 1500 mm diameter watermain along Kennedy Road from the Milliken Pumping Station on 14th Avenue to Major Mackenzie Drive. The project is required to provide additional water from Toronto to Markham Pressure District 6 to meet long-term growth demands. The work is being completed under two contracts. The first contract, open cut construction from north of

Highway 7 to Major Mackenzie Drive, is underway. The second contract, tunnel construction from Milliken Pumping Station to north of Highway 7, was tendered in December 2011. Award of this watermain contract is subject to execution of crossing agreements with Canadian National Railway and Metrolinx currently under negotiation. As such, construction is anticipated to start in summer of 2012 and commissioning of the entire watermain from Milliken Pumping Station to Major Mackenzie Drive is expected to be completed by the fourth quarter of 2013 (last reported: June 2013).

West Richmond Hill Pumping Station under detailed design

West Richmond Hill Pumping Station is a new pumping facility identified in the 2009 Water and Wastewater Master Plan Update to pump water from Pressure District 6 to Pressure Districts 7 and 8. The new pumping station will alleviate existing capacity constraint at the Pugsley Pumping Station. The Environmental Assessment was filed on October 13, 2011 and detailed design is now underway. The project is expected to be completed in the fourth quarter of 2014 (last reported: fourth quarter of 2014).

Second Public Consultation Centre for West Vaughan Sewage Servicing to be held in mid 2012

The West Vaughan Sewage Servicing project was originally identified in the 2009 Water and Wastewater Master Plan Update to provide sanitary sewage capacity to service growth in the West Vaughan area (the area west of Highway 27 including Kleinburg-Nashville) up to the year 2051. Notice of study commencement was issued in March 2011 and the first Public Consultation Centre meeting was held on April 27, 2011. A second Public Consultation Centre to present the recommended servicing solution is planned for June 2012 (last reported: March 2012) due to the need to conduct required field investigations to provide geotechnical data to assess various sewer routing alternatives. The overall project is on schedule for completion in 2016 (last reported: 2016).

Leslie Street Pumping Station Upgrades was tendered

The Leslie Street Pumping Station collects sewage flows from parts of Vaughan, Richmond Hill and Markham and pumps the flow to the Duffin Creek Water Pollution Control Plant. The project will increase the station capacity to meet growth needs. Since last report, the project was tendered and remains on schedule for completion by the end of 2013 (last reported: end of 2013).

A new Primary Trunk Sewer is required to service future growth

The Primary Trunk Sewer project involves constructing a new sewer along a yet to be determined route, from the terminus of the Southeast Collector Trunk Sewer system to the Duffin Creek Water Pollution Plant, in the City of Pickering. The new primary trunk sewer will provide additional conveyance capacity to the existing primary trunk sewer,

which is expected to be at capacity sometime between 2021 and 2026. The project is scheduled for completion in 2021 (last reported: 2021).

Staff continues to monitor status of Peel and Toronto cost-shared projects

Provision of water and wastewater services through partnerships with Toronto and Peel Region is a key component of the Region's long-term servicing strategy. A number of projects in the City of Toronto and Peel Region are currently underway to provide capacity to service growth in the Region. Regional staff conduct regular meetings with Toronto and Peel staff to discuss issues regarding supply commitments including cost-shared project delivery schedules. Based on progress of Peel and Toronto's projects, it is expected that both partners will meet their long-term water supply agreement commitments to the Region.

Construction method for Hanlan Feedermain under review

In 2009 the Region of Peel completed a Schedule 'C' Class Environmental Assessment study to identify the preferred route for the new 2400 diameter Hanlan Feedermain which will extend approximately 15 km north from Lakeview Water Treatment Plant to Hanlan Pumping Station. This project is required to meet future water supply needs to support growth. As part of the detailed design currently in progress, the feedermain construction method is under review and depending on the outcome, the project cost, currently estimated at \$380M, will be adjusted accordingly. Construction of this project is scheduled to start in late 2012 for completion in 2016.

A breakdown of the water supply sources servicing York Region for the years 2012 and 2031 is provided in Table 2.

Table 2

Water Supply Capacity to York Region

Water Supply Sources	2012		2031	
	Capacity (ML/D)	% of Supply	Capacity (ML/D)	% of Supply
York Water System				
City of Toronto	502	64	509	49
Peel Region	149	19	388	38
Yonge Street Aquifer Wells	62	8	62	6
Stouffville Wells	12	2	12	1
Georgina Water System	30	4	45	4
Stand-alone Groundwater Systems (e.g. Schomberg, Nobleton, Kleinburg, Ballantrae, Mount Albert, and Ansnorveldt)	23	3*	20	2*
Total	778	100	1,036	100

* Lake based supply to Kleinburg will reduce its reliance on the groundwater system

Major system upgrades completed in most communities outside the York Durham Sewage System

In addition to major works pertaining to the York Durham Sewage System service area, communities outside the York Durham Sewage System service area are either in the process of completing or have completed major water and wastewater system upgrades. A summary of major capacity upgrades in these communities is presented in Table 3.

Table 3
Major Capacity Upgrades
Communities outside York Durham Sewage System Service Area

Community	Recent Water and Wastewater Upgrades (since 2005)	Total Capacity in Persons after Upgrades
Schomberg	- Completed new water pollution control plant in 2009 - Completed water supply system upgrade including a well, water treatment plant and reservoir in 2010	3,450 (plus 28 ha of industrial & commercial lands)
Mount Albert	- Completed water pollution control plant expansion in 2005 - Completed water supply system upgrade including watermain along Centre Street and one additional well in 2010 and 2011 respectively	6,000
Nobleton	- Completed new water pollution control plant in 2010 - Water supply system upgrade involving an elevated tank, and an additional well are scheduled for completion in 2012 and 2013 respectively	6,500
Kleinburg	- Completed water pollution control plant expansion in 2011 - Water supply system upgrade involving extension of lake base supply via Huntington Road watermain, booster pumping station and watermain along Islington Avenue are scheduled for completion in 2012	7,500
Keswick	- Water Pollution Control Plant Phase 2 Expansion scheduled for completion in early 2013, outfall in late 2013 and Joe Dales Pump Station upgrade in summer 2012 - Georgina Water Treatment Plant Phase 2 Expansion completed. North Keswick Elevated Tank and associated watermain along Woodbine Avenue on schedule for completion in summer 2012	49,000
Ballantrae	Water supply system upgrade involving an additional well is scheduled for completion in late 2012	5,600

Note: With completion of all the expansion works listed in the table, there will be capacity in the stand-alone systems to service an additional 30,000 people

Link to Key Council-approved Plans

Timely delivery of critical infrastructure projects identified in this report is essential to ensure that water and wastewater system capacity is available to service the targeted growth of the Regional Official Plan. By integrating the completion of critical infrastructure projects with timing of planning approvals, water and wastewater system expansion is prioritized to address growth needs in an efficient manner, thus optimizing community benefit in accordance with the goals of the 2011-2015 Strategic Plan to continue to deliver and sustain critical infrastructure.

5. FINANCIAL IMPLICATIONS

A summary of priority infrastructure project costs in York Durham Sewage System service area is provided in Table 4. The total cost of projects included in this update is approximately \$3.2 billion including cost shared capital works with Toronto and Peel.

Table 4
Cost Estimates for Key Infrastructure Projects
York Durham Sewage System Service Area

Project	Project Cost Estimates (2012 \$)
Queensville Elevated Tank No. 1	\$9,800,000
Queensville/Holland Landing/Sharon York Durham Sewage System Connection	\$150,000,000
Southeast Collector Trunk Sewer	\$546,200,000
Duffin Creek Water Pollution Control Plant Stages 1 and 2 Upgrades ¹	\$214,000,000
Duffin Creek Stage 3 Pumping Station	\$55,000,000
Duffin Creek Water Pollution Control Plant Outfall ¹	\$132,000,000
Upper York Sewage Solutions	\$504,000,000
Kennedy Road Watermain	\$73,200,000
West Richmond Hill Pumping Station	\$34,000,000
West Vaughan Sewage Servicing	\$159,200,000
Leslie Street Pumping Station Upgrades	\$28,000,000
Primary Trunk Sewer ¹	\$183,200,000
Subtotal	\$2,088,600,000
Toronto Cost Shared Projects²	\$441,000,000
Peel Water Cost Shared Projects²	\$634,000,000
Peel Wastewater Cost Shared Projects²	\$74,000,000
Total	\$3,237,600,000

Notes:

1. Cost shown does not include Durham share budgeted at \$53M for Duffin Creek Water Pollution Control Plant Stages 1 and 2 Upgrades, \$15M for Duffin Creek Water Pollution Control Plant Outfall and \$20M for Primary Trunk Sewer. These amounts are subject to ongoing cost share negotiation with Durham Region.

2. Toronto and Peel project costs represent York's share expenditures for the last 5 years plus budgeted cost for the next 10 years. Peel and Toronto project costs are subject to an annual review with changes brought forward as part of the annual capital budget process.

Table 5 provides a summary of the costs of infrastructure projects since 2005 in communities outside York Durham Sewage System service area. The total cost of these works amounts to \$278 million.

Table 5
Cost Estimates for Infrastructure Projects
Communities Outside York Durham Sewage System Service Area

Project	Project Cost Estimates (2012 \$)
Schomberg Water Supply System Upgrade and New Water Pollution Control Plant	\$31,000,000
Mount Albert Water Supply System Upgrade ¹ and Water Pollution Control Plant Expansion ¹	\$16,000,000
Nobleton Water Supply System Upgrade and New Water Pollution Control Plant ¹	\$35,000,000
Kleinburg Water Supply System Upgrade and Water Pollution Control Plant Expansion	\$51,000,000
Keswick Water Supply and Sewage Systems Upgrade including Expansion of Georgina Water Treatment Plant and Keswick Water Pollution Control Plant	\$140,000,000
Ballantrae Water Supply System Upgrade	\$4,800,000
Total	\$277,800,000

Notes:

1. Works were carried out under a Development Charge Credit Agreement.

Of the total \$3.5 billion of capital works included in this update, \$3.4 billion or 98 per cent is funded through development charges and the remaining 2 per cent is paid for by rates.

Cost estimates shown in Tables 4 and 5 only include capital funding requirements. As part of the annual budget process, associated funding and resource requirements for operations and asset management of expanded infrastructure systems are assessed and included in the annual Environmental Services operating budget. Operations, Maintenance and Monitoring Branch resource plan includes the addition of 24 staff for outlook years covering 2013 to 2016 to support growth related capital program and increased asset base.

6. LOCAL MUNICIPAL IMPACT

Staff continues to work closely with municipalities affected by the capital works program to minimize impacts on planned community growth

Priority projects detailed in this report are crucial to providing timely servicing capacity to municipalities serviced by the York Durham Sewage System and the York Water System. The 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 plan approval process, is contingent on all of these projects being completed as planned. Projects are continually monitored to ensure risk of delay is minimized and capacity will be available as planned. Staff continue to work closely with local municipalities affected by the capital works program to ensure impacts to planned community growth are minimized to the extent possible considering capacity constraints created by delay of these projects. Coordinated efforts with local municipalities continue on implementing the inflow and infiltration reduction and water conservation and efficiency programs to reduce flows to the York Durham Sewage System and thereby increase system capacity.

7. CONCLUSION

Projects identified in this report are essential to provide capacity needed to service projected growth in the Region

This report provides Council with a status of priority projects and their relationship to the timing of plan approvals. Continuing to monitor these projects will ensure that both capacity allocation and granting of planning approvals are synchronized with project delivery schedules. The majority of these projects are required to be completed before end of 2016. Total cost of infrastructure projects included in this update is \$3.5 billion, of which 23 percent has been spent and 51 percent will be spent in the next five years.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at (905) 830-4444 Ext. 5070.

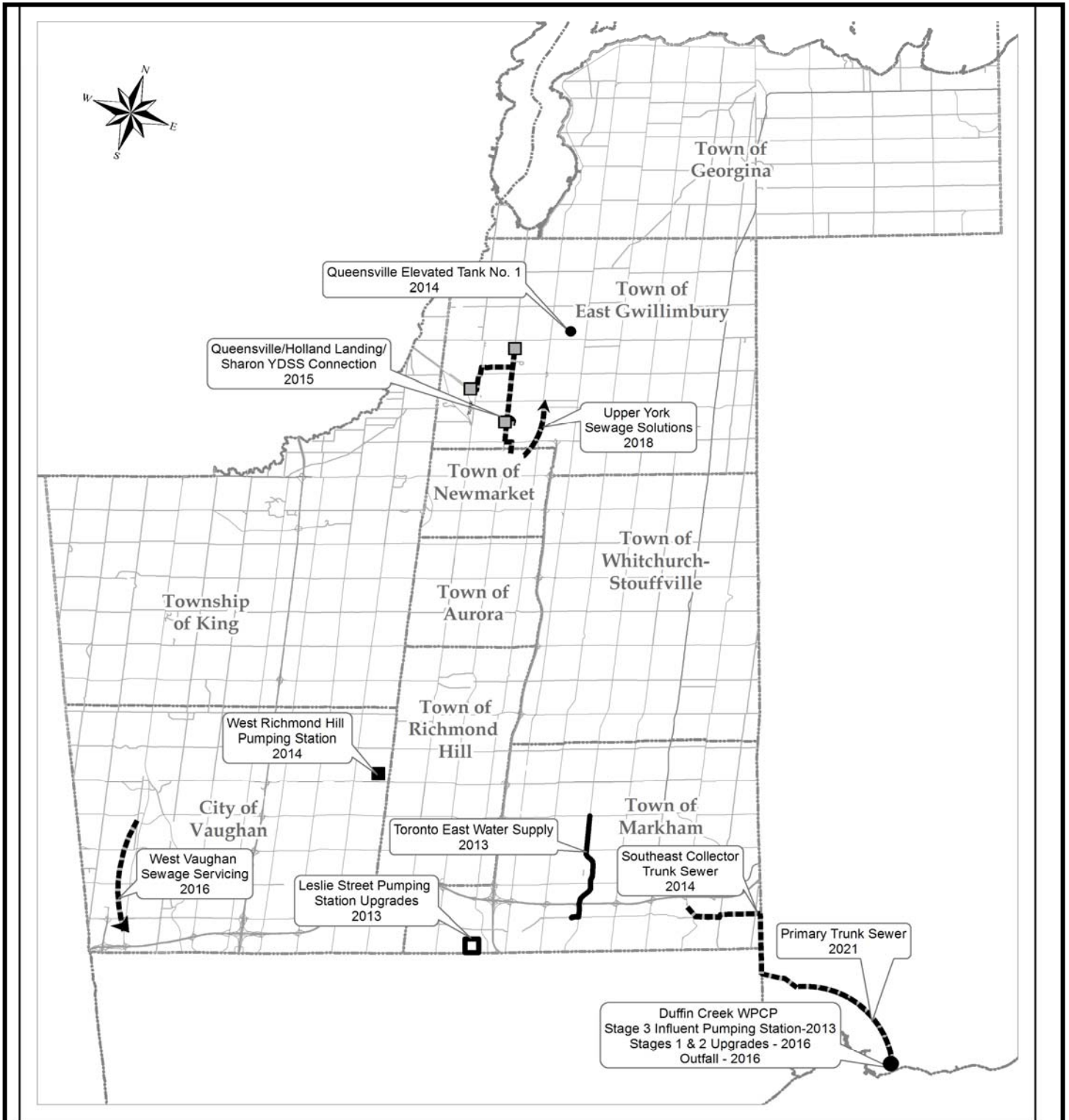
The Senior Management Group has reviewed this report.

(The two attachments referred to in this clause are attached to this report.)

Status of Key Infrastructure Projects

**Required within the next 10 years to service beyond 1,078,328 people
as of April 2012**

Project Name	Description	Current Status	Expected Project Commissioning Date
Southeast Collector Sewer	Twinning of existing trunk sewer to provide additional conveyance capacity	Construction	Late 2014 (last reported: Late 2014)
Duffin Creek Stages 1 and 2 Upgrades	Upgrade and refurbish existing Stages 1 and 2	Detailed Design	2016 (last reported: 2016)
Duffin Creek Stage 3 Influent Pumping Station	New pumping station to convey sewage to Stage 3 Liquid Process Expansion	Tender	Late 2013
Duffin Creek Water Pollution Control Plant Outfall	New outfall to address diffusion requirements and increase plant capacity to 630MLD	Class Environmental Assessment	2016 (last reported: 2016)
Upper York Sewage Solutions	Sanitary servicing solution to accommodate growth in Holland Landing, Queensville, Sharon and parts of Aurora and Newmarket	Individual Environmental Assessment	2018 (last reported: 2018)
Toronto East Water Supply	Watermain along Kennedy Road from Milliken Pumping Station to Major Mackenzie Drive	Open cut section - Construction Tunnel section – Tender	Q4 - 2013 (last reported: Q2 2013)
West Richmond Hill Pumping Station	New pumping station near Bathurst Street and Elgin Mills Road to pump water from Pressure District (PD) 6 to PD7 and PD8	Detailed Design	Q4 - 2014 (last reported: Q4 - 2014)
West Vaughan Sewage Servicing	Sanitary servicing solution to accommodate growth in West Vaughan area	Class Environmental Assessment	2016 (last reported: 2016)
Leslie Pumping Station Upgrades	Upgrades include pump replacement, electrical & standby power improvements	Tender	Late 2013
Primary Trunk Sewer	New sewer to provide additional conveyance capacity	Project Initiation	2021



LOCATION PLAN
Key Infrastructure Projects



ENVIRONMENTAL SERVICES

- Priority Water Projects & Expected Commissioning Date
- - - - - Priority Wastewater Projects & Expected Commissioning Date