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# WATER AND WASTEWATER INFRASTRUCTURE STATUS REPORT

**The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, August 26, 2008, from the Commissioner of Environmental Services:**

## 1. RECOMMENDATIONS

It is recommended that:

1. Environmental Services staff continue to provide regular updates on the priority projects linked to the release of additional capacity, with the next report to be submitted in December, 2008.

2. Environmental Services staff continue discussions with the local municipalities with respect to infrastructure completion dates and various planning approvals.

3. The Regional Clerk circulate this report to the Clerks of the municipalities of Vaughan, Markham, Richmond Hill, Aurora, Newmarket, East Gwillimbury, King and Whitchurch-Stouffville.

## 2. PURPOSE

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

## 3. BACKGROUND

### In 2005, Regional Council approved an overall servicing capacity of 970,000 people in the York Durham Sewage System service area

Between 2003 and 2005, staff completed extensive investigations to determine the maximum allocation capacity available and the critical projects required to realize this capacity. Regional Council, at its meeting on June 23, 2005, granted the release of additional servicing capacity to accommodate up to 970,000 people within the York Durham Sewage System (YDSS) service area along with associated triggers based on the status of critical infrastructure. This allocation was expected to meet Regional growth projections to 2010.

## Implementation of YDSS flow control measures made available an additional sewage capacity of 58,000 people

In keeping with the Region's policy to provide a multi-year supply of servicing allocation, staff investigated alternatives to offset the impact of expected delays in the completion of the Southeast Collector Sewer. Installation of flow control structures within sections of the YDSS was determined to yield an additional 58,000 persons capacity while also reducing risks in the system. This additional capacity offsets the extended duration to complete the Southeast Collector Sewer.

Subsequently, Regional Council at its meeting on November 15, 2007, adopted the recommendations of the *Servicing Allocation and Future Regional Conditions for Draft Plan of Subdivision Approval Report* of the Planning and Economic Development Committee. Of the 58,000 persons capacity made available by the proposed YDSS flow control systems, the Regional Council assigned 36,000 persons capacity to meet the Regional growth target to 2011. The infrastructure required to realize the 58,000 persons capacity in addition to the proposed flow control systems was also identified.

## Status of key infrastructure projects triggering the release of available capacity is reported to Regional Council on a regular basis

This report summarizes the status of priority infrastructure projects identified as triggers for the release of capacity required to service up to 970,000 people as set out in the *Water and Wastewater Capacity and Servicing Assignment Protocol Report*, Clause 1 of Report No. 1 of the Joint Transportation and Works and Planning and Economic Development Committees as adopted by Regional Council on June 23, 2005. It also provides the status of projects identified as triggers to service an additional 58,000 people as set out in the *Servicing Allocation and Future Regional Conditions for Draft Plan of Subdivision Approval Report*, Clause 3 of Report No. 9 of the Planning and Economic Development Committee as adopted by Regional Council on November 15, 2007.

This status summary was first reported to Regional Council on June 23, 2005 (*Water and Wastewater Infrastructure Status Report*, Clause 2 of Report No. 1 of the Joint Transportation and Works and Planning and Economic Development Committees). Nine subsequent reports followed, with the last update to Regional Council on June 11, 2008. The next status report is scheduled for December 2008.

In future updates to this report, completed projects will be removed from the priority projects list. Upon completion of the Water and Wastewater Master Plan Update in early 2009, additional priority projects identified in the Master Plan will be added to the list.

# 4. ANALYSIS AND OPTIONS

## 4.1 ALLOCATION TRIGGERS

### Capacity triggers allow the Region to ensure occupancy of new homes timed to coincide with available water and wastewater services

Projects identified as triggers for servicing up to 970,000 people are summarized in *Attachment 1* and for servicing an additional 58,000 people are summarized in *Attachment 2.* These trigger tables are used to assist the Region in better controlling two key steps in the planning approvals process: 1) Pre-sales of homes and 2) Final plan approvals. Capacity trigger control is required to avoid premature occupancies of new dwellings in advance of availability of the required 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.

### Release of capacity for servicing up to 970,000 people

In December 2007, the Region advised the Towns of Aurora, Newmarket and East Gwillimbury, that final plan registration of the draft plans for approved developments up to the apportioned share of the 970,000 could proceed subject to meeting other draft plan conditions and other localized servicing requirements.

In March 2008, the Region granted permission for final registration of draft plans in the Yonge Street Corridor PD8 and PD9 service areas in Richmond Hill. Outstanding infrastructure required to service the above areas (i.e. 16$^{th}$ Avenue phase 2 sewer, YDSS Interceptor/Lower Leslie Street trunk sewer, Oak Ridges elevated tank No. 1) is either completed or expected to be in service in August 2008.

With the Bathurst collector sewer scheduled for completion by the end of 2008, the Region advised the City of Vaughan in August 2008 that final registration for the Bathurst collector sewer service area can proceed subject to meeting other draft plan conditions and servicing agreements. Given the expected delay on the Langstaff trunk sewer, staff are now working on the implementation of an interim servicing solution in the Maple collector system to mitigate the impact of delays to registration.

### Release of capacity for servicing an additional 58,000 people

Projects required to service an additional 58,000 people beyond the June 2005 allocation of 970,000 people include:

- The Duffin Creek Water Pollution Control Plant expansion.

- YDSS Flow Control Structures (interim alternative to Southeast Collector Sewer).
- Leslie Street watermain (applicable to Aurora East service area only).
- Richmond Hill second water storage facility (applicable to PD9 service area only).

The trigger condition to permit pre-sales is expected to be met by the end of 2009, one year prior to the scheduled completion date of the Duffin Creek plant expansion. Installation of YDSS Flow Control Structures is expected to be completed before the Duffin Creek plant expansion and, therefore, Duffin Creek plant expansion will be the governing trigger.

For the Richmond Hill Pressure District 9 (PD9) service area, the required second water storage facility is expected to be in service by June 2010. Since the completion date of the water storage facility is earlier than the Duffin Creek plant expansion, the governing trigger condition for the Richmond Hill Pressure District 9 (PD9) service area is the Duffin Creek plant expansion.

The Leslie Street watermain will be constructed in stages, with the first section to be completed in early 2010 to accommodate proposed developments in Newmarket and the remaining section to be completed before the end of 2011. Since the Duffin Creek plant expansion is expected to be completed earlier, the governing trigger condition for Aurora East service area is the Leslie Street Watermain.

## 4.2 STATUS OF WASTEWATER PROJECTS

This section provides a brief description of priority wastewater projects, their current status, issues affecting project progress and future activities. Projects listed are required within the five-year horizon to meet future demands. Projects identified as “critical” are those for which any further delays will result in unacceptable risks of overflow.

The projects listed below are also presented in *Attachment 3* – Priority Wastewater Projects Map.

### The Aurora Equalization Tank is expected to be completed in October 2008

The Aurora equalization tank allows detention of wet weather flows at the existing Aurora Sewage Pumping Station site. Providing flow equalization at this location expands the service capacity of the pumping station by buffering wet weather peak flows to the pumping station. This tank will also provide additional capacity to Aurora and will aid in minimizing downstream capacity risks. The tank will have a storage volume of 10,000 $m^3$ and will prolong the service capacity of the pumping station which will influence the timing for downstream works that are the subject of additional Environmental Assessment (EA) processes.

The construction contract for the Aurora equalization tank was awarded in October 2006. Construction work is expected to be completed by October 2008 (last reported: October 2008).

## In June 2008 flows were introduced into the 16th Avenue Sewer Phase 2 *CRITICAL PROJECT*

Phase 2 of the 16th Avenue trunk sewer is needed to service development areas in Markham. The 16th Avenue trunk will convey sewage from existing and future developments in the north areas of the Region from the Leslie Street trunk sewer to the existing 9th Line trunk sewer. Benefiting areas include East Gwillimbury, Newmarket, Aurora, Richmond Hill, King and Markham. Vaughan will indirectly benefit from diversion of flows in the existing YDSS thereby allowing increased flows from Vaughan.

Construction of the 16th Avenue Sewer was completed in June 2007. A flow control structure is proposed at the junction of the existing Highway 404 sewer and the 16th Avenue Sewer. Since June 2008, flows have been introduced into the sewer.

## Work associated with the 19th Avenue YDSS Interceptor Sewer *CRITICAL PROJECT* was completed in August 2008

The open cut trunk sewer on Leslie Street between Elgin Mills and 19th Avenue and the YDSS Interceptor between Leslie and Yonge Streets along 19th Avenue, are intended to work together to service approved new developments in Richmond Hill, Aurora, Newmarket, East Gwillimbury and King by providing relief to the existing Yonge Street YDSS, south of 19th Avenue.

Construction of this sewer is divided into two contracts: the 19th Avenue tunnelling section and the Leslie Street open-cut section. The Leslie Street section was completed in January 2007. The 19th Avenue tunnelling contract has been completed with flow diverted into the Interceptor in August 2008 (last reported: July 2008).

## Commissioning of the Duffin Creek Water Pollution Control Plant Expansion *CRITICAL PROJECT* is expected to occur in December 2010

Expansion of the Duffin Creek plant is required to provide additional capacity to serve growth in all municipalities serviced by the YDSS. This phase of the expansion will increase the plant capacity to 630 ML/day subject to completion of future works to address limitations of the existing outfall and will also include two new incineration units. The expansion will also provide upgrades required to meet evolving environmental standards.

Following the denial of Class Environmental Assessment (EA) Part II Order requests by the Minister of the Environment (MOE) on March 21, 2007, York and Durham Regions have progressed into the construction phase of the project. The site preparation contract

has been totally performed and the contracts for construction of: 1) the liquid treatment facility is approximately 15% complete, 2) the preliminary treatment facility has just commenced, 3) the temporary biosolids dewatering is 35% complete 4) the subgrade work for the new incineration and dewatering buildings is 20% complete and 5) the new electrical substation has just commenced.

The two most critical contracts to provide additional liquid treatment capacity are the liquid module contract and the preliminary treatment contract. The liquid module contract comprises the construction of the clarifiers, secondary clarifiers, aeration tanks and disinfection facilities. The preliminary treatment contract is comprised of distribution channels, screening facilities and grit removal tanks. Both contracts are expected to be completed in December 2010 (last reported: December 2010).

## The Bathurst Collector Sewer is scheduled for completion by the end of 2008 and the Langstaff Trunk Sewer by fall of 2009

The Bathurst Collector and the Langstaff sewers are required to provide additional capacity to Vaughan. These sewers are proceeding under a pre-payment of development charges credit agreement, and release of additional capacity for these developments is contingent upon the completion of these sewers and other required infrastructure.

The project contract was awarded in March 2006. The Bathurst collector is expected to be completed on schedule by the end of 2008. Due to problems encountered during construction on Langstaff Road, the Langstaff sewer has been delayed and the project is now expected to be completed by fall of 2009.

Due to the revised completion date of the Langstaff Sewer, an interim sanitary servicing solution has been identified which would permit developments pertaining to the Regional June 2005 capacity assignment to proceed prior to the completion of the Langstaff sewer. The project consists of installing a flow control gate in the Jane-Rutherford sewer that will attenuate peak wastewater flows. A preliminary schedule for this work is as follows:

- Completion of detailed design — August 2008
- Contract award — December 2008
- Construction completion — February 2009

## Environmental Assessment for Queensville/Holland Landing/Sharon Servicing was approved

The Queensville/Holland Landing/Sharon project will provide sewage servicing to the communities of Queensville, Holland Landing and Sharon. It will also decommission the existing Holland Landing Sewage Lagoons and direct the flow to the YDSS. This servicing is being considered through an agreement with a developer group.

The review of the Class EA was completed in August 2007. The Class EA document was filed on the public record for a 30-day period, during which time three requests for a Part II Order were submitted to the MOE. On June 6, 2008, the MOE advised the Region that the Part II Order Requests were denied with conditions. The Region is now in the process of finalizing the prepaid development charge credit agreement.

Summary of key milestones:

- Completion of Class EA — August 2007
- EA approval — June 2008
- Completion of detailed design — December 2008
- Construction completion — June 2010

(last reported: June 2010)

## The Southeast Collector Sewer *CRITICAL PROJECT* is scheduled for completion in December 2012

The Southeast Collector Sewer through parts of Markham and Pickering is required to provide additional capacity to the existing YDSS trunk sewer. The critical need for this sewer is driven by growth in all municipalities serviced by the YDSS.

York and Durham Regions are co-proponents for this undertaking. Since approval of the Terms of Reference for the Individual Environmental Assessment (IEA) by the MOE in February 2006, the project team has completed the baseline condition report, feasibility study report, evaluation of alternatives report, conceptual design report, and impact assessment reports. An IEA pre-submission package has been prepared and released with the intention to record and incorporate the public, agencies and stakeholders' comments prior to the final IEA package submission to the MOE. The extensive public engagement and enhancement programs are well underway. An enhanced consultation process for First Nations is also proceeding.

The IEA is scheduled to be filed in October 2008 and expected to be approved in May 2009. Key milestones for this project are as follows:

- Target date for submission of the IEA to MOE — October 2008
- Expected MOE approval of the IEA — May 2009
- Detailed design and tender — December 2009
- Obtain regulatory approvals — December 2009
- Construction completion — December 2012

(last reported: December 2012)

### Installation of York Durham Sewage System Flow Control Structures *CRITICAL PROJECT* is scheduled for completion by December 2009

As a result of the revised completion date of 2012 for the Southeast Collector Sewer, Environmental Services staff are now undertaking a project to implement flow control on the YDSS. The flow control structures to be installed in selected locations in the YDSS will attenuate peak wastewater flows, thereby allowing additional capacity for growth prior to completion of the Southeast Collector Sewer. These flow control structures will also provide operational flexibility after the Southeast Collector Sewer is constructed.

The schedule for this project has not changed since last report. A summary of key milestones is as follows:

- Completion of detailed design — November 2008
- Tendering — December 2008
- Construction completion — December 2009

(last reported: December 2009)

## 4.3 STATUS OF WATER PROJECTS

Priority water projects are those required within the five-year horizon to meet imminent demands. The projects listed below are also presented in *Attachment 4* - Priority Water Projects Map.

### The Bathurst Street Watermain (Aurora/Newmarket West Connection) was commissioned in August 2008

This watermain on Bathurst Street from Orchard Heights Reservoir to the West Newmarket Reservoir will provide additional water supply and system security to both Aurora and Newmarket West Pressure Districts.

The work was tendered with the Bathurst Street road widening works from Wellington Street to Mulock Drive in June 2007. Construction of the watermain was completed in May 2008 and commissioned in August 2008.

### Completion of the Queensville Elevated Tank is expected for July 2010

This project involves the construction of a 7.5 ML elevated tank in Queensville. The tank will provide equalization, emergency and fire storage to the community.

The target completion date for this project is July 2010 (last reported: December 2009). Completion of this project has been delayed due to coordination with the Ministry of Transportation for the nearby future Highway 404 and Queensville Sideroad interchange where the watermain connection will be made.

## The King City Water Supply project is expected to be completed in 2010

The King City Water Supply Project will provide water supply and storage capacity to service new development in King City. The project consists of a 2.74 ML elevated tank and connection to the York Water System as recommended by the approved EA.

The Environmental Study Report was completed in September 2007 with three Part II Order (bump up) requests received during the 30-day review period. In June 2008, the Minister ruled that a bump up is not required and therefore the project can proceed as planned. The expected project completion date has not changed since last report.

Summary of key milestones:

| | |
|---|---|
| • Completion of Class EA | September 2007 |
| • EA approval (MOE response to Part II Order requests) | June 2008 |
| • Completion of detailed design | Winter 2009<br>(last reported: Winter 2008) |
| • Tender and contract award | Winter/Spring 2009<br>(last reported: Winter 2008) |
| • Completion of construction | Summer 2010<br>(last reported: Summer 2010) |

## Construction of the Richmond Hill (Oak Ridges) Elevated Tank No. 1 was completed in late June 2008

The project consists of a 7.55 ML elevated tank to provide equalization, emergency and fire storage to the Pressure District 9 area in Richmond Hill. The preferred site for the tank is located within the Ontario Realty Corporation lands on the north side of Bloomington Road, west of Yonge Street. This is one of the two new elevated tanks needed for the area, with the second one planned for completion in 2010.

The Class EA was completed in January 2007. The work was awarded in March 2007. The project was completed ahead of schedule in late June 2008.

## The Stouffville Water Supply project is expected to be completed by March 2009

Additional water supply is required for the community of Stouffville to service new development areas. The approved Class EA identified connection to the York Water System as the preferred solution.

Design of the proposed water supply works was completed in January 2008. This project is being delivered in two contracts: 1) The Stouffville pumping station contract which was tendered in January 2008 and 2) The Stouffville watermain combined with road

widening which was tendered in July 2008. Construction of water supply works is expected to be completed in March 2009 (last reported: March 2009).

## The Toronto East Water Supply project is expected to be completed by December 2010

The Toronto East Water Supply Project is required to bring additional water to the Markham Pressure District 6 area from Toronto to meet long term growth demands in areas serviced by the York Water System.

As part of the project, a new watermain along Kennedy Road from the Kennedy Pumping Station to Major Mackenzie Drive is required. The Class EA was completed by the City of Toronto in accordance with the York-Toronto Water Supply Agreement. Construction of the works within York Region will be carried out by the Region.

The Class EA for the Kennedy Road watermain was completed in October 2007. While the completion of the detailed design and tender phases have been delayed since the last report, it is not anticipated that this will affect the final project delivery date.

A summary of key milestones is as follows:

- Completion of Class EA October 2007
- Completion of detailed design March 2009
  (last reported: December 2008)
- Tender and contract award May 2009
  (last reported: February 2009)
- Construction completion December 2010
  (last reported: December 2010)

## The Class EA for the Richmond Hill Pressure District 9 (PD9) Elevated Tank No. 2 is in progress

The project will augment storage capacity for the PD9 water system required to service additional growth beyond the current allocation limit in the Richmond Hill PD9 service area.

While completion of the Class EA has been delayed since the last report, it is not anticipated that this change will affect the final project delivery date. Key milestones for the project are as follows:

- Completion of Class EA Process October 2008
  (last reported: August 2008)
- Detailed design completed March 2009
- Property Acquisition June 2009

- Tender and contract award — June 2009
- Construction completion — June 2010

(last reported: June 2010)

### The Leslie Street Watermain (Wellington St. to Mulock Drive) is expected to be completed by 2011

The Leslie Street watermain connects to the existing Aurora East pumping station on Wellington Street, and runs easterly along Wellington Street then northerly along Leslie Street to Davis Drive.

In support of proposed developments in Newmarket, the works will be carried out in stages, with an anticipated completion of the section from Aurora East pumping station to just north of the Aurora/Newmarket boundary by early 2010. The remaining section is to be completed by the end of 2011.

Key milestones for the project are as follows:

- Notification of Class EA Schedule A+ decision — July 2008
- Detailed Design — May 2009
- Tender and Contract Award — June 2009
- Construction Completion (Contract 1) — March 2010
- Construction Completion (Contract 2) — November 2011

## 5. FINANCIAL IMPLICATIONS

### Total cost of priority infrastructure projects is approximately $1.53 billion

A summary of the costs of the priority infrastructure projects is provided in Table 1 (wastewater projects) and Table 2 (water projects). The total cost of infrastructure projects included in this update is $1.53 billion. Estimated expenditures for these projects between 2008 and 2012 total $1 billion, representing 53% of the total water and wastewater capital expenditures for the same period.

**Table 1**
Cost Estimates and Anticipated Completion Dates for Wastewater Projects

| Project | Current Project Cost Estimates | Anticipated Completion Dates |
|---|---|---|
| 16th Avenue Sewer Phase 2 * | $104,100,000 | June 2007*** |
| YDSS Interceptor (19th Avenue & Leslie Street)* | $102,200,000 | August 2008*** |
| Aurora Equalization Tank | $16,300,000 | October 2008 |
| Bathurst Collector Sewer | $47,159,000 | December 2008 |
| Langstaff Trunk Sewer | $44,832,000 | Fall 2009 |
| YDSS Flow Control* | $4,000,000 | December 2009 |
| Queensville/Holland Landing/Sharon Servicing | $69,000,000 | June 2010 |
| Duffin Creek Water Pollution Control Plant * | $519,000,000*** * | December 2010 |
| Southeast Collector * | $529,000,000 | December 2012 |
| **Total Wastewater Projects** | **$1,435,000,000** | - |

*critical projects
**connection works ongoing
***complete
****Includes Durham share

**Table 2**
Cost Estimates and Anticipated Completion Dates for Water Projects

| Project | Current Project Cost Estimates | Anticipated Completion Dates |
|---|---|---|
| Bathurst Watermain (Orchard Heights Reservoir to Newmarket Reservoir) | $2,800,000 | August 2008*** |
| Richmond Hill 1st PD9 Elevated Tank | $10,300,000 | June 2008*** |
| Stouffville Water Supply | $7,700,000 | March 2009 |
| Queensville Elevated Tank | $8,600,000 | July 2010 |
| Richmond Hill 2nd PD9 Elevated Tank | $10,500,000 | June 2010 |
| King City Water Supply | $15,600,000 | Summer 2010 |
| Toronto East Water Supply | $24,000,000 | December 2010 |
| Leslie Street Watermain (Wellington St. to Newmarket) | $13,500,000 | December 2010 |
| **Total Water Projects** | **$93,000,000** | - |

***complete

## 6. LOCAL MUNICIPAL IMPACT

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

The "priority" and "critical" projects reviewed in this report are crucial to providing timely servicing capacity to the municipalities serviced by the York Durham Sewage System and the York Water System. The capacity is necessary to meet growth expectations while maintaining a desirable level of environmental and public health protection.

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 will be continually monitored to ensure the risk of delay is minimized and capacity will be available as planned. Staff will continue to work closely with the local municipalities affected by this infrastructure program to ensure that impacts to planned community growth are minimized to the extent possible considering the constraints created by these projects.

## 7. CONCLUSION

This report provides Regional Council with a status of "priority" and "critical" projects and their relationship to the timing of plan approvals. Projects identified in this report are essential to provide the additional capacity needed to service projected growth in the Region. Continuing to monitor these projects will ensure that capacity allocation and granting of planning approvals are synchronized with the project schedules.

For more information on this report, please contact Tracey Carrigan, Acting Manager, Technical Support of the Water and Wastewater Branch, Environmental Services at Ext. 5095.

The Senior Management Group has reviewed this report.

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