

TORONTO STAFF REPORT

August 31, 2005

To: Works Committee

From: Lou Di Gironimo, Acting General Manager, Toronto Water

Subject: Potential Impacts of Existing Sewers and Proposed Trunk Sewers in York Region on Waterbodies in the City of Toronto
City-wide

Purpose:

To report on whether there are, or could be, impacts on the water flow in the rivers, creeks and waterfront in Toronto as a result of current sewers or construction of proposed trunk sewers in York Region

Financial Implications and Impact Statement:

There are no financial implications to the City as a result of this report.

Recommendations:

It is recommended that this report be received for information.

Background:

City Council, at its meeting of July 19, 20, 21 and 26, 2005, considered Report 7, Clause 16, of the Works Committee, that requested the General Manager of Toronto Water to prepare a report on the potential impacts of existing sewers or construction of proposed trunk sewers in York Region on water flow in the rivers, creeks and waterfront in Toronto for the Works Committee meeting on September 14, 2005.

Comments:

The Regional Municipality of York (York Region) is located to the north of the City of Toronto. York Region has grown from 169,000 people in 1971 to approximately 889,600 in December 2004. Population growth projection of year 2026 is estimated to be 1.3 million. There are nine local municipalities in York Region, namely the City of Vaughan, Town of Richmond Hill, Town of Markham, Town of Newmarket, Town of Georgina, Town of Aurora, Town of East Gwillimbury, Town of Whitchurch-Stouffville, and Township of King. There are two major urban areas in York Region. One area extends from Steeles Avenue to Major Mackenzie Drive in the City of Vaughan, Town of Richmond Hill, and Town of Markham. Another area is bounded by Bathurst Street, King Road, Green Lane, and Highway 404 in Town of Aurora and Town of Newmarket. The remaining areas are towns, villages, rural areas, and agricultural areas.

York Region has separate sanitary and storm sewer systems. Local sanitary sewers are operated and maintained by local municipalities and the trunk sanitary sewers and pumping stations are operated by York Region. In rural areas, wastewater is primarily treated by on-site septic systems. In urban areas, wastewater is collected by the York-Durham Sewage System (YDSS) that conveys wastewater to the Duffins Creek Water Pollution Control Plant located in the City of Pickering for treatment prior to discharge into Lake Ontario. Since wastewater is conveyed in closed conduits, there is no impact on waterbodies in City of Toronto from existing local and trunk sanitary sewers under normal operating conditions.

Approximately 94% of the existing population in York Region relies on wastewater collection services provided through the YDSS. The YDSS is expected to continue to provide the bulk of the York Region's servicing needs through 2026 and beyond. As documented in the 1997 YDSS Master Plan and subsequently confirmed in the 2002 YDSS Master Plan Update, various sections of the existing YDSS are currently operating close to maximum capacity and a number of projects have been identified to support the projected population growth in the region. Since the completion of the 1997 YDSS Master Plan and the 2002 YDSS Master Plan Update, several projects identified in these master plans have been completed. A summary of information was obtained for on-going and proposed projects of YDSS (shown in Figure 1) is provided in the following:

16th Avenue Trunk Sewer Phase II

The Toronto and Region Conservation Authority (TRCA) considered the 16th Avenue Trunk Sewer Phase II and its impacts on the environment, and identified the following, in their communication to their Board last summer.

The 16th Avenue Trunk Sewer Phase II consists of constructing a new trunk sewer along 16th Avenue from the existing Highway 404 Trunk Sewer to the existing 16th Avenue Trunk Sewer Phase I. The trunk sewer will be constructed by tunnelling which will require extensive dewatering of groundwater in the tunnel zone in order to create safe working conditions. Dewatering has the potential to create adverse impacts on natural streams due to reduction of

groundwater contribution to base flow. Discharge of excess volume of water and its potential to change the natural regime of the receiving watercourses are also concerns.

York Region has developed an Environmental Management Plan (EMP) to manage stress to the natural functions of the ecosystem during the dewatering operation and associated recovery period of the aquifer. An adaptive management approach has been incorporated into the EMP so that York Region is able to react in a timely manner to results from the continuous monitoring of environmental trigger parameters and values, and operational rules.

To assess the potential zone of impact (ZOI) associated with the water-takings during the dewatering operation, a three-dimensional groundwater flow model developed as part of the York-Peel-Durham-Toronto (YPDT) Groundwater Study was used. The City of Toronto has financially contributed to this study and staff have been involved in the study. The model was used by York Region as a tool to define the area within the 0.5 metre drawdown in the shallow aquifer. This area was defined as the ZOI associated with the natural ecosystem dependent on groundwater. A conservative buffer zone to extend all monitoring by an additional two kilometres or more was added to reduce the level of uncertainty associated with the ZOI. The YPDT model was also used to identify streams which will be impacted through anticipated reductions in groundwater contributions to base flow. The City of Toronto is outside the ZOI. Within the ZOI and its buffer, all Environmental Significant Areas (ESA), wetlands and watercourses have been identified and an analysis has been carried out for fish and fish habitat, wetlands and ESAs, critical stream capacity, woodlots, and agriculture. The mitigation measures for the potential impacts are addressed in the Environmental Management Plan.

With respect to the impact on Toronto, a review undertaken by the Toronto and Region Conservation Authority (TRCA) indicates that, with the implementation of the mitigation measures noted in the York Region's Environmental Management Plan, construction of the 16th Avenue Trunk Sewer is unlikely to create adverse impacts on waterbodies which flow through the City of Toronto.

Southeast Collector Trunk Sewer

The existing Southeast Collector portion of the YDSS extends from 9th Line in York Region to the Duffins Creek Water Pollution Control Plant in the City of Pickering. Approximately 3 km of the existing trunk sanitary sewer is located in the City of Toronto. Currently, York Region, in conjunction with Durham Region, is undertaking an Individual Environmental Assessment (EA) for the expansion of the existing YDSS Southeast Collector Trunk Sewer. The terms of reference for the "Southeast Collector Trunk Sewer Environmental Assessment" and other supporting documents have just been released in July 2005. Since the EA process is still at a very early stage, not enough information is available to determine whether there will be impact on waterbodies, which flow through the City of Toronto, from the construction of the Southeast Collector Trunk Sewer. It is expected, however, that consistent with the Environmental Assessment process, the environmental impacts of each option will be assessed and considered in the selection of the preferred option. While City staff are on the Technical Advisory Committee for the project, and will monitor the progress of this project closely, any recommendation to

proceed with the construction of a new sewer through the City of Toronto will require formal approval by Toronto City Council.

Conclusions:

Most of the wastewater collection in York Region is provided through the York Durham Sewage System (YDSS). The YDSS is expected to continue to provide the bulk of the York Region's servicing needs through 2026 and beyond. As documented in the 1997 YDSS Master Plan and subsequently confirmed in the 2002 YDSS Master Plan Update, various sections of the existing YDSS are currently operating close to maximum capacity and a number of projects have been identified to support the projected population growth in the region. At this time, York Region has an on-going 16th Avenue Trunk Sewer project and a proposed Southeast Collector Trunk Sewer project.

There are no impacts on waterbodies which flow through the City of Toronto as a result of existing sanitary sewers in York Region. Construction of the 16th Avenue Trunk Sewer is unlikely to create adverse impacts on waterbodies in Toronto, based on available information and a recent project review by TRCA. The Environmental Assessment for the Southeast Collector Trunk Sewer is just beginning and the potential impacts on waterbodies flowing through the City of Toronto have therefore not yet been assessed.

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