



TOWNSHIP OF KING

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March 24, 2011



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Erin Mahoney, M. Eng.
Commissioner of Environmental Services
Regional Municipality of York
17250 Yonge Street
NEWMARKET ON L3Y 6Z1

Dear Ms. Mahoney,

**RE: Engineering and Public Works Development re: EPW Report No. 2011-05
York Region Sanitary Sewer Inflow and Infiltration Reduction Strategy, and
Long Term Water Conservation Strategy**

At its meeting of March 21st, 2011, Council received and adopted the recommendations of Engineering and Public Works Department Report EPW 2011-05 regarding the York Region Sanitary Sewer Inflow and Infiltration Reduction Strategy and Long Term Water Conservation Strategy.

Please find enclosed for your information and file, a copy of Engineering and Public Works Department Report Number EPW 2011-05.

Yours truly,

Kathryn Smyth
Acting Clerk
Encls.

c.c. Denis Kelly, Regional Clerk, Region of York
Robert Flindall, Director of Engineering & Public Works

TOWNSHIP OF KING

DATE: March 21, 2011
TO: Committee of the Whole
FROM: Engineering & Public Works Department
SUBJECT: Report No. EPW 2011-05
York Region Sanitary Sewer Inflow and Infiltration Reduction
Strategy, and Long Term Water Conservation Strategy

1. RECOMMENDATIONS

The Engineering & Public Works Department respectfully submits the following recommendations:

1. Report No. EPW 2011-04 be received as information.
2. THAT Council endorse the recommendations of York Region report titled "Inflow and Infiltration Reduction Strategy" as endorsed by Regional Council on February 17, 2011 and as summarized herein:
3. THAT through development and endorsement of the Strategy, York Region and the local municipalities commit to:
 - Develop and maintain this Strategy including the programs, goals and inter-agency and regulatory reporting requirements for staged reduction of inflow and infiltration over the next 20 years;
 - Recommend to future Councils that they commit funds for inflow and infiltration reduction that is economically justified by the avoidance of future treatment and conveyance costs;
 - Measure wastewater flows before and after carrying out construction/rehabilitation works on sewers and to document inflow and infiltration expenditures and flow reduction measures;
 - Continue to work together in a collaborative manner over the life of the Strategy and to commit the appropriate staffing and financial resources toward implementation of the Strategy based on a business case analysis.
4. THAT Council endorse the recommendations of York Region report titled "Long Term Water Conservation Strategy" as endorsed by Regional Council on February 17, 2011 and as summarized herein.

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2. PURPOSE

The purpose of this report is to describe the Sanitary Sewer Inflow and Infiltration Reduction Strategy and Water Conservation Strategy *developed* jointly by the Region of York and the nine local municipalities in response to the Conditions imposed by the Ministry of the Environment (MOE) as part of the approval of the Individual Environmental Assessment (IEA) for the expansion South East Collector portion of the York-Durham Sewer System (YDSS). The MOE Approval Conditions require each of the local municipalities to endorse the Sanitary Sewer Inflow and Infiltration Reduction Strategy and Water Conservation Strategy and to actively participate in the implementation of those strategies.

3. ANALYSIS & PROPOSALS

Inflow and Infiltration (I/I) is the unwanted entry of water into the wastewater collection system (sanitary sewers). The more I/I present in a system, the less room there is within the network for sewage flows. This results in requirements for additional infrastructure to meet growing system needs, and additional energy and chemicals to treat the sewage at the sewage treatment plant. As I/I flows are reduced, more capacity becomes available for sewage transmission resulting in reduced need for new infrastructure and a more efficient sanitary system.

The responsibility for sewage collection is divided between the Region and local municipalities on the basis of the two tier system for water and wastewater services. The local municipalities (lower tier) are responsible to construct, operate and maintain the collection system including service connections to the property line, local sewers and pumping stations. The Region is responsible to construct, operate and maintain the regional transmission system which conveys sewage from the local municipality to the sewage treatment plant. Based on this split, funding for maintenance programs have therefore been only the responsibility of each system owner. In the past there were inconsistencies between the municipalities related to design and construction standards; no strategic direction related to maintenance and rehabilitation of the systems; and a lack of system performance monitoring.

As part of the Ministry of Environment conditions related to the approval of the Southeast Collector sewer, the Region is required to prepare and implement an Inflow and Infiltration Reduction Strategy and a Long Term Water Conservation Strategy in collaboration with the nine local municipal partners in an effort to demonstrate a coordinated and strategic approach to achieve imposed I/I reduction targets and water conservation targets.

COMMENTS

York Region Initiates Collaborative Discussions in Response to MOE Condition

In April 2010, York Region staff initiated discussions with the local municipalities to respond to the Ministry's conditions requiring measurable reductions in I/I within the entire Regional sanitary sewage system. From these initial discussions, a Water and Wastewater Task Force was formed with participation from the Region and all nine local municipalities. Each municipality committed to participate in the Task Force.

The mandate of this task force was to address the requirements of the Ministry's conditions on I/I by formulating an overall strategy and overseeing the implementation and funding of this strategy. This condition also required the development of a Long Term Water Conservation Strategy to reduce overall water demands.

Staff Committees Organize to Develop Strategy

To complete the extensive amount of investigation and program development required in preparation of the strategies, several working groups were formed to address key areas of the document. Each working group was led by York Region staff and had representation by senior staff from the local municipalities in order to ensure a balanced input was achieved in the development of both strategies. The working groups were assisted by an engineering consultant (AECOM). The Task Force Committee was jointly chaired by a representative of the Local Municipalities and the Region.

Strategy elements have been developed through an iterative process both at the working group level and as an overall coordination effort through the Task Force where all ten partners are represented. In addition, special support and feedback was solicited from other departments for key areas of the strategy such as the funding component.

I/I Strategy in Alignment with Township's Current Sanitary Sewage Management Program

The principals and programs identified within the I/I Reduction Strategy are consistent with the Township's current sewer asset management objectives. The strategy was developed through significant consultation and collaboration with both the intent to meet the Ministry of Environment requirements and integrate seamlessly with current sanitary asset management practices. The Township of King is unique in York Region in that all of our sewer systems flow to Regional Pumping stations. Actual sewage quantities are measured by the Region at these pumping stations and the Township is charged for wastewater treatment on the measured volume of sewage. Other municipalities are billed for wastewater treatment based on an estimate of Regional water supply not actual flows (1:1 water to sewage ratio assumed). On this basis it is prudent for the Township to make every effort to reduce and eliminate unnecessary inflow and

infiltration in order to reduce charges incurred from the Region for wastewater treatment.

The significant benefit sought by the Ministry through their Approval Conditions was to encourage more coordinated efforts in the reduction of I/I which is exactly what has been achieved through development of the working groups and Task Force. The end result of this effort will be continued support of the existing local maintenance programs with a much more effective and coordinated effort in identifying, funding, and executing Regional priority areas as identified through a mutual understanding of the system characteristics.

Water Conservation Strategy Expands current "Water for Tomorrow" Program

York Region actively embraced water conservation in 1997 and launched the Water for Tomorrow program in 1998. This program has run continuously up until this date and is now being augmented by the Water Efficiency Master Plan Update (2007) and the Long Term Water Conservation Strategy which is the topic of this report.

Similar to the I/I strategy, Township staff have been active in the development of this strategy and support the recommended actions.

York Region Required to Submit Strategy to MOE by March 31, 2011

This report is required to fulfil a requirement of the Ministry of Environment that demonstrates that the Township of King, in partnership with the Region and the other 8 local municipalities, is in support of the long term strategy. This report will be submitted to the Ministry along with similar endorsements from the remaining municipalities to meet the Condition deadline of March 31, 2011 for the Strategic Plan.

4. FINANCIAL IMPLICATIONS

The Strategy requires that each municipality contributes and maintains a specific and sustainable funding allocation towards the Inflow and Infiltration reduction program. The preliminary estimates of operating and capital expenses across the entire region and nine local municipalities to address inflow and infiltration are in excess of \$100 Million dollars at today's rates. This equates to a future investment of approximately \$0.04 per cubic metre of wastewater transmitted generated in the Region. The Inflow Infiltration Reduction Strategy calls for the Region and the Local Municipalities to share this cost equally. As a result, the Region and each municipality will be earmarking approximately \$0.02/cubic meter from wastewater rates per year towards system monitoring, repairs and rehabilitation. Where immediate repairs are not required each municipality is committed to contributing an amount equal to \$0.02/cubic meter towards lifecycle reserves.

The amount collected at the Regional Level (through the Region's billings to the local municipalities for wastewater treatment) will be used to address Regional Inflow and Infiltration priorities both in the Region's system and local systems. Investments in the local systems will be made to accelerate resolution of the Regional priorities and will be funded partly by the Region and partly by the local municipality.

The allocation of Regional funds intended for use in the local systems will be managed and allocated by a joint board (currently the Water and Wastewater Task Force) made up of representatives from each municipality and the Region, and will be granted based on the most effective application to achieve the desired inflow and infiltration improvements as quickly as possible.

5. ATTACHMENTS

Appendix A – Inflow and Infiltration Reduction Strategy

Appendix B – Long Term Water Conservation Strategy

Prepared and Submitted by:



Robert, Flindall, .Eng.
Director, Engineering & Public Works