

Committee of the Whole (2) Report

DATE: Wednesday, October 14, 2020

WARD(S): ALL

TITLE: INTERIM SERVICING STRATEGY STUDY

FROM:

Nick Spensieri, Deputy City Manager, Infrastructure Development

ACTION: FOR INFORMATION

Purpose

To inform Council and obtain endorsement of the conclusions and recommendations of the Interim Servicing Strategy Study for Vaughan's New Community Areas and Employment Lands.

Report Highlights

- The Interim Servicing Strategy Study was initiated in Q1 2019 to develop a sanitary servicing strategy to safely accommodate future developments in the City's new community areas and employment lands (see Attachment 1), utilizing the existing sewer infrastructure on an interim basis before the Regional trunk sewers become available (in 2028 and beyond).
- The Study methodology involved a collection of best practices and industry standard techniques for field investigation, data collection and analysis of existing and future servicing requirements.
- The Study concluded that residual capacity available within existing sewer outlets will be able to safely accommodate future developments on an interim basis while maintaining an acceptable level of service, as long as identified Risk Management Measures (RMM) are followed.
- Recommended Risk Management Measures include flow monitoring, adherence to York Region Servicing Incentive Program (SIP), yearly outlet sewer inspection, inflow and infiltration reduction, flow attenuation, pipe replacements and phasing of development approvals.
- A final draft report of the Interim Servicing Strategy Study was completed in Q2 2020 and circulated to internal and external stakeholders for review and comment.

Recommendations

1. That the conclusions and recommendations of the Interim Servicing Strategy Study be endorsed;
2. That implementation of enhanced construction standards, design/assumption criteria and inspection protocols for all municipal infrastructure be finalized through the ongoing update of the City's Engineering Design Criteria and Standards;
3. That staff and the Study Consultants continue to engage landowners, other consultants representing landowners, and York Region to finalize the Interim Servicing Strategy Study Report; and
4. That a copy of this report be forwarded to York Region.

Background

Regional water and wastewater infrastructure requirements to support growth forecasts were identified in York Region's 2016 Water/Wastewater Master Plan

York Region's Water/Wastewater Master Plan was updated in 2016 to determine water and wastewater infrastructure requirements needed to support the revised growth forecasts identified in Amendment 2 to the Growth Plan for the Greater Golden Horseshoe, and to develop a long-term strategy to ensure social, environmental and economic sustainability. Regional infrastructure improvement projects identified in Vaughan include expansion and upgrades to the water systems of Kleinburg-Nashville and Pressure Districts 6, 8 and 9, as well as, the expansion of Regional trunk sewer systems in northeast and west Vaughan.

York Region's 10-year capital program anticipates in-service dates of 2028 and beyond for delivery of growth-related infrastructure improvements to West and Northeast Vaughan

The York Region West Vaughan Sewage Servicing Class Environmental Assessment was completed in 2016 and recommended a preferred servicing solution to construct 14 kilometers of new Regional trunk sewer system primarily within the Region's road right-of-way along Rutherford Road, Highway 27 and Highway 7. The Northeast Vaughan Water and Wastewater Class Environmental Assessment was completed in 2019 which recommended a preferred servicing solution to construct 6.6 kilometers of Regional trunk sewers mainly along Jane St and Keele St. It is anticipated that some sections of the proposed regional infrastructure will be in service in 2028.

The Interim Servicing Strategy Study conclusions safely support additional development throughout the City's existing wastewater collection system; optimizing existing local capacity in lieu of Regional infrastructure improvements

Due to increased development pressure of the future growth areas and foreseeing that Regional infrastructure will be delivered in 2028 and beyond, staff initiated the Interim Servicing Strategy Study in January 2019. The objective of this Study was to determine an interim servicing strategy for the existing wastewater collection systems, including appropriate risk management measures, to safely support additional development in the Study areas in advance of York Region's anticipated infrastructure delivery of 2028. Council endorsement of the conclusions and recommendations of this Study is being requested as per Recommendation #1.

The Study areas included the City's new community areas and employment lands encompassed by Blocks 13 North, 27, 34, 35, 41, 59, 60, 62 West, Promenade Mall, the redevelopment of the Copper Creek golf course and the potential redevelopment of the Board of Trade golf course (referred to attachment 1). In addition to the Study areas, intensification along Regional corridors was also considered and protected for.

Previous Reports/Authority

There are no previous reports, websites and/or direction on this topic.

Analysis and Options

Residual capacity in the sanitary sewer system was determined using a collection of best practices and industry standard techniques for field investigation, data collection and analysis

The existing residual capacity in the sanitary sewers was determined using monitored flows and a detailed pipe-by-pipe hydraulic model of the system, which was calibrated by the use of 23 flow monitoring stations and 5 rain gauges. Sewer capacity at the outlets was verified by closed-circuit television (CCTV) inspections.

Once the existing conditions were established, flows generated from approved and proposed future developments were incrementally added at design rates. Sewer operating conditions during a critical storm event (i.e. 1 in 25-Year design storm) were then analyzed to confirm if the residual capacity is sufficient to fully or partially accommodate future developments.

Risk Management Measures (RMMs) are recommended to safely utilize the residual capacity of the sanitary sewer system on an interim basis in order to accommodate additional development in the absence of Regional infrastructure

Depending on the downstream sewer operating conditions for each study area, site specific servicing strategies were then applied to maximize the serviceable population and utilization while ensuring potential risks are manageable with pre-defined Risk Management Measures (RMM).

RMM are recommended to further expand the residual sewer capacity while providing sufficient risk management on an interim basis to accommodate additional future developments in the absence of the ultimate solution (West Vaughan and North East Vaughan Regional trunk sewers). RMM will allow some future developments to proceed with reduced risk on an interim basis. Proposed RMM include the following:

1. **Flow monitoring** would be recommended to verify if flow generation rate is lower than the design criteria (370 l/c/d). Alarm would be set when flow is higher than a limit. Should post-development monitoring and analysis during interim

servicing strategy show increased risk at any particular time in the interim servicing period, pre-selected and pre-designed contingency enhancements should be triggered to restore any risk management target.

2. Future development would need to **commit to York Region Servicing Incentive Program (SIP)**, which includes measures to reduce wastewater generation from future areas through implementation and verification of low water demand technologies at design and construction. Inflow and Infiltration generated from future development is also minimized through enhanced material specifications, enhanced construction and inspection methods practiced by York Region under the SIP. This RMM will ensure best practices are adhered to in anticipation to future updates to the City's Engineering Design Criteria and Standards as per Recommendation # 2.
3. **Yearly CCTV outlet sewer inspection** would be recommended to ensure hydraulic capacity can be fully utilized;
4. **Inflow and Infiltration (I&I) reduction in existing areas would be recommended to free up capacity in areas where excess amount of I&I is identified.** The I/I reduction program will identify, quantify and remove sources of I/I that allow stormwater to enter sanitary sewer during a rainfall event.
5. **Flow attenuation would be recommended on an interim basis** to reduce upstream flows entering downstream sewers. This is achieved through an oversized sewer with an adjustable orifice plate to limit peak flows entering downstream. Adjustable flow control gates changes operating conditions based on development/tributary area and flow monitoring;
6. **Pipe replacement** would be recommended in cases that the above mentioned RMM could not eliminate risk to at least limited surcharging.
7. **Phasing** of development. This will include progressive approval of development application. A review of each application will be completed and analyzed available capacity within the City's sewer system.

Additional site-specific strategies may be required at a few locations. Attachment 2 includes a table with the required RMM by Study Area/Development and future condition assessment of the sanitary systems as per modeling results.

A draft of the final report of the Interim Servicing Strategy Study was completed in Q2 2020 and circulated to internal and external stakeholders, including BILD and York Region, for their review and comments. As per Recommendation #3, City staff/consultants will continue to engage internal and external stakeholders to finalize the Interim Servicing Strategy Report in the near future.

Financial Impact

The implementation of the Risk Management Measures will be funded by developers and managed by the City.

Broader Regional Impacts/Considerations

City Staff continue to coordinate with York Region staff to ensure that the proposed Regional improvements are completed within an appropriate timeframe. Capacity constraints in the receiving Regional system have to be considered in order to continue the development within the identified growth areas.

Conclusion

The Study concluded that capacity available within the existing outlets will be able to safely accommodate future developments on an interim basis while maintaining acceptable level of service as long as identified Risk Management Measures are followed.

All the Study areas are required to implement the following Risk Management Measures:

- Flow monitoring to confirm actual flow generation rates and alarming
- Commit to York Region SIP standards to ensure wastewater generation rates are significantly less than the design rates applied in this analysis
- Phasing and progressive development approval

Areas with greater capacity constraints are subject to additional RMM and specific conditions.

The Interim Servicing Strategy provides the City an instrument to approve development applications in a timely manner that otherwise might have had to wait until the Regional infrastructure was in service.

For more information, please contact:

Vince Musacchio, Director, Infrastructure Planning and Corporate Asset Management,
x8311

Attachments

1. Study Areas, Civica Infrastructure, Draft Final Report: Interim Servicing Strategy, Page 17, April 20, 2020
2. Risk Management Measures/future condition assessment, Civica Infrastructure, Draft Final Report: Interim Servicing Strategy, Pages 31, 37, 41, 45, 49 and 73, April 20, 2020

Prepared by

Diego Velasquez, Project Manager, Infrastructure Planning Ext. 8071
Michael Frieri, Manager, Engineering Planning and Studies, Ext. 8729

Approved by



Nick Spensieri, Deputy City Manager,
Infrastructure Development

Reviewed by



Jim Harnum, City Manager