



Report to: General Committee

Meeting Date: September 13, 2021

SUBJECT: Markham Village & Unionville Areas Flood Control
Feasibility Study Completion

PREPARED BY: Prathapan Kumar, Senior Manager Infrastructure, ext. 2989
Robert Muir, Manager, Stormwater, ext. 2357

RECOMMENDATION:

- 1) THAT the report entitled “Markham Village & Unionville Areas Flood Control Feasibility Study Completion” be received; and
- 2) THAT Council endorse the recommended solution including Sewer Upgrades, Flow Diversions, and System Optimization identified in the Markham Village & Unionville Areas Flood Control Feasibility Study; and
- 3) THAT Staff expand the current watercourse inspection maintenance program to include priority watercourses for debris identification/ blockage removal in 2022;
- 4) AND THAT Staff be authorized and directed to do all things necessary to give effect to this Resolution;

PURPOSE:

The purpose of this report is to provide Council with feedback obtained from the public on the implementation plan for the Markham Village and Unionville Flood Control Project and to seek Council’s endorsement for the implementation plan. The plan includes recommended Sewer System Upgrades, including Flow Diversions and Sewer System Optimization, and Enhanced Channel Maintenance in priority Watercourses and Channel to improve the stormwater system performance in the Markham Village and Unionville areas.

BACKGROUND:

In February 2013, Council approved a 30-year Flood Control Program, which provides funding to improve the level of service of drainage systems, including a 100-year level of service for storm sewer systems. Markham Village and Unionville Area Study was accelerated after the significant flooding that occurred in the summer of 2017. The area was developed prior to 1978, when the City’s storm drainage design standards were increased from a 5-year level of service to 100-year level of service.

As presented to General Committee on April 26, 2020, a range of flood protection approaches were evaluated including sewer size upgrades, storage facilities, and private plumbing protection. The recommended solution is a combination of storm and sanitary sewer upgrades to be completed in the following project clusters that have experienced

flooding during extreme rainfall due to limited historical design standards. Clusters are presented in Attachment 1 and recommended storm system works are listed below.

- **Project Cluster 1 (Markham Village)** – Church St./ Parkway Ave Area Drainage Improvements
 - Diversion of Flow from Parkway Ave, Sir Lancelot Dr, Jack Crt, Jill Court, Rose Way to Church Street, and upgrade of Church Street System
- **Project Cluster 2 (Markham Village)** - Ramona Blvd., Daniel Court/ Fincham Improvements
 - Sewer Upgrades
- **Project Cluster 3 (Markham Village/ Unionville)** - Main St., East Drive, Pomander Road, Gainsville, Fred Varley, Friar Tuck
 - Diversion of Emily Carr and Gainsville Ave to Pomander Street System, and upgrade of Pomander Street Sewer
 - Optimization of Wembley Ave System
 - Upgrade of Fred Varley System at Tuscan Court/Markhaven Road, East Drive, Main Street
- **Project Cluster 4 (Markham Village)** - Milne Lane, Rouge Street, Major Buttons/ Squire Bakers Lane System Improvements
 - Upgrades of three systems

The recommended solutions are complimented by the continuation of the City's Private Plumbing Protection Program that will continue to be available throughout the study area and that is the preferred approach to protect isolated areas.

The total estimated program cost for storm sewer upgrades is \$106.1Million. This cost estimate is in line with the Council approved 2019 Storm water Fee rate update. The cost of sanitary sewer upgrades and cast-iron watermain replacement are in addition to these costs, and will be funded through the Water and Wastewater Lifecycle Reserves.

Public Consultation

To initiate the project, a Community Information Meeting entitled Private Plumbing Rebate Program and Markham Village & Unionville Flood Control Study was held at the Markham Village Community Centre on April 26, 2018. The purpose of the meeting was to share study background and collect information on historical flooding to help assess system improvement requirements to the storm, sanitary and watercourse systems.

Staff hosted a virtual, online Community Information Meeting #2 on June 24, 2021 to present study findings, receive feedback on recommendations, and present next steps including implementation schedule. The Community Information Meeting was advertised through the Your Voice Markham website, the City's Twitter account and through public notices mailed out to landowners in the study area.

The recommended solution, including areas impacted by construction, was included in the public notice that was also posted on the Your Voice Markham project webpage. The webpage included an online flood survey to collect information related to past flooding, comments and feedback on the project, and to allow readers to sign up for notification of updates on the project.

The comments and feedback received through the online survey were as follows:

- Ten respondents requested to receive study updates.
- Two of ten respondents experienced flooding in the past.
- One respondent noted local rainwater accumulating in the yard when downspouts were disconnected many years ago.
- One respondent who has not flooded indicated a concern regarding flooding given their property is lower than the roadway.
- One respondent noted that the adjacent Fonthill Creek floods its banks, with water levels to the top of the Rycroft Drive culvert.
- One resident inquired if Project Cluster 1 work scheduled for 2022 - 2024 would affect their property.

During the Community Information Meeting #2 a slideshow presentation was delivered describing the project background, recommended works and implementation timelines (see Attachment 2). The presentation slides have been posted on the Your Voice Markham website. Questions on the presentation were submitted through the virtual meeting chat function or by Zoom-call in. Questions and responses regarding the presentation are included as Attachment 3.

A common question was related to potential impacts of the project's proposed storm sewer enlargements and infill development on downstream flood risks. Staff indicated that capacity assessments of receiving watercourses were conducted to confirm that creek capacity is available downstream such that storm sewer enlargements would not aggravate flooding. Regarding large-scale development, such as upstream in the Mount Joy sub watershed, staff noted that development requires on-site stormwater management to mitigate against downstream flood risks due to additional runoff from the development. Regarding infill development staff noted that storm sewer upgrades will reduce the impact of additional runoff. It was also noted that impacts of infill development on adjacent properties is controlled through the requirement to have swales to convey additional runoff to the roadway.

Other questions and discussion were related to expectations from the public and local impacts of construction. Regarding expectations from the public, it was indicated that beyond participation in the private plumbing protection program at individual properties, the acceptance of inevitable disruption and inconvenience during construction was expected. Typical impacts, as experienced in West Thornhill (Ward 1) during similar construction were described including occupation of the roadway with signage, traffic controls, construction equipment and material. The need for road closures and temporary interruption to driveway access were noted.

In response to the presented timelines for Unionville area (Ward 3) scheduled for 2028 to 2030, the ability to move forward the timeline was questioned. Staff responded that given the size of projects and need to maintain traffic flow, construction cannot be carried out everywhere at the same time and this affects the timelines required. Work is also starting in highest risk area first. It was noted that the original 12-year construction period has been compressed to a 9-year period with some concurrent projects incorporated to advance the schedule.

The need for additional consultation in the future, in advance of construction, was noted. It was suggested that insights from previous projects in West Thornhill (Ward 1) could be shared and that residents would continue to be informed as designs are finalized.

Following the meeting, additional feedback was received via mail and email regarding the accumulation of debris and fallen trees along two watercourses - Fonthill Creek and Mount Joy Creek. The concern was reiterated that debris can contribute to watercourse and culvert blockages, and could contribute to higher flood risks during extreme weather.

OPTIONS/ DISCUSSION:

Staff and City Consultants have evaluated options for flood control and completed the technical analysis associated with the identification of capital works required to meet the Flood Control Program's level of service for storm sewer systems in Markham Village & Unionville Areas.

With Council approval, Staff will proceed to finalize the Markham Village and Unionville Flood Control Feasibility Study and proceed with the implementation of recommended solutions. A breakdown of cost by Project Cluster areas and approximate implementation timelines are as follows:

Project Cluster	Area	Estimated Storm Upgrade Program Cost	Estimated Implementation Timeline
#1	Markham Village	\$32.1 M	2024 - 2026
#2	Markham Village	\$22.9 M	2027 - 2028
#3	Markham Village/ Unionville	\$23.0 M	2028 - 2030
#4	Markham Village	\$28.0 M	2030 - 2032
	Total	\$106.1 M	

In response to questions and comments received during the Community Information Meeting #2 and follow-up correspondence, tree and debris removal will be completed on Mount Joy Creek and Fonthill Creek following inspections in 2021. Removals along Mount Joy Creek will be identified at flood-prone, low-lying properties and at the Tuclor Lane culvert crossing.

To reduce the risk of debris accumulation and blockage in the future, staff will update its watercourse inspection program in 2022 to add Mount Joy Creek and Fonthill Creek to the priority site list. This update will result in more frequent, yearly inspections. While the current inspection program includes priority sites based on erosion risks to public and private infrastructure, the program will be revised to add priority debris sites such as these considering potential flood risks due to blockages. This will complement the City's existing activities that includes the proactive clearing of blockage-prone culvert grates and sewer inlets in advance of severe storms.

FINANCIAL CONSIDERATIONS

The estimated storm sewer upgrade program cost is \$106.1 Million and is to be funded from the Stormwater Fee.

As per November 26, 2013 Council Resolution, funding requirements for the Stormwater Fee are to be updated every five years to reflect updated project costs estimates, Gas Tax allocation, inflation, growth, administration costs, and revenue collection.

Staff will continue to monitor program costs and will be undertaking a review of the Storm water Fee in 2024, for implementation of any changes in 2025.

HUMAN RESOURCES CONSIDERATIONS

Not applicable

ALIGNMENT WITH STRATEGIC PRIORITIES:

The proposed flood remediation program is consistent with the Building Markham's Future Together strategic priority on providing a "Safe and Sustainable Community" through the proactive management of infrastructure to reduce flood risks.

BUSINESS UNITS CONSULTED AND AFFECTED:

The Finance Department has been consulted for both input and review of this report.

RECOMMENDED BY:

Eddy Wu, P.Eng.
Director, Environmental Services

Morgan Jones
Commissioner, Community Services

ATTACHMENTS:

Attachment 1 – Markham Village_Unionville Phasing Plan

Attachment 2 - Community Information Meeting #2 Presentation

Attachment 3 - Community Information Meeting #2 Q & A Summary