



REPORT

Council

August 13, 2024

FROM: Transportation and Engineering Department

DATE: July 30, 2024

SUBJECT: Saville Area Stormwater System Improvement Study

LOCATION: Saville Crescent Neighbourhood generally between CN Rail line and Lake Ontario (north/south boundaries) and Stanfield Drive and Third Line (west/east boundaries)

WARD: Ward 1

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RECOMMENDATION:

That the Notice of Completion for the Saville Area Stormwater System Improvement Study, Municipal Class Environmental Assessment Study be published, commencing a 45-day public review period from September 16 to October 31, 2024

KEY FACTS:

The following are key points for consideration with respect to this report:

- Recommendations for improvements to the major and minor storm drainage system within the Saville study area were originally identified in the Town's Stormwater Master Plan (2020).
- Halton Region (the Region) completed a basement flooding investigation in 2022. Rainwater-induced inflow and infiltration (I/I) into the Region's sanitary sewer system, water use while privately owned wastewater backwater valves are closed, and sump pump failure/sump pit overflow have led to basement flooding.
- Halton Region is planning extensive water and wastewater system improvements in the study area north of Rebecca Street in the next 2 years (2025 and 2026).

- Poor drainage and nuisance ponding of water in ditches were reported during small wet weather events in the Saville Crescent and Seaton Drive Area.
- The Saville Area Stormwater System Improvement Study is initiated as follow-up study to the Stormwater Master Plan and coordinate with the Region's planned works. The purpose of the Study is to reduce or eliminate nuisance surface flooding and to improve stormwater drainage by evaluating and recommending stormwater management alternatives.
- The recommendations include green infrastructure, culvert and ditch upgrades, storm sewer upgrades, and stormwater detention.
- An Environmental Study Report has been compiled, documenting the selection of a preferred alternative. This report, subject to Council's endorsement, will be made available for public review, commencing September 16 to October 31, 2024.

BACKGROUND:

Town of Oakville Stormwater Master Plan identified Saville area as being in need of stormwater improvements and the area is ranked as one of the lowest in terms of stormwater level of service.

The Town has completed the Stormwater Master Plan to assess the performance of the Town's existing stormwater system and to identify opportunities to reduce flooding risks.

Within the Saville Area Stormwater System Improvements Study (herein referred to as Study) limits, the high-level Master Plan recommendations included:

- Installing new storm sewers
- Upgrade existing storm sewers with like sized and upsized pipes to address capacity restrictions and surcharging
- Subsurface stormwater management facility at Rebecca Gardens Park
- Diversion structures
- Culvert improvements
- Resectioning and reditching of minor and major systems

It is noted that the Stormwater Master Plan ranked the majority of the Saville area as one of twelve (12) areas within Oakville with the overall lowest stormwater level of service.

The Rainwater Management Financial Plan (RWMP) is a long-term plan to improve resiliency against climate change and protect our stormwater infrastructure and natural assets.

The RWMP takes a comprehensive approach to integrate the state of good repair and increase resiliency of the town's stormwater network based on various studies and assessments completed to date. The multi-phase RWMP will deliver a financing plan that provides an all-inclusive approach to planning and implementing stormwater-related infrastructure renewal and improvement projects into the future.

Recommendations from the Stormwater Master plan, and all other stormwater assessments and flood improvement initiatives will be evaluated through the lens of the RWMP to prioritize recommendations for implementation. The RWMP has developed a matrix to prioritize the projects from the various study recommendations that considers, asset management principles, cost/benefit, risk and likelihood of service impact and alignment/coordination with other projects so that projects in areas with the greatest risk and provide the most benefit are prioritized first.

The Saville area study was initiated to review the number of flooding complaints under frequent events and align to Region's review of wastewater infrastructure.

The rationale behind undertaking this study stems from two key factors in addition to the overall low level of service for stormwater drainage ranking from the Stormwater Master Plan. First, there were frequent documented reports of flooding complaints from local residents. Second, the Region of Halton had already launched an investigation into their wastewater system in the area. To collaborate and establish a coordinated approach to addressing drainage issues effectively with the Region of Halton, this study was initiated on May 11, 2023.

Interim action was completed by the Town to reduce flooding risks.

During the initial stage of the study, the town actively sought opportunities for interim enhancements in areas north of Rebecca Street to address multiple concerns related to ditch drainage and flooding. Analysis revealed that a section of ditches in the Saville Crescent and Seaton Drive area would benefit from ditch regrading and culvert cleanout. These improvements were successfully implemented in September 2023.

COMMENT/OPTIONS:

In 2023, the town retained Aquafor Beech Ltd. to complete the Saville Area Stormwater System Improvement Study as a Schedule B Municipal Class Environmental Assessment. The study area is shown below.

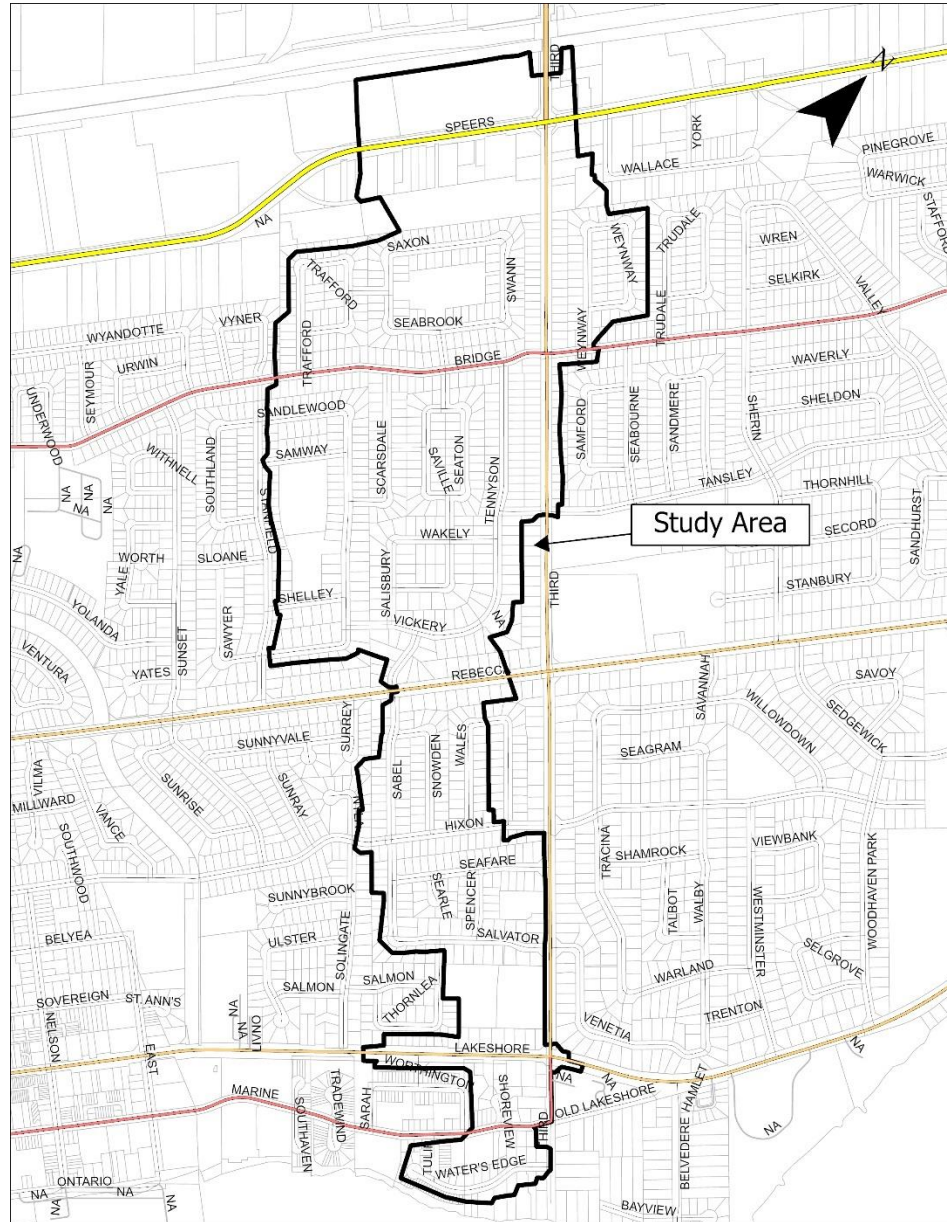


Figure 1 – Study Area

The purpose of the study is to identify drainage deficiencies and potential opportunities for stormwater system improvements to improve drainage and reduce flooding risks in the study area.

The implementation of Study recommendations is intended to align with the Region of Halton’s proposed water and wastewater system upgrades, which include design and replacement of watermain and sanitary sewers, and services and laterals, in areas north of Rebecca Street. This Study provides an opportunity to upgrade and

construct new stormwater infrastructure at the same time to reduce project costs and minimize construction related disruptions in the community.

Problem Identification

The study area is generally serviced by a combination of a roadside ditch network and storm sewers. The storm sewers (minor system) provide drainage for smaller rainfall events while the ditch network in conjunction with roads (major system) provide drainage for larger rainfall events. Over time, the ditches have been filled with sediment or by the owner, overgrown with vegetation and privately owned driveway culverts have deteriorated or have become blocked, creating flow impediments within the drainage system.

Overland flows from areas in the north near Saxon Road, Swann Drive, and Seabrook Drive enter the Saville Crescent and Seaton Drive neighborhood during larger storm events (5-year event and greater). The stormwater drainage issue is further worsened by the limited capacity in the downstream storm sewers along Scarsdale Crescent, Sandlewood Road, and sewers south of Rebecca Street to Lake Ontario as they will surcharge during the 5-year storm event. In addition, the majority of driveway culverts in the study area were found to have structural deficiencies and/or signs of sedimentation.

CCTV inspection of the storm sewers in the study area, completed in April 2024, showed that the majority of town's storm sewers are in a good state of repair. Pipes with sediment build up were cleaned, resulting in improved drainage efficiency.

Drainage System improvement Alternatives and Recommendations

The Class EA process includes developing alternatives, including green infrastructure alternatives to reflect town Council's motion that green infrastructure be preferred. For this study, a long list of eight drainage system improvement alternatives was developed, and evaluated based on their technical merits (i.e. could they improve the drainage in the study area?). Subsequently, the shortlisted alternatives were then comparatively assessed considering natural, social-economic and technical factors, including flood mitigation and engineering criteria.

The long list of alternatives, alternatives shortlisted for further evaluation, and the preferred alternative are summarized in the table below and are illustrated in Appendix A:

Table 1 – List of Alternatives and Recommendations

ALTERNATIVE SOLUTIONS	DESCRIPTION
<p>Alternative 1 Do Nothing</p>	<p>This alternative is required under the Class Environmental Assessment process to be carried forward as a benchmark alternative. It involves maintaining the existing conditions within the Study Area, including both the internal drainage characteristics of the ditch, sewer, and culvert system as well as the external drainage characteristics that introduce additional flows from outside of the Study Area.</p> <p>Not recommended - existing flooding risks would not be reduced</p>
<p>Alternative 2 Capture Alternative</p>	<p>This alternative reviewed opportunities to increase capture of stormwater runoff from the overland drainage system into the sewer system through upsizing catch basins, implementation of additional catch basins, inlet control devices, and high capacity inlets to reduce flooding risks.</p> <p>Not recommended - ineffective solution for addressing flooding risks</p>
<p>Alternative 3 Ditch Drainage System Improvements</p>	<p>This alternative involved a review of upgrading the existing local ditch network that services select areas, including the Saville Crescent and Seaton Drive Area. This alternative was split into two sub-alternatives for assessment: one with low impact development (LID) features (Alt 3a) and one without (Alt 3b), including:</p> <ul style="list-style-type: none"> • Re-grading select ditches to provide positive drainage. • Cleaning out existing culverts that are blocked with sediment/debris. • Replacing culverts that are undersized/underperforming. • Re-directing local (minor) flows to outlets that can adequately convey flows downstream. • Incorporating LID measures. <p>Recommended - Alternative 3a with LID measures</p>
<p>Alternative 4 Storm Sewer System Improvements</p>	<p>This alternative involves upgrading and/or replacing existing deficient subsurface pipe networks (minor system) in the study area. This alternative was split into two sub-alternatives for assessment: one with LID features (Alt 4a) and one without (Alt 4b), including:</p> <ul style="list-style-type: none"> • Re-directing flows south and west of the Saville Crescent Area to the downstream outlet.

ALTERNATIVE SOLUTIONS	DESCRIPTION
	<ul style="list-style-type: none"> • The evaluation of oversize pipe storage (inline storage/superpipes) within the right-of-way. • Incorporating LID measures. <p>Recommended - Alternative 4a with LID measures</p>
<p>Alternative 5</p> <p>Stormwater Detention Options at Seabrook Park</p>	<p>This green alternative involves intercepting flows in the headwaters of the drainage system at Seabrook Park and providing stormwater detention to alleviate downstream capacity issues and reduce flooding risks. Three sub-alternatives were assessed:</p> <ul style="list-style-type: none"> • Alt 5a – Stormwater management pond (surface stormwater management facility). • Alt 5b – Stormwater tank (subsurface stormwater management facility). • Alt 5c – Stormwater tank with LID features (subsurface stormwater management facility with infiltration). <p>Due to the potential for a loss of open park space if a stormwater management pond was constructed, based on public consultation feedback, Alternative 5c is recommended.</p> <p>Recommended - Alternative 5c</p>
<p>Alternative 6</p> <p>Stormwater Detention Options at Rebecca Gardens Park</p>	<p>This green alternative involves the implementation of a stormwater management facility at Rebecca Gardens Park, as per the preferred recommendation of the Town of Oakville’s Stormwater Master Plan (2020). This alternative reduces discharges to downstream areas, south of Rebecca Street to levels that can be accommodated by the existing storm sewer (minor) system. Three sub-alternatives were assessed:</p> <ul style="list-style-type: none"> • Alt 6a - Stormwater management pond (surface stormwater management facility). • Alt 6b – Stormwater tank (subsurface stormwater management facility). • Alt 6c – Stormwater tank with LID features (subsurface stormwater management facility with infiltration). <p>Due to the potential for a loss of open park space if a stormwater management pond was constructed, based on public consultation feedback, Alternative 6c is recommended.</p> <p>Recommended - Alternative 6c</p>

ALTERNATIVE SOLUTIONS	DESCRIPTION
<p>Alternative 7</p> <p>Flow Diversion at Sabel Street and Hixon Street</p>	<p>This alternative involves assessing the minor and major system flow diversion east of Sabel Street at Hixon Street as identified within the Stormwater Master Plan (2020). This alternative diverts flows from the minor system on Sabel Street at Hixon Street eastward to Third Line to alleviate surcharging in that area. The purpose of this option was to reduce/eliminate frequent flows to improve the performance of the overland system within the affected area.</p> <p>Not recommended due to limited benefits to the upstream drainage system</p>
<p>Alternative 8</p> <p>Combination of Alternatives 3 to 6</p>	<p>A combination of elements from Alternatives 3 to 6 was considered to maximize stormwater detention and water quality improvement while considering the social impacts to the park areas and surrounding community.</p> <p>This alternative assessed all feasible options together including:</p> <ul style="list-style-type: none"> • Ditch drainage system improvements • Storm sewer improvements • Green stormwater detention at Seabrook Park • Green stormwater detention at Rebecca Gardens Park <p>LID and green infrastructure elements are included in this alternative</p> <p>Recommended Alternative</p>

The Study, in addition to subsequent staff review, recommends Alternative 8 (a combination of Alternatives 3a, 4a, 5c, and 6c) includes green infrastructure, ditch and storm sewer system improvements, stormwater detention at Seabrook Park and Rebecca Gardens Park.

The recommended alternative will lead to overall flow reduction in both the sewer and overland drainage systems with the following benefits:

- Culverts in the Saville Crescent and Seaton Drive loop that are in poor drainage condition due to structural deficiencies and sedimentation (69% of the total number of culverts in this area) will be mitigated.
- On average, 28% peak flow reduction in the storm sewer system and 64% peak flow reduction in the overland drainage system during a 5-Year rainfall event.

- On average, 7% peak flow reduction in the storm sewer system and 63% peak flow reduction in the overland drainage system during a 100-Year rainfall event.
- 21% reduction in the length of storm sewers that are surcharged in the study area during a 5-Year rainfall event.

The preliminary proposed alternative for stormwater detention at Seabrook Park was a stormwater management pond. Due to concerns with the potential for a loss of open park space, a resident meeting was held on May 8, 2024 to collect feedback from those who will be most affected around the Seabrook Park area. Majority of the attendees expressed opposition to the stormwater management pond option, citing concerns including but not limited to:

- Increase in nuisance wildlife such as mosquitoes and geese.
- Public safety near open water.
- Health concerns due to historic contamination in the industrial area north of Saxon Road.
- Loss of open space and impact to nearby property values.

Following this meeting, the evaluation of the stormwater detention options at both Seabrook Park and Rebecca Gardens Park were revised to be stormwater tanks with LIDs based on comments received. The proposed green stormwater detention at the two parks will provide additional flood storage in the study area and benefit the drainage system south of Rebecca Street. Additionally, the implementation of LID/green infrastructure and stormwater detention will contribute to improved water quality through infiltration and settling.

After implementation of the recommended infrastructure improvements, overall drainage conditions within the study area will improve, though flood risks may still persist due to extreme rainfall events. There are several resources available to Oakville residents to help ensure their safety and minimize property damage due to flooding. This includes the Town of Oakville's Emergency Preparedness webpage and the Region of Halton's Community Hazards webpage. Additional flooding resources are available through Conservation Halton's webpages and the University of Waterloo Intact Centre on Climate Adaptation at www.intactcentreclimateadaptation.ca/.

Future detail design phase of the recommended alternatives will incorporate green infrastructure design.

Town Council passed motion that green infrastructure be preferred, and grey infrastructure only where necessary and will be adopted under the town's Climate Action Plan. For the Saville area, the final design will include green infrastructure /

LIDs such as infiltration of stormwater and detention of stormwater to better the environment and benefit downstream areas.

Conclusion

The Saville Area Stormwater System Improvement Study has been compiled documenting the recommended preferred alternative. Appendix B is the consultant's Executive Summary Report.

In accordance with a Schedule B undertaking, the project file must be made available for a public review period. The report will be posted for 45 days, starting on September 16, 2024. A 45-day review period is recommended instead of the minimum 30-day review to allow more time for residents who wish to review the report. The report will be made available on the town's website and special accommodations to view hard copies will be determined on an as needed basis. A Notice of Study Completion will be sent out to the public, stakeholders and posted on the town's website and will have details on the public review period and how those interested can provide comments. Should no requests be made to Minister of Environment, Conservation and Parks requiring further study on the grounds of prevention, mitigation, or remedy of adverse impacts on constitutionally protected Aboriginal and treaty rights during the review period, the study will be deemed approved.

Upon completion of the Class EA study, the RWMP will evaluate the recommendations in conjunction with their cost-effectiveness and level of flood protection as it prioritizes projects within the town's 10-year capital forecast. The recommendations will take a number of years to complete due to the scale of the projects. The design and construction of the recommended alternatives will align to the extent possible with Region of Halton's planned water and wastewater system upgrade to minimize disturbance in the community.

CONSIDERATIONS:

(A) PUBLIC

Property owners in the study area were notified about the study and were invited to attend one Public Information Centre (PIC) and two resident meetings.

Just prior to commencement of the Saville Area Storm System Improvement Study, on May 10, 2023, a resident meeting was held by the Town of Oakville and Region of Halton to discuss flooding concerns. Residents impacted by basement flooding in the Saville Crescent and Seaton Drive area were invited to this meeting.

A PIC was held on March 20, 2024, where an overview of the issues, background and analysis results, evaluation, and the preliminary preferred alternative was presented. Invitations were sent to property owners in the entire study area, as well as to community groups and agencies such as the Region of Halton and the Ministry of Environment, Conservation Halton, and Parks. Very few comments were received during the commenting period between March 20 and April 5, 2024. The commenting period was extended online to April 12, 2024 without receiving any additional feedback.

A resident meeting was held on May 8, 2024, at Seabrook Park. Residents living in the vicinity of the park were invited to provide feedback on the preliminary proposed stormwater management pond that was originally shown at the March 20, 2024 PIC. The majority of the attendees expressed concerns with the preliminary proposed stormwater management pond at Seabrook Park. As a result, stormwater detention options at Seabrook Park and Rebecca Gardens Park were re-evaluated and revised to the recommended alternative.

Indigenous groups, including the Mississauga of the Credit First Nation, Haudenosaunee Confederacy Council, Metis Nations of Ontario, and Six Nations of Grand River, were provided opportunity to engage with the project team, ask questions, and provide feedback. No feedback was received.

(B) FINANCIAL

The estimated cost to construct the preferred alternative is approximately \$15,000,000 including engineering design and contingencies. The 2025 capital budget and forecast will be updated to reflect the preferred alternative for design and construction and will be considered as part of the 2025 budget process.

(C) IMPACT ON OTHER DEPARTMENTS & USERS

Recommendations from the Study have taken into consideration feedback from Parks and Open Space, Asset Management, Planning and Development and Legal, and external parties such as the Region of Halton, area stakeholders and residents.

(D) COUNCIL STRATEGIC PRIORITIES

This report addresses Council's strategic priority:

- Environmental Sustainability

(E) CLIMATE CHANGE/ACTION

The recommendations of the report support the incorporation of climate change resiliency through flood protection measures. This initiative offers community benefits by safeguarding private and public lands, thereby mitigating the risks posed by more frequent and severe rainstorms resulting from climate change.

APPENDICES:

Appendix A -	Shortlisted and Preferred Alternatives Illustration
Appendix B -	Saville Area Stormwater System Improvement Study Executive Summary

Prepared by:
Jing Liu
Water Resources Engineer, Design and Construction

Recommended by:
Philip Kelly
Manager Design and Construction

Submitted by:
Jill Stephen
Director Transportation and Engineering