CITY OF TORONTO

REPORT NUMBER: VERSION 1 (FINAL)

LOWER SIMCOE STREET UNDERPASS FLOOD PROTECTION

SCHEDULE 'B' CLASS ENVIRONMENTAL ASSESSMENT, EXECUTIVE SUMMARY

JUNE 2021

LOWER SIMCOE STREET UNDERPASS FLOOD PROTECTION

CLASS ENVIRONMENTAL ASSESSMENT

CITY OF TORONTO

FINAL

PROJECT NO.: 17M-02192-00

DATE: JUNE 09, 2021

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EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by The City of Toronto to work with City staff to complete the Lower Simcoe Flood Protection Class EA Study. The purpose of this Municipal Class Environmental Assessment (Class EA) is to determine a preferred solution for mitigating flooding in the Lower Simcoe Street Underpass and evaluate the need for improvements to the existing combined sewer overflow (CSO) hydraulic performance. The Study Area has historically been prone to flooding, which has resulted in impacts to public infrastructure, the Toronto Waterfront, public safety and private property.

The Lower Simcoe Flood Protection Class EA Study Area is in downtown Toronto near the Central Waterfront and key amenities, and generally extends from Front Street south to the Lake Ontario Shoreline (Figure 1). As a busy commuter area, the Lower Simcoe Street Underpass is classified by the City of Toronto as a 3-lane collector road and the area is comprised of many commercial businesses, cultural institutions, tourist destinations, hotels, and multi-residential buildings.

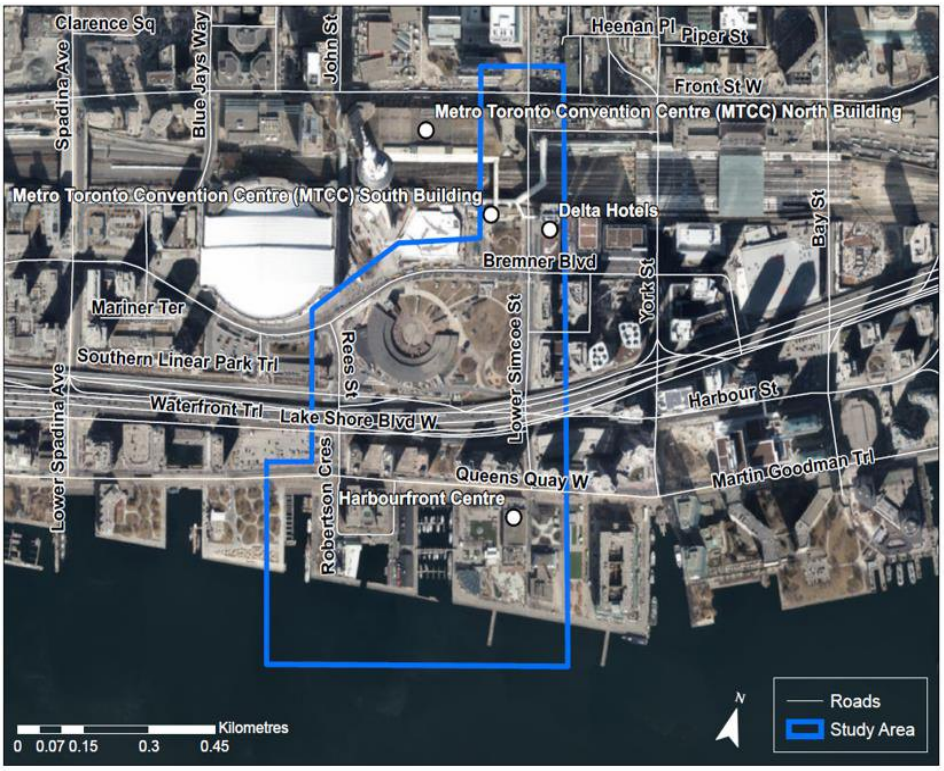

Figure 1: Lower Simcoe Underpass Flood Protection, Environmental Assessment Study Area

As there is the concern that future extreme weather events and high Lake Ontario water levels made worse by climate change will pose a persistent risk of flooding to the Lower Simcoe Underpass, the City is planning to pursue the development of a more robust and permanent solution to abate flooding.

In conjunction with this Class EA, the City undertook a series of studies, investigations and policy reviews. A Stage 1 Archaeological Assessment for the Schedule B Class Environmental Assessment (Class EA) was completed in December 2020 and a Cultural Heritage Resource Assessment (CHRA) was completed in April 2019. Additionally, a Geotechnical Field Investigation was undertaken in October 2018.

An analysis of provincial and municipal policy was completed, including the review of the Provincial Policy Statement, A Place to Grow, Growth Plan for the Greater Golden Horseshoe (2019), and the Toronto and Region Conservation Authority Living City Policies (2014). Other documents examined included the Ministry of Environment, Conservation and Parks (MECP) Ontario Source Protection Information Atlas, MECP Stormwater Management Planning and Design Manual (2003), “Made-in-Ontario Environment Plan” (Environment Plan), the City’s Wet Weather Flow Master Plan (WWFMP), the City of Toronto Official Plan (2010), and the City’s Design Criteria for Sewers and Watermains.

A “Feasibility Study for the Relocation of an Existing CSO Siphon and other works in Lower Simcoe Street and Lakeshore Blvd. West” was completed by WSP in 2018 prior to commencement of the Class EA. The Study was aimed at evaluating the feasibility of the siphon relocation with the intention of improving the performance of the CSO which would ultimately reduce the CSO surcharge levels. The alternatives identified in the feasibility study focus on the elimination of the existing CSO siphon. The Feasibility Study suggested that relocating the existing CSO and abandonment of the inverted siphon would provide some remedial relief to flooding and will provide improvements to the operation and maintenance of the CSO system.

The existing conditions of the Study Area were identified and analyzed during the evaluation of alternative solutions. Existing Storm Water and Wastewater Infrastructure and Hydraulic conditions were also modelled to gain a thorough understanding of the Study Area. Additionally, a Natural Environment Report was completed to determine the presence and extent of natural heritage features, potential for Species at Risk (SAR) within the Study Area, and associated constraints within the Study Area.

Notwithstanding several studies and efforts to improve the flood conditions in the Study area, additional prevention measures are required to consider the feasibility and implementation of alternative solutions for reducing flooding in the Lower Simcoe Underpass.

The detailed evaluation of each alternative solution was based on an assessment of potential impacts and in consideration of input received from agency, stakeholder, Indigenous and public consultation and technical study results. Screening of alternatives under Phase 1 of the Municipal Class Environmental Assessment (MCEA) was completed before developing a detailed framework and set of criteria with the City of Toronto.

The alternatives listed below are functionally different ways to meet the needs of the project and achieve the overall project purpose of flood mitigation of the Lower Simcoe Underpass area. The long-list of alternative solutions are:

1 Retrofit existing Simcoe Street Sanitary Sewage Pumping Station (SPS)
2 New Dedicated Storm Water Pumping Station
3 New Storm Sewer
4 Low Impact Development Measures (LIDs)
5 An additional Underground Storage Tank
6 Relocation of the CSO Siphon
7 Do Nothing

This long list of alternatives was brought forward for consideration through a technical screening process.

The alternative solution that satisfied all the Screening Criteria was Alternative #2 – build a new dedicated storm water pumping station. It was noted that although Alternative #6 did not meet the criteria entirely, the relocation of the CSO siphon could have positive impacts on flooding in the Lower Simcoe Underpass or beyond the Study Area. For this reason, alternative solutions that involve iterations of both a storm water pumping station and CSO relocation were investigated.

Six alternatives were developed, Alternatives A through F, and each were permeations of solutions that will mitigate flooding and improve drainage in the Study area using either a pumping station, relocation of the CSO siphon or a combination. The primary differentiating factor between each of the alternative solutions evaluated for hydraulic performance was whether the Stormwater forcemain from the Stormwater Pumping Station (PS) will outlet to Lake Ontario or whether the forcemain will outlet to the Lower Simcoe Combined Sewer Outfall (CSO) at a location just north of Bremner Boulevard. For the alternatives which outlet into the CSO, the differentiating factor between alternatives are the level of improvement to the CSO hydraulic performance. The improvements are aimed at improving the hydraulic capacity of the CSO in view of reducing the adverse effects to the wider storm network.

The evaluation identified two alternatives (Alternatives C and E) that met the minimum level of service and that did not cause significant adverse effects to the wider City of Toronto stormwater network. It was confirmed that Alternative C and Alternative E would be carried forward for detailed evaluation.

Alternative C involves relocating the existing Combined Sewer Overflow (CSO) with a 2400mm diameter sewer in order to eliminate the inverted siphon between Lakeshore Boulevard and Queens Quay plus the additional construction of a new Stormwater Pumping Station (Storm PS) with a capacity of approximately 900 L/s and a new drainage system in the underpass. The Storm Forcemain from the new 900 L/s Storm PS is directed to the CSO on Lower Simcoe Street just north of Bremmer Boulevard in close vicinity to the Storm PS.

Alternative E involves construction of a new Storm PS, with a capacity of approximately 900 L/s and a new drainage system in the underpass. The Storm Forcemain from the new 900 L/s Storm PS is directed to the CSO on Lower Simcoe Street just north of Bremmer Boulevard in close vicinity to the Storm PS. This alternative does not include any improvement to the CSO.

The detailed evaluation of each alternative solution was based on an assessment of potential impacts and in consideration of input received from agency consultation and stakeholder meetings.

The evaluation criteria were identified based on various technical inputs and grouped as the four parent categories, as follows:

- Natural Environment Considerations;
- Social & Cultural Considerations;
- Financial Considerations; and,
- Technical Considerations.

The criteria were ranked based on a numerical score but were not weighted. Criteria with a lower number (e.g. 1) represented the potential for greater impact, while a higher number (e.g. 2) represented less potential impact.

Technical, environmental, climate change and cultural heritage, socio-economic and archeological considerations, and land use and costing considerations were all taken into consideration.

Alternative E is determined to be preferred when evaluated against Alternative C. The evaluation demonstrated that Alternative E has a lower potential for impacting the natural environment, is less costly, and is most technically favorable. Furthermore, stakeholder and public engagement indicated that Alternative E is less impactful to socio-economic conditions for Harbourfront Centre, marine users, and pedestrians along the Toronto Waterfront (the area south of the Study Area).

A series of stakeholder and public meetings were completed to present the alternative solutions in Fall of 2020. Indigenous communities with a potential interest or stake in the Study were contacted and provided an opportunity to offer their input and to address their comments or concerns.

Additional public input and Indigenous engagement was completed in December 2020 to confirm whether there are any additional constraints and considerations exist for implementation of Alternative E. The City has managed ongoing correspondence with First Nations under the Duty to Consult. WSP reviewed correspondence with First Nations provided by the City and identified that if disturbance of the Lake Ontario lakebed is proposed, an archaeological field investigation and marine archaeological investigation would be of interest for First Nations in advance of any field studies.

The last step of the MCEA process following documentation of Phases One and Two, involves issuing a Notice of Completion to review agencies and the public and filing this document for review for a period of 30 calendar days. The Notice of Completion will be distributed to each of the previously contacted individuals in the project mailing list who wished to be further involved in the project and published in the local newspapers. The notice shall inform stakeholders and the general public of the project's completion, including the preferred solution.

Following the end of the review period for this document, if there are no outstanding Part II Order Requests, the City of Toronto may proceed to Phase 5 of the Class EA process to complete the contract drawings and tender documents, and then move on to construction.