TO: Chair and Members Public Works Committee
WARD(S) AFFECTED: WARD 5

COMMITTEE DATE: November 19, 2012

SUBJECT/REPORT NO: Centennial Parkway Canadian National Railway Underpass Drainage Class Environmental Assessment (PW12092) - (Ward 5)

SUBMITTED BY:
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RECOMMENDATION

(a) That the General Manager, Public Works be authorized and directed to file the Municipal Class Environmental Assessment report with the Municipal Clerk for a minimum thirty (30) day public review;

(b) That upon completion of the minimum thirty (30) day public review period, and subject to capital budget approval, the General Manager, Public Works be authorized and directed to proceed with detailed design and implementation of the preferred solution of the Class Environmental Assessment study, provided that no Part Two (2) Order by the Minister of Environment is received.

EXECUTIVE SUMMARY

The Centennial Parkway Canadian National Railway Underpass Drainage Assessment Class Environmental Assessment has been initiated to evaluate the causative factors contributing to the existing flooding problem at the CNR Underpass and to develop various mitigation alternatives to address the flooding. This will eventually lead to the advancement of a preferred alternative that best meets the requirements of all the stakeholders.

The study area is comprised of the trunk sewer drainage area, which originates at Barton Street to the south and terminates north of the Queen Elizabeth Way right-of-way in Confederation Park. The east-west limits are essentially the rear of the properties fronting Centennial Parkway, but also include Arrowhead Drive, Goderich
Road, South Service Road, the CNR and QEW right-of-ways, as shown in Appendix A. The predominant land-use in the study area is industrial and highway right-of-way.

The hydraulic conditions and capacity of the storm sewer system along Centennial Parkway has been assessed through this Class Environmental Assessment study, with the specific objective of determining the factors influencing the flooding observed at the Canadian National Railway (CNR) underpass that currently flooded approximately four (4) to five (5) times per year, during heavy rainfall events.

The study followed the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment, October 2000 (as amended in 2007) process. The Municipal Class Environmental Assessment process outlines mandatory principles, project consultation and technical requirements. An MEA Municipal Class Environmental Assessment is considered a legal document, which outlines project recommendations and next steps based on a technical assessment in consultation with the public, technical practitioners, and agencies.

Several alternatives have been developed and assessed to determine their potential to address the flooding problem (i.e., works designated to enhance drainage capacity can also provide potential opportunities to improve local stormwater quality). Alternatives considered are as follows:

- Do Nothing
- Upgrade the gravity drain storm sewer system
- Replace the gravity drain system with a pumping station
- Provide opportunities to improve water quality, to be explored further at detail design stage

The “Do Nothing” alternative would not address the existing flooding problem, and therefore has not been advanced for assessment. The Class Environmental Assessment study recommended a Traditional Pumping station solution which will be designed for the twenty five (25) year return period storm event, along with upgrades to the existing gravity sewer as the preferred alternative.

The detailed design and construction of the preferred alternative of the drainage Environmental Assessment is proposed to proceed in 2013, subject to the 2013 capital budget approval and capital program coordination with the Centennial Railway Underpass project.

Alternatives for Consideration - See Page 7

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial: The total estimated cost for the stormwater solution is $2,800,000, which is proposed for implementation in 2013, subject to the 2013 capital budget approval and capital program coordination with the Centennial Railway Underpass project.

Staffing: N/A
Legal: Municipal undertakings such as stormwater improvements and water and wastewater projects are subject to Ontario’s Environmental Assessment Act. The Act allows for the approval of Class Environmental Assessments. The municipality has followed the planning process set out in the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment October 2000 (as amended in 2007) process. This study has followed the processes for Schedule “B” undertaking and fulfils Phases 1 and 2 of the Class Environmental Assessment process. This process requires the City to file the project report for a minimum thirty (30) day public review.

HISTORICAL BACKGROUND

The Centennial Underpass has experienced several flooding conditions during heavy rainfall events in the last few years. This Drainage Class Environmental Assessment has been undertaken in coordination with the proposed Centennial Parkway Rail Bridge Class Environmental Assessment Bridge 163, which identifies several structural problems with the existing structure including load deficiencies, cracking, water leakage, substandard pedestrian sidewalks and insufficient vertical clearance. This created opportunity to address both the bridge and drainage issues as a coordinated undertaking.

The objective of the Centennial Parkway Canadian National Railway (CNR) Underpass Drainage Class Environmental Assessment, which has been undertaken concurrently with the Bridge Class EA, has been to evaluate the causative factors contributing to the existing flooding problem at the CNR Underpass and determine the potential impact on the existing flooding condition (or existing storm system capacity) caused by the potential lowering of Centennial Parkway. Based on these results, staff will develop various mitigation alternatives to address the flooding; eventually leading to the advancement of a preferred alternative that best meets the requirements of all the stakeholders.

Through this Centennial Parkway Canadian National Railway Underpass Drainage Class Environmental Assessment, the City assessed the hydraulic conditions and capacity of the storm sewer system along Centennial Parkway with the specific objective of determining the factors influencing the flooding observed at the Canadian National Railway (CNR) Underpass. Staff reports suggest that the underpass currently floods approximately four (4) to five (5) times per year, during heavy rainfall events.

The Centennial Parkway Storm Sewer System is comprised of two (2) existing parallel storm systems: a trunk system and a local system. The trunk storm system originates at Barton Street, passes northerly through the underpass, and passes under the Queen Elizabeth Way before outletting to the Confederation Park Marsh (limit of the study area), which is part of the Van Wagners Marsh system. The local storm sewer system originates at the CNR underpass and outlets into the trunk system in the box culvert under the Queen Elizabeth Way.
Public Works Business Plan- Innovate Now

The recommendations of this report will assist in meeting Public Works’ “key goal” to be recognized as the centre of environmental and innovative excellence in Canada. The recommendations are an integral part of flood mitigation and environmental enhancement to assist Public Works in building on our Strategic Vision Drivers as follows:

- **Communities (Services our Communities connect with and trust):** Implementing the recommendations of the report will improve our local environmental living conditions by reducing the flooding/drainage issues in the study area. The transparent and consultative nature of the Class Environmental Assessment process builds trust within the community and review agencies, demonstrating Hamilton’s and Public Works’ Commitment to Service Excellence.

- **People (Skilled teams ready for any situation):** The Class Environmental Assessment study demonstrates the ability of City staff to develop innovative and cost effective strategies for our stormwater management system. Through a consultation process at Public Information Centres and other public meetings, stakeholders were invited to provide their input and contribute throughout the process of decision making.

- **Process (Smart processes to match our needs):** Throughout the process, plans have been formulated to ensure that all aspects of the City’s “Triple Bottom Line” approach to problem solving were considered. Social, environmental, and economic impacts were all assessed to provide a balanced approach to the recommended preferred strategies. The scoring and evaluation as part of the environmental assessment process was employed in order to effectively arrive at the optimal solution that meets Hamilton’s specific goals and objectives. The result is a sustainable approach that addresses all aspects of the “Triple Bottom Line”.

- **Finances (Sound financial management for the long haul):** The proposed budget for the project has been coordinated with Public Works’ Asset Management section, through the 2013 Capital Budget approval process. The economic impact to the City was a significant factor in the decision-making process.

### POLICY IMPLICATIONS

N/A

### RELEVANT CONSULTATION

The Class Environmental Assessment process required public consultation for each project/study. Consultation plans were developed and followed.

Public and Agency consultation was completed in the form of a Notice of Commencement issued on April 8th and 14th, 2011. A Notice for Review and Comments were issued on November 11th and 18th, 2011 for the Environmental Assessment Report.
Staff met and discussed the recommendations and the preferred option with the Ward Councillor and the City’s Design, Asset Management, and Transportation Planning Services sections. No objections were received.

Consultations with the Ministry of the Environment took place on April 3rd, 2012, and included discussions on the Environmental Assessment process, Environmental Assessment requirements and responses to public comments.

A series of technical and process related comments were received from a resident. Extensive and detailed communication exchanges proceeded for several months, eventually reaching resolution following a meeting between the resident, City staff and the Ward Councillor.

### ANALYSIS / RATIONALE FOR RECOMMENDATION

The Environmental Assessment study has followed the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment, October 2000 (as amended in 2007) process. Each Municipal Class Environmental Assessment undertaking, depending on the scope of work and the environmental impact, is classified using Schedules. The appropriate Schedule depends on the scope of the recommended works. This Environmental Assessment has been conducted as a “Schedule B” undertaking, as all preliminary alternatives have been considered as “Schedule B” or lower (i.e., Schedule A or A+) in the MEA document. As such, Phases 1 and 2 of the Class Environmental Assessment process have been conducted as follows:

- Phase 1 – identification of the problem or opportunity
- Phase 2 – identification of alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establish the preferred solution, taking into account public and review agency input

The following key principles were considered as part of the Class Environmental Assessment process:

- Establish a Problem and Opportunity Statement
- Consultation with affected parties early and throughout the process, such that the planning process is a cooperative venture
- Consideration of reasonable range of alternatives, both the functionally different “alternatives to” and the “alternative methods” of implementing the solution
- Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects
- Provision of clear and complete documentation of the planning process followed, to allow “traceability” of decision-making with respect to the project

For this study, baseline inventories were carried out, including: Site Investigation, Video Sewer and Manhole Inspection, Topographic Survey, Hydrological and Hydraulic Modelling: Design Storm Selection, Alternatives Evaluation and selection the preferred alternative.

The evaluation categories and associated factors that were used to select the preferred option are:
The Environmental Assessment report determined that the existing storm sewer system has a capacity of less than a one (1) year return period storm event, due to shallow gradient from the underpass to the outlet at the Confederation Park Wetland. A number of options have been investigated to improve the drainage conditions and mitigate flooding problems and selected the preferred option.

The Preferred Option

Based on the results of the Environmental Assessment, the evaluation factors and criteria related to functional, environmental, social and economic categories, a Traditional Pumping Station designed for the twenty-five (25) year storm event has been advanced as the preferred alternative. The twenty-five (25) year design implies that the road surface wouldn’t flood for all storm events up to and including the twenty-five (25) year return period event, as shown in Appendix B. This design has been selected over the one hundred (100) year design, as it offers a lower cost alternative for a marginal reduction in flooding performance while still providing access for emergency vehicles.

Associated with the preferred alternative, the following elements have been recommended by the Environmental Assessment report for consideration at the detailed design stage:

- Define the detailed hydrology and hydraulics for the major-minor split to determine the external flows entering the future Transit (GO) lands
- Coordination with GO to determine if the proposed pump station will accommodate its needs and the potential for cost sharing opportunities
- Explore the potential for a gravity sewer component to drain the pump station wet well and reduce the pump operations
- Explore opportunities to improve water quality
- The final location of the pump house structure should be determined at the detailed design stage, considering impacts and opportunities associated with the adjacent land owners, as well as other design considerations such as access and capital cost

The detailed design and construction of the preferred alternative of the drainage Environmental Assessment is proposed to proceed in 2013, subject to budget approval and capital program coordination with the Centennial Railway Underpass project.
ALTERNATIVES FOR CONSIDERATION

Alternative 1: Reject the Class EA Study
Should Council choose not to endorse the recommendations set forth in this report, the subsequent alternative to be considered further is:

- Not to file the Class Environmental Assessment project report for a minimum thirty (30) day public review; consequentially, the flood management project shall not proceed further for the implementation.

This alternative is not recommended, as it will result in delays in implementing the remedial measures outlined in this staff report. All coordinated construction works with GO Transit and CN Rail will also be delayed.

CORPORATE STRATEGIC PLAN


Skilled, Innovative & Respectful Organization
- A skilled, adaptive and diverse workforce, i.e., more flexible staff

Financial Sustainability
- Delivery of municipal services and management capital assets/liabilities in a sustainable, innovative and cost effective manner

Growing Our Economy
- Competitive business environment
- Reducing underpass flooding, reduce costs of damages, timely risk management cost savings to the City Of Hamilton
- A skilled and creative labour pool that supports new employers

Social Development
- Everyone has a home they can afford that is well maintained and safe
- Reduction of flooding problem and damage to the properties
- People participate in all aspects of community life without barriers or stigma

Environmental Stewardship
- Natural resources are protected and enhanced
- Reduced impact of City activities on the environment

Healthy Community
- Plan and manage the built environment
- Engaged stakeholders through consultation with the community on infrastructure decision making

Vision: To be the best place in Canada to raise a child, promote innovation, engage citizens and provide diverse economic opportunities.

Values: Honesty, Accountability, Innovation, Leadership, Respect, Excellence, Teamwork
APPENDICES / SCHEDULES

Appendix “A”  Study Area Map
Appendix “B”  Sketch of Preferred Concept
Centennial Parkway CNR Underpass Drainage
Class Environmental Assessment Study Area