CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	September 15, 2014
SUBJECT/REPORT NO:	Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment - (PW14107) - (Ward 12)
WARD(S) AFFECTED:	Ward 12
PREPARED BY:	Dan McKinnon Director of Hamilton Water (905) 546-2424, Extension 5941 Sharon MacPherson-Németh Project Manager, Infrastructure Planning & Systems Design (905) 546-2424, Extension 2087 Chris Gainham Senior Project Manager, Infrastructure Planning & Systems Design (905) 546-2424, Extension 3421
SUBMITTED BY: **SIGNATURE:**	Gerry Davis, CMA General Manager Public Works Department

RECOMMENDATION

(a) That the General Manager, Public Works, be authorized and directed to file the Notice of Completion and issue the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment for the mandatory 30-day review period;

(b) That upon completion of the 30-day agency and public review period, the General Manager, Public Works, be authorized and directed to proceed with the implementation of the preferred alternatives within the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment;

(c) That the General Manager, Public Works, be authorized and directed to proceed with the Emergency Overflow Schedule “C” Municipal Class Environmental Assessment study;

(d) That the Class “D” estimated costs to implement the preferred alternatives and complete the Emergency Overflow Schedule “C” Class Environmental

Assessment study ($1,650,000 and $200,000 respectively) be funded as part of the 2015 Capital Budget including an allowance of an additional $600,000 subject to refinement as part of the Schedule "C" undertaking. A budget sheet has been created for Council approval as part of the 2015 Rate Budget review.

EXECUTIVE SUMMARY

The Hamilton Water Division invoked the Class Environmental Assessment (EA) process for the Old Dundas Road Sewage Pumping Station (HC005) in order to determine the preferred alternative to alleviate basement flooding to homes in the lower reaches of the pumping station catchment area as well as sewage discharging at street level at the sanitary manhole at the intersection of Old Dundas Road and Montgomery Drive during significant precipitation events. The study was carried out as a Master Plan in order to identify and evaluate a range of alternative solutions and recommend a preferred strategy. The study area is bounded by Mohawk Road to the south, Wilson Street East to the west and north, and Filman Road to the east. The area is defined by the homes where sanitary sewage is conveyed to the Old Dundas Road Sewage Pumping Station (HC005). Please refer to Appendix "A" for a map of the study area.

The wet weather relief alternatives considered, varied from Private and Public Property upgrade works (within the RoW - Right of Way) to building new infrastructure for flood mitigation. The preferred alternative for this station and that area that drains to it, considering the Triple Bottom Line criteria, consists of a number of activities as follows:

- Private Property Works (funded and implemented by the owner at their discretion)
- Public Property Works (within the right of way)
- Inline/Offline Storage
- Provide an Emergency Overflow (failsafe**, not normal operations**)

Collectively, implementation of upgrades to both Private and Public Properties, in addition to Inline/Offline Storage along Old Dundas Road, will provide a 100 year level of flood protection against basement flooding for the study area. In the unlikely event of multiple concurrent failures of existing and proposed infrastructure, the implementation of an Emergency Overflow will provide a failsafe to ensure flooding relief to homeowners in the lower reaches of the catchment. Implementation of the Emergency Overflow will require completion of a Schedule "C" Environmental Study Report to evaluate the impacts of any minimally treated sewage discharges to Ancaster Creek as a result of overflows. The cost of an Emergency Overflow will be refined as part of the Schedule "C" project. The current estimated cost of this option is $600,000 and will require a new easement.

This study was completed using the Municipal Class Environmental Assessment (EA) process to address Master Plan projects to concentrate on infrastructure improvements to mitigate the flooding issues. The Project File Report is complete and ready to be filed on the public record for the minimum 30-day review period. Upon Council approval of the Master Plan and Class EA, and subject to comments received during the review,

staff will proceed with the detailed design and implementation of the preferred alternatives. Funding for the implementation and Schedule “C” work, will be submitted as part of the 2015 Capital Budget.

The recommendations contained in this report support the Mission Statement of the Public Works Business Plan "Innovate Now" - "Provide safe, strategic and environmentally conscious services that bring our communities to life".

Alternatives for Consideration - See Page 9

FINANCIAL - STAFFING - LEGAL IMPLICATIONS

Financial: The funding for proposed works has been tentatively scheduled within the 2015 Capital Budget. Proposed construction is planned for 2016 pending budget approval. Subject to completion of the Schedule “C” work, the construction of the Emergency Overflow will follow.

Staffing: The implementation of the preferred alternatives will be carried out with existing staff and as such there are no staffing implications. Should Council approve a CIP to reduce infiltration/inflow on private property, staffing implications will be quantified in a separate report.

Legal: There are no known legal implications associated with this recommendation. Works on private property are at the control and discretion of the owner.

However, Ministry of Environment (MOE) approval of municipal undertakings such as road improvements and water and wastewater projects are subject to Ontario’s Environmental Assessment Act. The Act allows for the approval of Class Environmental Assessments (Class EA) and the municipality has the option of following the planning process set out in the Municipal Engineers Association Class Environmental Assessment (amended 2007 & 2011) document. The Municipal Class EA Section A.2.7 allows the Master Plan approach to be used for a group of related works or undertakings, such as the flooding relief wastewater projects addressed with the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment. The City is required to file the report on the public record for a minimum 30-day review period for the EA to have been satisfied.

HISTORICAL BACKGROUND

The Old Dundas Road Sewage Pumping Station (HC005) was designed and constructed in the 1970’s and services an area of approximately 180 hectares.

An Environmental Impact Statement study was completed in 1994 on the Old Dundas Road Sewage Pumping Station (HC005). The 1994 study investigated the option of providing an Emergency Overflow in order to reduce the risk of flooding of adjacent homes in the area during substantial rainfall or snowmelt events. The study was never formally approved by Council of-the-day due to lack of agency support (Ministry of Environment, Ministry of Natural Resources, Niagara Escarpment Commission and Hamilton Conservation Authority) as it was the only alternative considered. In 1997 the

City decided to no longer pursue this option and therefore authorized the release and abandonment of an overflow pipe easement which had been acquired and registered in 1992.

Over the years, the City has undertaken routine maintenance on both the sanitary sewer system and the Old Dundas Road Sewage Pumping Station (HC005). More recently, flooding of basements has occurred in 2005, 2006, and 2013. These ongoing flooding events can be attributed to rainfall/snowmelt induced overloading of the sanitary sewer system and/or the Old Dundas Road Sewage Pumping Station. This problem forms the basis of this EA study.

Prior to commencing the EA, field investigations including sanitary manhole inspections, smoke testing, flow monitoring, and computer modelling and analysis were completed in 2013. These investigations were undertaken to determine the causes and extent of flooding in the study area. These investigations revealed that stormwater and groundwater are infiltrating significantly into the sanitary sewer system. As a result of excess infiltration/inflow, the sanitary sewer system and the Old Dundas Road Sewage Pumping Station (HC005) are unable to convey flows during significant precipitation events. As a result, basements in the area have flooded several times in recent years. Backwater valves installed by home-owners utilizing the 3P program have proven effective as an acute mitigation measure. To-date 7 backwater valves have been installed by home owners in the study area. Also, storm manhole covers on sanitary manholes were immediately replaced (two in total).

A Project Team, including Public Works staff and consulting engineers, was developed to undertake the Master Plan and Class EA study. Other key staff and sub-consultants including Environmental Scientists, Heritage Planners and Archaeologists were engaged, as required, to provide support for various components of the study.

The study, which was initiated as a Schedule 'B' project, was revised to follow the Master Plan process since the preferred solution consists of a suite of alternatives ranging from Schedule "A" to Schedule "C" projects. Following a Master Plan process also provides a logical approach to providing a strategic level of options to better address the overall system needs. The Master Plan and Class EA for this project included public and Review Agency consultation, evaluation of alternatives, assessment of the impacts of the proposed works, and identification of measures to mitigate any adverse impacts. Upon completion of the study, a Project File Report documenting the planning and decision making process, and preferred upgrading alternatives was prepared which is now ready for public review.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

These recommendations are consistent with the Urban Official Plan.

Other policies affecting or impacting this Report include:

- Ontario Environmental Assessment Act
- Ontario Environmental Protection Act

RELEVANT CONSULTATION

The Ward Councillor has been notified and is in agreement with the recommendations of this report. He requires that 100% vehicular access to the Ancaster Old Mill restaurant be maintained at all times during construction.

Public and Review Agency consultation is an integral and legislated component of any Municipal Class Environmental Assessment study. Stakeholders are initially notified of the study with a formal Notice of Commencement advertised in the local newspaper. Review Agencies are notified directly by mail or e-mail.

Project Stakeholder and Review Agency lists are developed at the onset of the study and maintained throughout, thus ensuring all interested parties are kept informed. All Stakeholders are invited and encouraged to comment on the project at any time during the study.

Categorically, the Agency and Stakeholder Contact Lists include the following groups:

- Provincial Ministries and Agencies
- Federal Agencies
- First Nations
- Property owners adjacent to the existing wastewater pumping station and within the catchment and/or study area
- Others (e.g. Municipal, Utilities, School Boards, etc.)

Two Public Information Centres were held at the Ancaster Old Town Hall and the Ancaster Public Library on April 28, 2014 and June 23, 2014 respectively. Feedback from attendees focused on personal experiences with basement flooding in addition to the concern for potential impact of proposed alternatives on the health of Ancaster Creek, the Escarpment and the Bruce Trail. Feedback from review agencies to-date are summarized as follows:

- Ministry of Environment (MOE) - For the emergency overflow pipe option, they require completion of a Schedule ‘C’ Municipal Class Environmental Assessment (EA). This Schedule ‘C’ EA will require supporting documentation including an evaluation of the impact to Ancaster Creek of any discharges of minimally treated sewage. The EA report should also include a complete discussion of all the permits, approvals and licenses that will be necessary and should demonstrate that all agencies having jurisdiction have been consulted and can support a discharge to the coldwater stream. Since the MOE has an approval role, it is recommended that the City submit an impact assessment of impacts to Ancaster Creek prior to completion of the EA report.
- Hamilton Conservation Authority (HCA) - Their interests relate to the presence of natural heritage features and HCA regulated areas within the study area, including tributaries of Ancaster Creek and Tiffany Creek. HCA also owns land within and adjacent to the study area. HCA staff suggest that alternatives 3 and 4 would be most preferred from a natural environment perspective and feel further analysis in support of these two alternatives should be completed. HCA

staff note portions of the study area, including the tributaries of Ancaster Creek, are regulated pursuant to *Ontario Regulation 161/06 (HCA's Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses)* made under the *Conservation Authorities Act, R.S.O 1990*. Some of the work associated with the implementation of alternatives 3 and 4 may therefore require a permit from HCA. With regard to alternative 6, emergency overflow, HCA staff note there would be potential environmental concerns with such a proposal and a permit from HCA would likely be required for any emergency overflow to the creek.

- Niagara Escarpment Commission (NEC) - They cannot see how allowing sewage overflow into a creek would be consistent with their objective *to maintain and enhance the quality and character of natural streams and water supplies*.

The recommendations of this staff report are in itself the final stage of consultation which is an inherent part of the Class EA process. The project team will receive and attempt to mitigate any Stakeholder concerns or Request for a Part II Order that is initiated within the mandatory 30-day review period.

ANALYSIS AND RATIONAL FOR RECOMMENDATION

By applying the Municipal Class EA process the project followed the legislated multi-phased analysis rationale. In brief, the phases may be summarized as follows (**as a minimum Master Plans address Phases 1 and 2**):

- Phase 1 - Identify the problem (deficiency) or opportunity.
- Phase 2 - Identify 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. At this point, determine the appropriate Schedule for the undertaking and document decisions in a Project File for Schedule B projects, or proceed through the following Phases for Schedule C projects.
- Phase 3 - Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
- Phase 4 - Document, in an Environmental Study Report a summary of the rationale, and the planning, design, and consultation process of the project as established through the above Phases, and make such documentation available for scrutiny by review agencies and the public.
- Phase 5 - Complete contract drawings and documents, and proceed to construction and operation; monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the completed facilities.

Shown again in tabular format below are the main elements of the Class EA planning process are incorporated in the following five phases:

	PHASE 1		**PHASE 2**		**PHASE 3**		**PHASE 4**		**PHASE 5**
	Problem or Opportunity	→	Alternative Solutions	→	Alternative Design Concepts for Preferred Solution	→	Environmental Study Report	→	Implementation
Consultation Requirements	Optional		Mandatory		Mandatory		Mandatory		Optional

The planning and conceptual design process was undertaken in such a way as to allow a reviewer to trace each step of the process. In particular, the documentation explained the reasons for the criteria used to identity and assess the alternatives, the proponent's weighing of these criteria, and the decision-making process followed.

To ensure that the planning and conceptual design process is easily traceable, the study ensured that:

- the analysis is understandable to the reasonable lay observer;
- all conclusions drawn from the analysis follow logically from the information gathered and presented; and
- a reasonable lay observer is able to replicate the conclusions based on the information presented.

Specifically, the narrative of this study is summarized as follows with detailed documentation in the Project File Report under separate cover.

The Class EA Problem/Opportunity Statement was established at the onset of the study as follows:

Basement flooding and discharge of sewage to street level occurs within the Old Dundas Road Sewage Pumping Station (HC005) catchment area during some wet weather events. The purpose of this study is to identify the causes of basement flooding and propose remedial measures to mitigate future basement flooding.

The objectives of this Class EA project will be to review and compare alternative solutions for the pumping station (and the area that drains to it), in order to address the above-noted concerns and to identify the preferred solution.

All reasonable alternatives that meet the requirements of the Problem/Opportunity Statement were identified. The following is a list of the six alternatives considered in the study:

Alternatives		Description
1.	Do Nothing	• Status Quo
2.	Private Property Works	• Disconnecting Downspouts • Disconnecting Driveway Catchbasins • Grading Improvements to Direct Runoff
3.	Public Property Works	• Sealing Manhole Covers and Chambers • Replacing Sewer Pipes • Rehabilitating Sewers to Reduce Infiltration
4.	Inline/Offline Storage	• Provide Inline or Offline Storage with the Sewer System
5.	Increase Capacity of Old Dundas Road Sewage Pumping Station	• Increase Wet Well Capacity • Increase Pump Capacity • Increase the Capacity of the Forcemain
6.	Provide an Emergency Overflow	• Pipe to Direct Flows Away from the Pumping Station

Evaluation Criteria reflect the Triple Bottom Line evaluation methodology. The evaluation criteria established by the Project Team are summarized below. A detailed breakdown of each category is included in the Project File:

- Natural Environment
- Economic Considerations
- Social and Cultural Environment
- Technical and Operational Considerations

The evaluation process focused on identifying three levels of comparison between the evaluation criteria for each of the alternatives. The three levels are:

- Most Preferred
- Moderately Preferred
- Least Preferred

For the alternatives where the evaluation criterion is the best, “most preferred” will be assigned. If the alternative has a disadvantage for that evaluation criterion, then it will be assigned “least preferred”. The “moderately preferred” level is assigned when there is no real preference between the alternatives. The intent of this method of evaluation is to identify, for each evaluation criterion, which alternative or alternatives have an advantage or are preferred. Once this evaluation process is completed for all criteria, it can then be determined which alternative(s) has the overall preference.

Each alternative was screened against the evaluation criteria. The “most preferred” alternative was deemed to be the preferred alternative. The preferred wet weather relief suite of alternatives for the station includes upgrades to Private and Public Property Works as well as building of new infrastructure to mitigate flooding.

Mitigation measures for any negative environmental impact of the preferred alternative have been identified and become conditions of the Implementation Phase of the Class EA. Detailed mitigation measures are included in the Project File Report under separate cover.

Public and Stakeholder consultation is an integral part of the Class EA process. See the Relevant Consultation section of this report and the Project File for more details.

The final step in the analysis rationale before proceeding to implementation of the preferred alternative is to undertake the mandatory 30-day review. A Notice of Completion of the Class EA as recommended herein will be issued in the fall of 2014. Notices will be issued via newspaper advertising and direct mail out to all members of the Stakeholder and Agency Contact lists. The Project File will be placed on public record along with contact information to receive concerns. All attempts will be made to mitigate all expressed concerns. Should resolution of a concern be unattainable the conflict may be escalated by the opponent to the Minister of the Environment for a decision.

The above analysis rationale is a prescribed process under that Municipal Class Environmental Assessment (MCEA). The project was completed and considered to be in full compliance with the MCEA process.

ALTERNATIVES FOR CONSIDERATION

The recommended alternative solutions have been identified using an evaluation and screening process that fulfils the requirements under the Municipal Engineers Association (MEA) Municipal Class EA document for Master Plan projects. Several projects are pre-approved (Schedule “A” and “A+”) under the MEA process with the Emergency Overflow alternative requiring further studies.

Preferred Alternatives	Municipal Class EA Schedule
Private Property Works*	Not Applicable
Public Property Works	Schedule A
Inline/Offline Storage	Schedule A+
Provide an Emergency Overflow	Schedule C

**Funded and implemented by the Owner.*

The MEA Municipal Class EA document was approved under the Environmental Assessment Act. If the City does not follow the process outlined in the Municipal Class EA document, the City would be in violation of the document and as a result would not satisfy the EA Act. The Minister of the Environment could revisit the approval of a project, or take away the City’s right to use the Municipal Class EA document in the future.

Should Council not wish to approve the filing of the Old Dundas Road Sewage Pumping Station (HC005) Wet Weather Relief Master Plan and Class Environmental Assessment study, the Municipal Class EA process would be considered incomplete by the provincial government. The City will be able to implement all Schedule “A” and “A+”

projects, but will not have approval under provincial environmental legislation to have the option to pursue the Emergency Overflow solution as a Schedule "C" project.

ALIGNMENT TO THE 2012 - 2015 STRATEGIC PLAN

Strategic Priority #1

A Prosperous & Healthy Community

WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.

Strategic Objective

1.2 Continue to prioritize capital infrastructure projects to support managed growth and optimize community benefit.

1.5 Support the development and implementation of neighbourhood and City wide strategies that will improve the health and well-being of residents.

Strategic Priority #2

Valued & Sustainable Services

WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.

Strategic Priority #3

Leadership & Governance

WE work together to ensure we are a government that is respectful towards each other and that the community has confidence and trust in.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" - Study Area Map