



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	November 18, 2019
SUBJECT/REPORT NO:	Municipal Class Environmental Assessment and Conceptual Design of Ancaster Elevated Water Reservoir (PW17022(b)) (Ward 12)
WARD(S) AFFECTED:	Ward 12
PREPARED BY:	Winston Wang (905) 546-2424 Ext. 4092 Bert Posedowski (905) 546-2424 Ext. 3199
SUBMITTED BY: SIGNATURE:	Mark Bainbridge Director, Water and Wastewater Planning and Capital Public Works Department

RECOMMENDATION(S)

That the General Manager, Public Works Department be authorized and directed to file the Notice of Completion and issue the Addendum to Project File Report for the Municipal Class Environmental Assessment and Conceptual Design of Ancaster Elevated Water Reservoir for the mandatory 30-day public review period.

EXECUTIVE SUMMARY

The City of Hamilton (City) retained WSP Engineering Group Limited to complete a Schedule B Class Environmental Assessment (Class EA) for construction of the Pressure District 18 Elevated Water Reservoir based on recommendations of the City of Hamilton, Water and Wastewater Master Plan (WWMP) Class EA Report (KMK Consultants, 2006). The Elevated Water Reservoir is required to provide water supply for future growth in Pressure District 18 (PD18) primarily in Ancaster. The new Elevated Water Reservoir planned at the preferred location of 385 Jerseyville Road West (Robert E. Wade Park) is projected to be in service by 2023.

Public, Agencies, First Nations, and stakeholder consultation was completed in accordance with the requirements of the Municipal Environmental Association Class EA document and City protocol through Public Information Centres, mail-outs, and a project website. As well the Ward 12 Councillor was consulted.

The recommendation of this staff report will permit the completion of the mandatory 30-day public review period. Following the 30-day review period, provided that no Part II Orders (complete a higher level of environmental assessment) from the Minister of the Environment, Conservation and Parks (MECP) are received, the detailed design and implementation of the preferred infrastructure will proceed.

Alternatives for Consideration – See Page 10

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Financial considerations will be subject to a future Council request that will include a recommendation that an additional \$5.73M be incorporated into the 2020 Rate Budget to reflect the evolution of the project over time. This will update the total budget requirement in Project ID No. 5141395354 from \$8.77M to \$14.5M.

Staffing: Once the elevated reservoir is commissioned, 0.3 FTE will be required to operate and maintain this new infrastructure. This FTE will be recommended in the Operating Budget in the year it is required.

Legal: Depending on which parcel is acquired, a zoning variance application will be required to facilitate the implementation of the elevated reservoir.

HISTORICAL BACKGROUND

The water distribution system in Ancaster is divided into three (3) Pressure Districts (PD's). PD18 supplies water to the majority of customers in Ancaster and also services a small section of western Dundas. The need for an elevated water reservoir was documented in the City of Hamilton's Water and Wastewater Master Plan Class EA Report dated November 2006.

According to the current MECP Design Guidelines for Drinking Water Systems (2008), the existing water pumping station does not fully comply with capacity guidelines.

Historically, low-pressure issues have been reported in the high elevation areas of Ancaster. To address these issues as an interim non-standard measure, the City has modified the operations of PD18 Pumping Station to maintain a pressure higher than the

original design, which has resulted in increased water recirculation within the station, low pump efficiency, increased equipment wear and tear, and increased maintenance and energy costs. Therefore, a water servicing strategy assessment has been conducted to support the Class EA (see Technical Memorandum #2 of the Project File Report under a separate cover) to confirm that an elevated water reservoir can cost effectively resolve those issues for water servicing in the Ancaster community.

A project team, including Public Works Department staff and consulting engineers, conducted this 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 Class EA was completed as a Schedule B of the Municipal Class Environmental Assessment process. The Class EA for this project included Public and Review Agency consultation, evaluation of alternatives, assessment of 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 relocation alternative was prepared. This file is ready for public review. Pending approval of the recommendation of this staff report, a separate advertisement will be issued to advise the public and stakeholders of the Notice of Completion of the Class EA.

A total of fifteen (15) alternative sites (Appendix “A” to report PW17022(b): Study Area & Alternative Sites) have been evaluated according to their natural environment, social and cultural environment, economic, and technical impacts/merits. A comparative assessment of the alternative sites was conducted to determine which solution had the least overall impacts. Site #1 is the preferred site as it results in the least overall impact to natural and technical environments and low to moderate impact on the social and cultural environment.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

This recommendation is consistent with the Urban Official Plan. Other policies affecting or impacting this Report include:

- *Ontario Environmental Assessment Act*
- *Ontario Environmental Protection Act*
- *Safe Drinking Water Act, 2002*

RELEVANT CONSULTATION

The Ward Councillor has been advised about the completion of the study and the recommendation of the report. Public and Review Agency (Appendix “B” – Agency

Mailing List to report PW17022(b) consultation is an integral and legislated component of any Municipal Class EA 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 email.

Project Stakeholder and Review Agencies 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.

The Agency and Stakeholder Contact Lists include the following groups:

- Federal Agencies
- Provincial Ministries and Agencies
- Aboriginals
- Property owners/businesses adjacent to the preferred sites area
- Others (e.g. utilities, school boards, etc.)

Three (3) Public Information Centres (PIC's) were held in the Ancaster community. The first PIC was held at Ancaster Municipal Building & Library on September 25, 2012 at 300 Wilson Street East; and the second and third PIC's were held on October 5, 2016 and April 30, 2019 at the Ancaster Old Town Hall at 310 Wilson Street East. Feedback from attendees was constructive, focusing on issues such as water reservoir colour, visual impact, property value decreases due to water reservoir construction, project goals, timelines and location of the elevated reservoir.

Key feedback from review agencies to date is summarized as follows:

- Ministry of the Environment, Conservation and Parks (MECP) – For the construction of a new elevated water reservoir, MECP acknowledges that a Schedule B Municipal Class EA process is undertaken under the Municipal Engineers Association Class EA Document in order to identify, evaluate and determine the preferred alternative for addressing water servicing issues in Ancaster. MECP noted that this project is subject to the *Safe Drinking Water Act*, s. 31 (need for approval, permit and licence), which does fit part of the definition of a Drinking Water System (DWS), which includes anything used in the collection, production, treatment, storage, supply or distribution of water (excluding plumbing). Therefore, the MECP requires that a Schedule C Application to the DWS's Drinking Water Works Permit be required. In addition, the MECP also requires that the Project File be prepared in such a way as to clearly demonstrate that appropriate steps in Phases 1 and 2 have been followed and suitable for easy

review by the public at any time. Also, the MECP requires adequate consultation with affected Aboriginal communities in the project area.

- The Schedule C Application will be submitted in the Detailed Design Phase of the implementation. The Notice of Completion and the complete Project File Report are to be forwarded to the MECP Office for review, filing and potential comments. Consultation with Aboriginal communities has also taken place and has been documented in the Project File for this Class EA.
- Hamilton International Airport Ltd (HIAL) – Due to the height of the proposed elevated water reservoir, HIAL has been consulted and they reviewed the sites to determine the potential impact on airport zoning regulations. HIAL has recommended that the proposal be submitted to Transport Canada and NAV Canada for review to ensure the structure(s) meet lighting requirements, and flight procedures are not impacted. HIAL also expressed interest in continued involvement in the project process until the project implementation phase.
 - The preferred site is supported by both NAV Canada and HIAL. Transport Canada has also been consulted and they have no concerns on this project.
- Ministry of Tourism, Culture and Sport (MTCS) – Their concerns focused on three (3) areas: archaeological resources including land-based and marine, built heritage resources, and cultural heritage landscapes. In terms of the environmental assessment reporting, they require that all technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. If the screening has identified no known or potential cultural heritage resources, or no impacts to these resources, the EA report or file is required to include the completed checklists and supporting documentation.
 - Technical heritage studies and their recommendations have been incorporated into the Project File Report for this Class EA.
- Niagara Escarpment Commission (NEC) – Part of the subject lands are in the Escarpment Natural Area where water infrastructure is permitted. NEC is interested in specific information about environmental impact; for example, Visual Impact Assessment, Shadow Analysis, to determine any effect in the Niagara Escarpment Plan area.
 - Visual impact assessment and Shadow analysis have been submitted to NEC. The preferred site/area is within the NEC Development Control area. A development permit needs to be secured at 90% detailed design and before construction.

- Hamilton Conservation Authority (HCA) – For this project HCA was consulted and they do not have any concerns for the preferred site.
 - The preferred site is located close to the boundary of HCA, but it is not within the HCA regulated area.
- Grand River Conservation Authority (GRCA) – For this project GRCA is mainly concerned with wetlands and flood plains, water courses and valley lands within the study area.
 - The preferred site is not within GRCA jurisdiction.

The recommendation of this staff report is part of the final stage of consultation which is an inherent part of the Class EA process. If necessary, the project team will receive and attempt to mitigate all stakeholder concerns or requests for a Part II Order that is initiated within the mandatory 30-day review period.

ANALYSIS AND RATIONALE FOR RECOMMENDATION(S)

By applying the Municipal Class EA process, the project followed the legislated multi-phased analysis rationale. Specifically, the narrative of this study is summarized in the text below. Detailed documentation is in the Project File Report under separate cover.

The Class EA Problem/Opportunity Statement was identified as follows:

- A solution is required to mitigate low pressure issues in Ancaster; to improve the operability and efficiency of the pumping station, to provide redundancy and security of supply, to meet MECP guidelines and City design standards, while reducing energy consumption and GHG emissions in accordance with the City's Corporate Energy Policy.

The objectives of the Schedule B, Class EA project will be to review and compare alternative solutions to address the Problem/Opportunity Statement (and relevant construction impact), 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 alternatives considered in water servicing strategy assessment:

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Alternatives for Water Servicing	Description
Alternative 0 - Do Nothing Approach	• Maintain the current mode of operation at Garner Road HD018 Pumping Station • Future upgrades include only a replacement of the existing pumps with similar capacity pumps • Results in extremely high operations and energy costs • Firm capacity deficiency
Alternative 1 – Increase the Capacity of HD018 Pumping Station	• Replace the existing pumps with larger capacity pumps (in a new station on the same site as HD018) to achieve a firm capacity • Modify the existing ground reservoir HDR018 • High operations and energy costs • Not resolve potential water supply risks
Alternative 2 – Construct a new Elevated Storage Reservoir	• Construct an elevated storage reservoir to provide floating storage • Provide security of water supply and alleviate low pressure issues in higher elevation areas • Provide reliable water supply and reduce pumping cost and GHG emissions • Lowest overall cost due to reduced energy cost in the long run
Alternative 3 – Construct a New Booster Pumping Station and Increase the Capacity of HD018 Pumping Station	• Construct a new booster pumping station to service the higher elevation areas to create a new pressure district PD-26 • Replace the existing pumps with larger capacity pumps (in a new station on the same site as HD018) to achieve a firm capacity • Increased energy costs and requires standby power to maintain supply during power outages • High lifecycle costs
Alternative 4 – Construct A New Booster Pumping Station and In-ground Reservoir, and Increase the Capacity of HD018 Pumping Station	• Construct a new booster pumping station to service higher elevation areas to create a new pressure district PD-26 • Construct an in-ground reservoir to provide pumped storage for the new pressure PD-26

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Alternatives for Water Servicing	Description
	• Replace the existing pumps with larger capacity pumps (in a new station on the same site as HD018) to achieve a firm capacity • Dependent on HD018 Pumping Station to maintain supply • Increased energy costs and requires standby power to maintain supply during power outages • Highest lifecycle costs

Refer to Appendix C to Report PW17022(b) Brief History of Ancaster Water Service and Summary of Financial Analysis by WSP for comparison.

The following is the list of the potential sites for the elevated water reservoir and the preferred sites:

Alternative Sites for Elevated Water Reservoir	Description
Site #1 – North-East corner of Martin Road and Jerseyville Road West in the Robert E Wade Ancaster Community Park	• Located within the Niagara Escarpment and near a built heritage area • Contains archaeological potential • High aesthetic impact on the Niagara Escarpment and high impact during construction • Reduced tank height • City owned • The most preferred location
Site #2 – West of Fiddler's Green Road and Garner Road West in James Smith Park	• No longer considered due to objection from NAV Canada and Hamilton International Airport Ltd
Site #3, #4, #7 - #12 - South-West corner of Fiddler's Green Road and Garner Road West	• No longer considered due to objection from NAV Canada and Hamilton International Airport Ltd
Site #5 – North-West of Southcote Road and Garner Road East	• No longer considered due to objection from NAV Canada and Hamilton International Airport Ltd
Site #6 – North-East of Raymond Road and Rymal Road West	• No longer considered due to objection of NAV Canada and Hamilton International Airport Ltd

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Alternative Sites for Elevated Water Reservoir	Description
Site #13 – South of Garner Road West, in between Panabaker Drive and Hamilton Drive	• No longer considered due to objection from NAV Canada and Hamilton International Airport Ltd
Site #14 – North of the Jerseyville Road West and Shaver Road. Intersection	• No longer considered due to objection from NAV Canada and Hamilton International Airport Ltd
Site #15 – South of Jerseyville Road West, between Paddy Green Road and Shaver Road	• Part of the site is located within the Grand River Conservation Authority • Greater tank height due to lower ground elevation • Previously a landfill site • City owned • The least preferred location

Evaluation Criteria reflect the Multiple Bottom Line evaluation methodology. The evaluation criteria established by the project team are summarized below and a detailed breakdown of each category is included in the Project File Report:

- 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 relative to each other. The three levels and criteria are as follows:

- Most preferred – the alternatives where the evaluation criterion is the best
- Moderately preferred – when there are no preferences between the alternatives
- Least preferred – the alternatives where the evaluation criterion has a disadvantage

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 location for the Elevated Water Reservoir is the area within Site #1 of the Robert E. Wade Ancaster Community Park at 185 Jerseyville Road West, Ancaster.

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. The Agency Mailing List is included in Appendix “B” to report PW17022(b). 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 immediate month(s) following the approval of the recommendation of this staff report. Notices will be issued via newspaper advertising and direct mail out to all members of the Stakeholder and Agency Contact lists. The Project File Report 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, Conservation and Parks for a decision.

The above analysis rationale is a prescribed process under that Municipal Class EA. The project was completed and considered to be in full compliance with the Municipal Class EA 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 Municipal Class EA document for Schedule B projects.

Should Council not wish to approve the filing of the Municipal Class EA and Conceptual Design of Ancaster Elevated Water Reservoir, the Municipal Class EA process would be considered incomplete by the provincial government. As such, the City will not have approval under provincial environmental legislation to have the option to pursue the preferred solution to Ancaster Elevated Water Reservoir as a Schedule B project. The outcome would be equivalent to the “Do Nothing” alternative, which will result in the risk of insufficient firefighting flows, greater impact of watermain breaks, and higher cost of

operation and maintenance, higher greenhouse gas emissions and energy cost in the long run.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Community Engagement and Participation

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Healthy and Safe Communities

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance

Hamiltonians have a high level of trust and confidence in their City government.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” - Study Area and Alternative Sites

Appendix “B” - Agency Mailing List

Appendix “C” - Brief History of Ancaster Water Service and Summary of Financial
Analysis by WSP