




CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	November 18, 2024
SUBJECT/REPORT NO:	Greensville Drinking Water System Environmental Assessment Study (PW24077) (Ward 13)
WARD(S) AFFECTED:	Ward 13
PREPARED BY:	Marco Silverio (905) 546-2424 Ext. 6099
SUBMITTED BY:	Cari Vanderperk Director, Watershed Management Public Works Department
SIGNATURE:	

RECOMMENDATION

- (a) That the General Manager, Public Works, be authorized and directed to file the Notice of Completion and issue the Greensville Drinking Water System Environmental Assessment for the mandatory 30-day agency and public review period.
- (b) That upon completion of the 30-day agency and public review period, the Hamilton Water Division, be authorized and directed to proceed with the implementation of the preferred alternative solution as presented in the Greensville Drinking Water System Study Class Environmental Assessment Report:
- Construction in Johnson Tew Park of a new pumping station and treatment building with buried reservoir supplied by a well (FDG02) located in the Johnson Tew Park; and,
 - Decommission the current drinking water municipal well and pumping/treatment station (FDG01) located on Harvest Road.

EXECUTIVE SUMMARY

The Hamilton Water Division invoked the Class Environmental Assessment process for the Greensville Drinking Water System in the Greensville Rural Settlement Area to evaluate improvements to the water supply system located on Harvest Road.

The Greensville Drinking Water System is currently supplied by one groundwater-sourced municipal well and pumping/treatment station (FDG01) located on Harvest Road which is not equipped with a backup water supply. The (FDG01) Greensville Station Condition Assessment Report (GHD 2019) indicated that several components of the existing pumping station are reaching end of life. FDG01 is operating safely and effectively, however, it does not meet the City of Hamilton's (City) current outstation design manual criteria.

The City is committed to providing safe and reliable drinking water to the Greensville residents and evaluated alternative servicing scenarios with backup water supply for the drinking water system.

The purpose of the study was to determine the preferred servicing solution for the Greensville Drinking Water System. Appendix "A" to Report PW24077 provides a map of the study area.

In accordance with the Municipal Engineers Association Municipal Class Environmental Assessment document (2023), this study was planned as a Schedule C undertaking, which includes the completion of Phases one through four of the Municipal Class Environmental Assessment study process (detailed description of the different Phases and list of alternatives is included in the Analysis and Rationale for Recommendation section of Report PW24077).

A long list of alternative solutions was developed for the Greensville Drinking Water System Environmental Assessment Study based on previous reports including the (FDG01) Greensville Station Condition Assessment Report (GHD 2019) and the Constructability and Risk Assessment Study (Stantec 2022). The long list of alternatives varies in complexity, costs, implementation schedule, impacts and potential ability to address the issues identified. Preliminary screening was completed to evaluate the long list of alternatives and to determine a short-list of feasible alternative servicing solutions.

Alternative 5A – One Station with One Well and Reservoir in the Park; Decommission FDG01 was the preferred servicing solution for the drinking water system based on the impacts to the environment, capacity of the groundwater resources, resiliency to climate change and maintenance of levels of service as well as being the highest scoring alternative from technical and financial criteria. This solution involves:

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- Sourcing one primary well supply in the Johnson Tew Park (already identified) and constructing a new pump station (FDG02) at the end of Cedar Avenue with a reservoir for water storage and backup supply.
- Decommissioning FDG01 pump station.

This preferred servicing solution will also provide redundant water storage and help manage projected seasonal peak demands.

The final construction timing will be determined based upon completion of property acquisition of a section of the Johnson Tew Park, utility relocations (as necessary), detailed engineering, and securing required approvals. At this time, construction is planned to occur no sooner than 2026 and it is estimated that the construction schedule could last approximately ten months.

The Environmental Study Report is complete and ready to be filed on the public record for the minimum 30-day review period. Upon Council approval of the recommendations in Report PW24077, and provided that no Section 16 Order requests are received, staff will proceed with the preferred servicing solution through detail design and implementation, 30 days following the completion of the public review period.

Alternatives for Consideration – See Page 10

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: The recommendations in Report PW24077 have an estimated construction cost of \$6.97M and will be funded in Capital Project ID 5141767650 New Greensville Communal Well. The \$6.97M will be included in the recommended 2025 Water, Wastewater and Stormwater Rate Capital Budget.

Staffing: N/A

Legal: N/A

HISTORICAL BACKGROUND

The Greensville Drinking Water System consists of one municipal well and one treatment facility that services 36 homes and a population of approximately 111 residents. The drinking water system is located within part of Lots 10-11, Concession 2 in the former Township of West Flamborough in the Greensville Rural Settlement Area. The southern limit of the drinking water system is adjacent to the Niagara Escarpment, the land use west of the drinking water system is mainly residential while on the east side is institutional (Greensville School and Community Centre) and parkland (Johnson

Tew Park); north of the drinking water system there is an aggregate extraction site (Lafarge Quarry). Appendix "A" to Report PW24077 provides a map of the study area.

The creation of the Greensville Drinking Water System as a communal system is directly related to the Village Green Plan of Subdivision (1973) and should be understood in the context of the work developed by the Ontario Water Resources Commission and subsequent studies. The Ontario Water Resources Commission was responsible for water resources management including the certification and approval of water supply systems. The identification of water supply and water quality issues in the Province supported the implementation of communal systems first and later publicly owned water supply systems, with the rationale that maintenance and proper operation could only be guaranteed by a public body.

The Ontario Water Resources Commission (1969) identified water supply and quality issues (including contamination from failing septic systems) in a number of subdivisions located in the southeast portion of West Flamborough and recommended municipal drinking water supply systems either located within the community or from an alternate source. Greensville was identified as a community where water quality issues were present, and these issues were further stated in the Settlement Capability Study for the Hamilton-Wentworth Region (1976).

The application for a Zoning By-law amendment submitted by the developer requiring the change from agricultural to residential zoning identified water supply wells for the Village Green communal drinking water system.

The Ministry of Treasury, Economics and Intergovernmental Affairs requested the Hamilton-Wentworth Health Unit to provide comments on the Village Green Plan of Subdivision including certification that the supply of water would be adequate to sustain the needs of the proposed subdivision; the Ministry of Treasury, Economics and Intergovernmental Affairs approved the Draft Village Green Plan of Subdivision on November 22, 1973 requiring the establishment of a publicly owned water distribution system.

In 1974 the Regional Municipality of Hamilton-Wentworth was officially created with the responsibility for Police, Roads, Public Transit, Health and Welfare, Hydro, Planning, Regional Waterworks System and Regional Sewage; in 1976 the Regional Municipality of Hamilton-Wentworth assumed ownership and the local Town of Flamborough began operating the Village Green communal drinking water system.

In 1978 the Regional Municipality declared that no development would be permitted in Lynden or Greensville until a plan to deal with the water quality issues was established.

This led to the completion of the Greensville Servicing Study (1985) that provided the basis for the Greensville Secondary Plan (Official Plan Amendment 13).

The Greensville Secondary Plan was developed in 1992 to establish land use policies and guidelines for the Greensville Rural Settlement Area. It includes guidelines for the stormwater and hydrogeological studies required prior to development approvals within the Greensville Rural Settlement Area as a means to protect the quality and quantity of the water supply system within the community. The Secondary Plan further outlined the requirement for the development of a Comprehensive Servicing Study with interim development to be addressed through phasing.

In 2016, the Mid-Spencer Creek/Greensville Rural Settlement Area Subwatershed Study (Aquafor Beech Ltd.) was completed to fulfil the requirements of the Greensville Secondary Plan. The study set a management strategy for surface water such as streams and stormwater, groundwater, community servicing such as drinking water and septic systems, and natural areas such as wetlands and woodlots. The preferred solution identified for domestic water supply within the study area was to maintain individual services (private wells and septic systems) on future lots and to add a backup well to the existing municipal well. This alternative was selected based on the impact to the environment, capacity of groundwater resources, consistency with existing policy and the objective to provide a better level of service to the homes currently serviced by the municipal well. The study noted that the location, sizing, and preliminary design of the necessary infrastructure (treatment plant, storage tank) would be subject to further assessment under a Schedule C Municipal Class Environmental Assessment.

In 2023 the Greensville Drinking Water System Schedule C Municipal Class Environment Assessment Study commenced to identify the preferred servicing strategy for the Greensville Drinking Water System and the 36 homes that are currently serviced. The Greensville drinking water system is currently supplied by one groundwater-sourced municipal well and pumping/treatment station (FDG01) located on Harvest Road which is not equipped with a backup water supply. FDG01 is operating safely and effectively, however, it does not meet the City's current outstation design manual criteria and several components of the existing FDG01 system are reaching end of life. The purpose of the study was to determine the Greensville drinking water system preferred servicing scenario, which concluded with a backup water supply, and the location of the new well and new pumping station within Johnson Tew Park.

In accordance with the Municipal Class Environmental Assessment (2023), the study was planned as a Schedule C undertaking, which includes the completion of Phases one through four of the Municipal Class Environmental Assessment study process.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The recommendations in Report PW24077 are consistent with the Rural Hamilton Official Plan. Other policies affecting or impacting Report PW24077 include:

- *Ontario Environmental Assessment Act*
- *Ontario Environmental Protection Act*
- *Safe Drinking Water Act, 2002*
- *Clean Water Act, 2006*
- *Municipal Act, 2001*
- Niagara Escarpment Plan, 2017
- Provincial Policy Statement, 2020
- Ministry of Environment Design Guidelines for Drinking Water Systems, 2008

RELEVANT CONSULTATION

Consultation is a vital part of the Environmental Assessment process. Active engagement with all potentially affected parties including government agencies, relevant municipal sections, community members, special interest groups, and Indigenous communities ensures a transparent and responsible planning process.

A project contact list was created which includes multi-level government agencies and officials, City of Hamilton staff, committees, emergency service contacts, potentially interested Indigenous communities, members of the public, utility services, special interest groups, as well as local property owners within the study area.

Project notices issued to date include the Notice of Study Commencement & Public Information Centre 1 (September 22, 2023), Notice of Public Information Centre 2 (February 20, 2024), and Reschedule Notice of Public Information Centre 2 (March 22, 2024). The notices were published in the Hamilton Spectator newspaper, mailed to residential area of Greensville, provided to First Nations / Indigenous Communities, and emailed to the project contact list and internal City of Hamilton staff.

Two Public Information Centres were hosted as a component of the consultation process for this study to provide the public with an opportunity to express concerns throughout the study process, while assisting with the development of a recommended strategy. The Public Information Centres were held as live virtual meetings using the Microsoft Teams platform, and participants accessed the meetings online or by phone. Pre-registration was required and could be completed by following a QR code or visiting the project webpage (<https://www.hamilton.ca/greensville-drinking-water-system>). The Public Information Centres were recorded and made available on the project website following the live event. Comments were accepted through a survey made available on the project website, or by contacting a member of the project team by e-mail or phone.

All input from the public, review agencies, committees, and other stakeholders has been documented and does not conflict with the preferred alternative. All consultation with Indigenous communities has also been documented in a Consultation Log. The Ward 13 Councillor was also consulted regarding the study recommendations.

The Notice of Study Completion will be posted to the project webpage, published in the Hamilton Spectator newspaper, mailed to the residential area of Greensville, and emailed to First Nations/Indigenous Communities, internal City of Hamilton staff and the project contact list.

The following Indigenous Communities were engaged as part of this study:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
- Huron Wendat First Nation
- Haudenosaunee Confederacy
- Metis Nation of Ontario

All study notifications have been provided to the above communities by mail and e-mail, and follow-up phone calls/emails were completed to ensure communities had sufficient information to determine consultation interests. As the study progressed, all interested parties were notified and invited to the Public Information Centres and given the opportunity to express concerns and provide feedback through an invitation to meet with the project team.

The Mississaugas of the Credit First Nation requested to be involved in archaeological studies or fieldwork associated with the project. The project team provided the Stage three Archaeological Assessment that was completed in 2014 to support this study, and noted no further Archaeological Assessment would be required.

The Huron Wendat First Nation requested to review archaeological studies or fieldwork associated with the project. The project team provided the Stage three Archaeological Assessment that was completed in 2014 to support this study, and noted no further Archaeological Assessment would be required.

The Six Nations of the Grand River requested to continue to receive notifications and updates related to the study. The Six Nations of the Grand River was included on the project contact list and continued to be notified throughout the duration of the study.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

By applying the Municipal Class Environmental Assessment process, the project followed the legislated multiphase analysis rationale.

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The Municipal Class Environmental Assessment Problem/Opportunity Statement was identified as follows: The Greenville drinking water system is serviced by one groundwater-sourced municipal communal well system, which is not equipped with backup water supply, and several components of the existing system (FDG01) are reaching end of life. FDG01 is operating safely and effectively, however, it does not meet the City's current outstation design manual.

All reasonable alternatives that meet the requirements of the Problem/Opportunity Statement were identified. The long list of alternative solutions included:

Do Nothing	
Alternative 1	Expand the lake-based distribution system
Alternative 2	Construct a reservoir
Alternative 3	Refurbish and upgrade FDG01 with backup connection
Alternative 3A	Trucked water connection and refurbishment of FDG01
Alternative 3B	Trucked water connection and upgrades to FDG01 towards City water outstation design manual
Alternative 4	Maintain two stations
Alternative 4A	Maintain and retrofit FDG01 well and pump station, and source additional well supply in the park with new pump station
Alternative 4B	Maintain FDG01 and source additional well supply in park with new pump station and watermain
Alternative 5	Build new station with new well in park, and decommission FDG01
Alternative 5A	One station with one well and reservoir at Cedar Avenue
Alternative 5B	One station with one well and trucked water connection at Cedar Avenue
Alternative 6	One station with two wells at Cedar Avenue

Preliminary screening was completed to evaluate the long list alternatives and to create a short-list of feasible alternative servicing solutions.

Short List of Alternative Solutions Include:

Alternative 4A	Two stations - maintain and retrofit FDG01 well and pump station, and source additional well supply in the park with new pump station:
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	<ul style="list-style-type: none"> • Involves maintaining and retrofitting FDG01 well and pump station. • Sourcing an additional well supply in the park and constructing a new pump station and treatment building at the end of Cedar Avenue (FDG02). <p>This alternative would allow for a continued water supply to rely on during construction.</p>
Alternative 5A	<p>One station with one well and reservoir in the park; decommission FDG01:</p> <ul style="list-style-type: none"> • Involves decommissioning FDG01 well and pump station; sourcing one primary well supply in the park and constructing a new pump station (FDG02) at the end of Cedar Avenue with a reservoir for water storage and backup supply. <p>This option would provide redundant water storage and help manage projected seasonal peak demands.</p>
Alternative 6:	<p>One station with two wells on the park; decommission FDG01:</p> <ul style="list-style-type: none"> • Involves decommissioning FDG01 well and pump station. • Sourcing one primary well supply in the park and constructing a new pump station at the end of Cedar Avenue (FDG02) with a reservoir for water storage and backup supply. <p>This alternative could also include a trucked water connection for additional redundancy for emergency supply.</p>

The evaluation criteria considered natural, socio-economic, cultural, technical/engineering, and financial aspects and determined that Alternative 5A – one station with one well and reservoir in the park is the preferred solution and was carried forward into the Evaluation of Alternative Design Concepts.

The alternative design concepts involve potential locations for a new pump station, as part of preferred design Alternative 5A. Three alternatives were considered for the location of the pump station:

- South of the park path entrance at the end of Cedar Avenue,
- North of the park path entrance at Cedar Avenue; and
- At the end of Medwin Drive.

The evaluation for the preferred location took into consideration natural, socio-economic, cultural, technical/engineering, and financial aspects. Based on the evaluation, it was determined that the location south of the park path entrance at Cedar Avenue is the preferred location for the new well pumphouse and treatment building. The lot is secured by the City and is proximal to the alternative well supply. This location may impact proximal property values and impact some views from the park. Apart from these impacts the location is rated highly against all other evaluation criteria.

Many of the environmental concerns related to this project have been mitigated through the process by which the preferred design was selected. The anticipated impacts and proposed mitigation measures are included in the Environmental Study Report and include natural heritage, archaeology, park land, low impact development, traffic, noise and air quality, emissions, and climate change resiliency.

The City will refine mitigation measures during detailed design and prior to the start of construction to ensure the proposed works are acceptable and to obtain required permits and approvals.

The final step in the Municipal Class Environmental Assessment planning process before proceeding to implementation of the preferred alternative is to undertake the mandatory 30-day agency and public review period. A Notice of Completion of the Class Environmental Assessment as recommended herein will be issued following the approval of the recommendations in Report PW24077 by City Council. The Notice of Study Completion will be posted to the project webpage, published in the Hamilton Spectator newspaper, mailed to the residential area of Greensville, and e-mailed to First Nations/Indigenous Communities, internal City of Hamilton staff and the project contact list. The Project File Report will be placed on public record along with contact information to receive concerns. Comments and questions will be responded to as required.

The above analysis rationale is a prescribed process under the Municipal Class Environmental Assessment. The project is in full compliance with the Municipal Class Environmental Assessment process.

ALTERNATIVES FOR CONSIDERATION

Alternative: Do not approve the filing of the Municipal Class Environmental Assessment. Under this alternative, the outcome would be equivalent to the “Do Nothing” alternative. Hamilton Water would continue operating the Greensville Drinking Water System as presently.

FDG01 pump station is operating safely but the station does not meet current outstation design manual criteria, does not have a backup water supply alternative, several

components are reaching end-of-life and operational and maintenance requirements to upkeep the pump station are expected to be complex and onerous. This alternative is not recommended as the City is required to provide safe drinking water to the Community.

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Should Council not wish to approve the filing of the Municipal Class Environmental Assessment report, the City will have to consider immediate repairs to the existing pump station FDG01. It should be noted that these immediate repairs will not address the fact that the pump station is out of compliance with the Water Outstation Design Manual, the pump station has no capacity for additional water treatment equipment if the need arises and has poor accessibility for maintenance or more substantial repairs or upgrades. The estimated cost for like-for-like refurbishment of FDG01 pump station is \$2.76M.

Staffing: N/A

Legal: N/A

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” to Report PW24077 - Map of the Study Area