



City of Hamilton Report for Consideration

To: Chair and Members
Public Works Committee

Date: February 24, 2025

Report No: PW25004

Subject/Title: Approval of Non-competitive Procurement (Policy #11) – Niagara Escarpment Project (NEEP) March 2023 – McMaster University & the City of Hamilton

Ward(s) Affected: City Wide

Recommendations

- 1) That Public Works Committee **APPROVE** the single source procurement at a value of \$248,500 over four years to be funded from the Escarpment Erosion Study Project (Project ID 4032155145, Account 55801), pursuant to Procurement Policy #11 – Non-competitive Procurements with McMaster University, for the provision of extending the ongoing Niagara Escarpment Erosion Project;
- 2) That the General Manager, Public Works, is to **BE AUTHORIZED** to negotiate, enter into, and execute a contract and any ancillary documents required to give effect thereto with McMaster University in a form satisfactory to the City Solicitor; and,
- 3) That Appendix “A” attached to Report PW25004 respecting Niagara Escarpment Erosion Project March 2023 **BE APPROVED**.

Key Facts

- The purpose of this report is to seek approval for the single-source procurement with McMaster University, valued at \$248,500, over four years, funded from the 2021 approved capital budget.
- The procurement ensures the continuation and extension of the Niagara Escarpment Erosion Project, which requires specialized expertise and ongoing collaboration with McMaster University.
- This multi-year study (2025-2028) builds on research from 2017 to 2020,

focusing on identifying and analyzing erosion processes, specifically water and wind erosion.

- Detailed investigations will include hydrological analysis, vegetation impact studies, and fracture analysis, with data collection efforts to develop a comprehensive erosion risk map for Hamilton.
- The study's findings will inform short and long-term remediation strategies and future budget planning to support erosion mitigation on the escarpment.

Financial Considerations

- 1) Project Budget: The total budget for the Niagara Escarpment Erosion Project is \$248,500 over four years. This includes costs for personnel, research equipment, consultation, and other research-related expenses.
- 2) Potential Cost Savings: Identifying erosion risks, critical erosion areas, and the rate of erosion will allow the City to better understand the issues, and take proactive measures. By doing so the project may prevent costs associated with infrastructure damage and emergency repairs.

Background

The Niagara Escarpment, which runs through the middle of the City and divides it into 'upper' and 'lower' parts, is a remarkable geological feature in our region that undergoes continuous, gradual erosion. This natural process results in rock movement, slope instability, and potential infrastructure and public safety hazards. Despite our diligent efforts and implementation of significant resources to maintain and repair escarpment access roads, the underlying geological processes persist, necessitating further study and proactive measures.

Rockfalls and erosion incidents along the eighteen escarpment access traffic corridors impose significant financial burdens on the City. Delaying the resolution of erosion issues can escalate costs even further, leading to emergency repairs that strain our resources.

The Key findings from the 2017 to 2020 initial study phase included documenting material loss using photogrammetry, analyzing lithological variability and hydrological patterns, and studying fracture distribution and weathering susceptibility. The project's initial phase also assessed the impact of climate change on erosion, examined historical land use changes, and evaluated the role of vegetation in erosion. These findings help the City understand erosion dynamics and potential risks, aiding in future planning and mitigation efforts.

Analysis

Given the comprehensive nature of the Niagara Escarpment Erosion Project and its insights into erosion dynamics, it is recommended that the City of Hamilton continues to engage with McMaster University to extend the ongoing research project. The rationale for this recommendation includes:

- 1) **Sustainable Management:** The project's findings will support development of sustainable management strategies for the Niagara Escarpment. This is an essential element for preserving the escarpment's integrity and preventing future erosion-related issues.
- 2) **Informed Decision-Making:** The detailed data and analysis the project provides will enable the City to make informed decisions regarding short- and long-term remediation strategies. This will help in effectively allocating resources and planning budget forecasts.

In conclusion, extending the Niagara Escarpment Erosion Project is a strategic decision that will provide the City of Hamilton with the necessary tools and insights to manage erosion effectively, and increase our ability to ensure the long-term sustainability of the Niagara Escarpment.

Alternatives

Should the Public Works Committee choose not to approve the recommendations outlined in Report PW25004, the City will proceed to plan for erosion control and containment without the additional insights of this work. The study offered will enhance the ability to identify specific erosion risks and develop targeted mitigation strategies. This could improve the effectiveness of long-term planning and resource allocation. In summary, not approving the recommendations will limit the City's ability to optimize strategies for managing erosion risks and fully understanding the unique characteristics of Hamilton's Escarpment.

Relationship to Council Strategic Priorities

The Niagara Escarpment Erosion Project recommendations align with Hamilton's 2022 - 2026 Council Priorities in several ways:

1. **Sustainable Economic & Ecological Development**
 - 1.1. **Reduce the burden on residential taxpayers:** By proactively addressing erosion, the project outcomes will help future strategies to prevent costly emergency repairs and infrastructure damage, ultimately reducing long-term expenses for taxpayers.
 - 1.2. **Accelerate our response to climate change:** The project includes detailed investigations into climate-related erosion factors, which will contribute to more effective climate adaptation strategies.

- 1.3. Protect green space and waterways: By researching ways to better mitigate erosion, the project will provide insights into approaches that can preserve vital green spaces and waterbodies, maintaining ecological balance and recreational areas for the community.
2. Safe & Thriving Neighbourhoods
 - 2.1. Provide vibrant parks, recreation and public space: Researching the escarpment's rock face aims to enhance the safety and usability of parks and recreational areas, thereby promoting community well-being and outdoor activities.
3. Responsiveness & Transparency
 - 3.1. Prioritize customer service and proactive communication: The project involves continuous data collection and public engagement, fostering transparency and keeping the community informed about progress and findings.
 - 3.2. Get more people involved in decision making and problem solving: Collaboration with McMaster University and public engagement initiatives promote diverse input and community involvement in addressing erosion challenges.
 - 3.3. Build a high performing public service: The project exemplifies effective collaboration between the city and academic institutions, enhancing the City's capacity to manage complex environmental issues.

Previous Reports Submitted

Not applicable.

Consultation

The following individuals have been consulted in the preparation of this report

- Tina Iacoe, Director of Procurement, Corporate Services
- Maryanne Morris, Manager Policy & Contracts, Corporate Services
- Caroline Martin, Program Specialist – Capital Infrastructure, Infrastructure Renewal Infrastructure Renewal
- Linda Mooradian, Business Administrator, Corporate Services
- Joanna Manganiello, Manager - Finance and Administration, Corporate Services
- Carolyn Eyles, Professor Emeritus, Interdisciplinary Science, McMaster University
- John MacLachlan, Industry Professor, Earth, Environment & Society, McMaster University
- Alan Jazvac, Senior Project Manager - Divisional Project Services, Public Works

Appendices and Schedules Attached

Appendix A: Niagara Escarpment Erosion Project (NEEP) March 2023

Prepared by:	Mohi Mohamed, Senior Project Manager - Surface Infrastructure Public Works, Engineering Services, Infrastructure Renewal
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Submitted and recommended by:	Jackie Kennedy, Director Public Works, Engineering Services