



PORT COLBORNE

Subject: Disaster Mitigation and Adaptation Fund – Application to Improve the Resiliency of the City’s Storm Sewer System to Seiche Flooding

To: Council

From: Public Works Department

Report Number: 2023-39

Meeting Date: April 25, 2023

Recommendation:

That Public Works Department Report 2023-39 be received; and

That Council direct the Director of Public Works to apply to the Disaster Mitigation and Adaptation Fund (DMAF) for projects to improve the resiliency of the City’s storm sewer system to seiche flooding.

Purpose:

This report is seeking Council’s approval to apply to the DMAF for projects intended to improve the resiliency of the City’s storm sewer system to seiche flooding.

Background:

On Monday January 16th, Infrastructure Canada launched a call for applications to the DMAF.

The DMAF is a national, competitive, and merit-based contribution program intended to support infrastructure projects designed to mitigate current and future climate-related risks and disasters triggered by natural hazards, such as floods, wildland fires, droughts and seismic events.

Eligible projects include new construction of public infrastructure and/or modification or reinforcement of existing public infrastructure, including natural infrastructure, that prevent, mitigate or protect against the impacts of climate change, disasters triggered by natural hazards, and extreme weather.

As part of the Government of Canada Adaptation Action Plan, released alongside Canada's first National Adaptation Strategy, the DMAF received an additional \$489.1 million in funding in November 2022. This additional funding, combined with the remaining program funding, makes more than \$1 billion available for this application intake.

The maximum federal contribution available for municipalities is up to 40%, and projects can either be:

- Small-scale: projects under \$20 million with a minimum threshold of \$1 million in total eligible costs; or
- Large-scale: projects of \$20 million and above in total eligible costs.

Eligible expenditures include capital costs, planning and design. Projects must be substantially completed by December 31, 2032. Eligible projects could include bundled sub-projects, if it is demonstrated that each of the multiple mitigation/adaptation investments work systematically as a whole to reduce the same risk within the same time period.

The application deadline is July 19, 2023 at 3:00pm.

Discussion:

Public Works staff have reviewed the funding guidelines, preliminary information from the in-progress Infrastructure Needs Study, the 2014 Storm Sewer System Infrastructure Needs Study, historical storm sewer flooding from seiche events, and reviewed claim and service request history.

In seiche and/or storm surge events, Lake Erie can rise up to 2.5 – 5 metres (8 – 16 feet), causing water to rush into the Welland Canal. That high water level travels into the City's storm sewer system through the storm sewer outlets that discharge into the Canal, causing street and property flooding, and causing inflow and infiltration into the City's wastewater collection system.

Historically, Lake Erie seiche events that cause storm sewer surcharging occur on average once or twice a year. Researchers predict climate change will increase the frequency and severity of seiche events due to more intense wind storms, and less ice coverage in the winter. Since 2019, Public Works staff have responded to at least one intense seiche event annually, most recently in December 2022. During those seiches, lake water pushed up through the storm sewer system causing flooding in the King Street, Welland Street and Janet Street areas. Homeowners in these areas have experienced frequent flooding from seiche events, are challenged with high insurance rates and some can no longer obtain flood insurance.

Staff recommend bundling a number of projects intended to improve the resiliency of the City's storm sewer system to seiche flooding. Below is a list of sub-projects to be included in the application:

- Storm sewer outlet protection – Outlets in the Welland Canal, south of the weir and the lock will be targeted for protection. These outlets are vulnerable to flooding during seiche and/or storm surge events.
- Storm sewer outlet pumping – With adequate outlet protection in place, should a storm occur during a seiche event, there will be no positive outlet for stormwater and flooding could be quite severe. In order to reduce the likelihood of damage due to a storm coinciding with seiche events, flood prone storm sewer systems could be pumped out when lake levels begin to rise and the outlets are closed. The Welland Street storm sewer outlet provides service within the bounding area of the Canal to approximately James Street, and from the Friendship Trail to Main Street East. This is the area where the feasibility of pumping will initially be considered, however, the feasibility of an additional outlet, or outlets, may also be considered.
- Storm sewer replacement – This sub-project would include replacing storm sewer systems in the following drainage areas as per the recommendations included in the 2014 Storm Sewer Infrastructure Needs Study:
 - Drainage Area 13: Between Chestnut Street and Killaly Street East, including Clarke Street, Humboldt Street and Wellington Street, and outlets from this area. Construction would also include the re-alignment and abandonment of the current Central Park Municipal Drain, which would become part of the storm sewer system. Consideration for a second outlet would be included in the scope of the project.
 - Drainage Area 6: Along Clarence Street from the Canal to Fielden Avenue, north to Princess Street and south to Charlotte Street; Charlotte Street south to Adelaide Street between the Canal and Elm Street
 - Drainage Area 7: Princess Street north to Killaly Street West, between the Canal and Steele Street

These drainage areas cover nearly 130 Ha of the City, and total approximately 6,750m of storm system that are directly impacted from seiche events. Improvements not only include replacing existing, non-designed storm sewers, but also include installing “dedicated sump pump drains”, more commonly known as a third pipe system, in areas where conventional storm sewers do not exist. The third pipe system will permit properties in those areas whose sump pumps currently discharge to the sanitary system to be redirected to the new third pipe system. While sump pump re-directs are outside of the scope of the DMAF application, once the infrastructure is in place, the City can proceed with a sump pump/roof leader disconnection program in these areas.

The estimated cost for the planning, design and construction of these projects is just under \$32 million.

As indicated in the list of sub-projects, this application includes outlet protection for a number of storm outlets into the Welland Canal. Council previously approved the 2023 Stormwater Outlet Backflow Control project to investigate and install outlet protection which includes locations covered in this application. Staff recommend that locations covered in this application be deferred until confirmation of DMAF funding. Should DMAF funding not be received, work in these locations will commence immediately upon receiving notice. The Neff Street storm sewer project will not be deferred due to the nature of the work required.

Staff recognize, based upon the preliminary information from the in-progress Infrastructure Needs Study and from the 2014 Storm Sewer System Infrastructure Needs Study, that there are many additional areas of the storm sewer system that require remediation in the City. The projects presented here were selected to be included in the DMAF application, as these areas are vulnerable to seiche flooding, and the DMAF program specifically funds projects designed to mitigate current and future climate-related risks and disasters triggered by natural hazards, which includes seiche flooding.

These projects represent a fraction of the investment required to update the storm sewer system. Once the current Infrastructure Needs Study and the Stormwater Inventory, Cleaning and Condition Assessment projects are completed, staff will come forward to Council with a capital implementation plan and budget to remediate additional deficient areas in the system.

Internal Consultations:

Staff consulted with Corporate Services to determine funding options.

Financial Implications:

The estimated project cost is \$32 million. This estimate is a Class D estimate. The estimated project cost will require funding of \$19.2 million or 60% from the City and \$12.8 million or 40% from DMAF.

In the event the DMAF grant is not a success, the project as proposed in this report and attached presentation will not proceed.

In the event the DMAF grant is successful, it is proposed the City fund its portion as follows:

Year	Project	In-Year	Grant	Debt
Storm	25,200,000		12,800,000	12,400,000
Roads	5,000,000	5,000,000		
Water	1,400,000	1,400,000		
Wastewater	400,000	400,000		
Total	32,000,000	6,800,000	12,800,000	12,400,000

The funding impact of the debt payments associated with the storm work is estimated at \$85 per household assuming a 30 year repayment at a 5% interest rate.

If the debt was issued in 2023 it would have the impact of increasing the City's Annual Repayment Limit (ARL) to approximately 7.2%. The City's Debt Management Policy establishes a maximum ARL at 15% which is below the Provincial maximum of 25%.

Strategic Plan Alignment:

The initiative contained within this report supports the following pillar(s) of the strategic plan:

- Attracting Business Investment and Tourists to Port Colborne
- City-Wide Investments in Infrastructure and Recreational/Cultural Spaces
- Value: Financial Management to Achieve Financial Sustainability
- Governance: Communications, Engagement, and Decision-Making

Conclusion:

The Disaster Mitigation and Adaptation Fund provides an opportunity to invest a significant amount of capital funds into our aging and deficient storm sewer system, and receive up to 40% funding from the Federal government. The investment in our system will increase the resilience of our storm sewer system to flooding from seiche and/or storm surge events, and protect the residences and businesses in these vulnerable areas. Additionally, improving the resiliency of our storm sewer system to seiche events will also reduce inflow and infiltration into the wastewater collection system.

Appendices:

- a. Stormwater Challenges and Opportunities – Staff presentation
- b. Infrastructure Canada accepting applications to the Disaster Mitigation and Adaptation Fund

Respectfully submitted,

Darlene Suddard
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Report Approval:

All reports reviewed and approved by the Department Director and also the City Treasurer when relevant. Final review and approval by the Chief Administrative Officer.