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Item No. 21.12
Halifax Regional Council
February 11, 2025

TO: Mayor Fillmore and Members of Halifax Regional Council

FROM: Cathie O'Toole, Chief Administrative Officer

DATE: January 28, 2025

SUBJECT: Implementation Plan for 10 National Disaster Mitigation Program Projects

INFORMATION REPORT

ORIGIN

May 03, 2022 Regional Council motion Item No.: 15.1.7

MOVED by Councillor Lovelace, seconded by Councillor Blackburn

THAT Halifax Regional Council...

1. Approve the draft guiding principles and cost sharing mechanisms, set forth in this report, as the basis for addressing the Municipality's responsibilities with respect to stormwater management projects.
2. Direct the Chief Administrative Officer to negotiate with Halifax Water to include the draft guiding principles and cost sharing mechanisms, in a future, formalized relationship document between the Municipality and Halifax Water.
3. Direct the Chief Administrative Officer to develop an implementation plan for the 10 National Disaster Mitigation Program projects set forth in the Discussion section of the staff report dated January 19, 2022, which considers opportunities within HRM's Street Recapitalization Program, HalifACT, and the Halifax Water capital plan.

EXECUTIVE SUMMARY

This Information Report is written in response to motion item No.: 15.1.7 sub item 3.

Work is complete or in progress at each of the "top ten" priority National Disaster Mitigation Program (NDMP) sites as identified in the 2018 NDMP Study Report and the 2022 NDMP Implementation Report.

- The delivery of three of these projects have been transferred for consideration as part of future developments (Hammonds Plains Road at Bluewater Road, and Bedford Highway at MSVU) or completed through the delivery of other HRM projects (Karison's Wharf).
- As of October 2024, approximately \$1.04M has been spent by HRM on the delivery of NDMP-related projects. This is roughly 56% of the \$1.86M total spent on HRM NDMP-related projects to date, as much of the associated work has been completed with external funding support, which is detailed in this report. This does not include the cost associated with HRM staff resources, or the 2018 NDMP

Study Report.

- The forecasted remaining spend on known NDMP-related projects by HRM is \$10.21M by end of fiscal year 2033 to meet the various external funding program deadlines further outlined in this report. Because HRM staff have been successful in applications to external funding programs in the delivery of many of these projects, this equates to roughly 57% of the total forecasted implementation cost of \$17.77M at time of writing. This does not include the cost associated with HRM staff resources.
- Operating costs for works planned for 2025 can be accommodated within existing budgets, and future actions are subject to the review and approval of future operating budgets.

NDMP project implementation is underway, and there are plans to integrate the remaining “lower priority” NDMP sites into ongoing critical infrastructure identification and adaptation work that are to consider additional and overlapping climate hazards. For these reasons, staff do not suggest developing a specific, stand-alone NDMP implementation plan for the remaining “lower priority” sites at this time.

BACKGROUND

In October 2018, Halifax Council and the Halifax Water Board approved the methodology outlined in the NDMP report to prioritize projects in flood prone areas. The report identified thirty (30) key “sites”, or areas that are prone to frequent flooding.

These sites were initially identified through assessing historical service records and operational data, and through interviews with Municipal and Halifax Water staff. The 30 sites were then evaluated and prioritized based on the impact of flooding to infrastructure, public safety, society, the economy, the environment, and property. Based on the report’s recommendations, staff were directed to develop an implementation plan for the “top 10” priority sites identified in the NDMP study, which are presented in Table 1. Each area can be described as either a large natural watershed system, a localized drainage infrastructure issue, or a tidal influenced system.

Table 1: NDMP Top Ten Priority Ranked Sites

Ranking	NDMP Site ID	Site Name	Area Type
1	25	Sackville Rivers	Large natural watershed system (Sackville Rivers)
2	A6	Shubenacadie Lakes	Large natural watershed system (Shubenacadie/Stewiacke River)
3	8	Karlsons Wharf @ Upper Water Street	Tidal influence system
4	9	Inglis Street @ Barrington Street	Localized drainage infrastructure
5	24	Highway 2, from Holland Road to Miller Lake Road, Fall River	Localized drainage infrastructure
6	7	Pleasant Street near Dartmouth General Hospital	Localized drainage infrastructure
7*	5	Cole Harbour Road @ Perrin Drive	Large natural watershed system (Bissett Run)
7*	2	Shore Road – Eastern Passage	Tidal influence system
7*	22	Hammonds Plains Road at Bluewater Road	Localized drainage infrastructure
7*	A2	Mount Saint Vincent at Bedford Highway	Localized drainage infrastructure

*Indicates a four-way tie for the 7th highest priority site, hence a total of 10 “priority” sites.

The 2018 NDMP study report¹ also identified short (1-2 years), medium (3-5 years), and long (5+ years) term mitigation strategies for each site of the sites in top ten ranked sites. Strategies included updating planning policies, creating new stormwater master plans, conducting further drainage studies, conducting feasibility studies, and building new infrastructure.

The status of recommended actions presented in the May 2022 staff report are summarized in the Discussion section of this report.

DISCUSSION

Since the direction provided by Council in 2022, all the actions which were identified to address the top ten priority sites are either complete or in progress, as summarized in Table 2.

Table 2: Identified NDMP Actions Summary (From 2022 Summary Report)

	Action	NDMP Ranking	NDMP Site ID	Status 2024
1	<i>Sackville Rivers Mitigation Study</i>	1	25	<i>Complete (2022)</i>
2	<i>Shubenacadie Lakes Floodplain Study</i>	2	A6	<i>Complete (2022)</i>
3	<i>Incorporate Karlsons Wharf into Cogswell Redevelopment Project</i>	3	8	<i>Complete (2022)</i>
4	<i>Cole Harbour Drainage Study</i>	7	5	<i>Complete (2022)</i>
5	<i>Hammonds Plains at Bluewater Preliminary Design</i>	7	22	<i>Complete (2022)</i>
6	Shubenacadie Lakes – Review/Update Planning & Development Policies	2	A6	In progress
7	Inglis at Barrington Hydrologic/Hydraulic Study & Concept Design	4	9	In progress
8	Hwy 2 Fall River Drainage Study	5	24	Complete (2023)
9	Pleasant Street Hydrologic/Hydraulic Study	6	7	Complete (2023)
10	Shore Road Mitigation	7	2	In Progress
11	Cole Harbour at Perron Drive Implementation	7	5	In progress
12	Hammonds Plains at Bluewater Road - Implementation	7	22	In progress Options analysis complete – to be considered as part of Future Serviced Communities Study implementation
13	Sackville River Floodplain Property Acquisition	1	25	In progress Request for assistance submitted to Province of Nova Scotia October 2023 ⁶

It is important to acknowledge that full implementation of these projects will not eliminate flooding in any of the flood-prone areas but are rather intended to mitigate the potential impacts of flooding, and/or reduce the frequency and severity of flooding.

¹[National Disaster Mitigation Program – Flood Risk Assessment Study](#)

In addition to the actions outlined in Table 2, several follow-up actions and projects have been identified, including additional studies, policy development, and implementation, and efforts are ongoing to deliver these projects.

A summary of the actions undertaken to date on each of the top ten priority sites is summarized on the following pages.

Priority Site 1: Sackville Rivers – Large Natural Watershed System (Sackville River Watershed)

- The Sackville Rivers Flood Plain Modelling study was completed in 2018, and the Sackville Rivers Mitigation Plan Study was completed in 2020.
- In 2018, the Sackville Floodplains website² was published with an interactive map application, a common questions section, as well as some publicly available resources for those looking to learn more about floodplains, flood mapping, and flood preparedness. The website content as well as the interactive mapping application were updated again in 2024.
- In October 2023, a request for assistance was submitted to the Province by the Mayor with respect to acquiring several flood-prone properties along Union Street in Bedford and which are in the floodplain³.
- Work is in progress to update Planning & Development Policies and zoning within the Sackville River Floodplain. The planning process was re-initiated in 2023, and draft regulations and policies have been prepared by Planning & Development staff. The draft regulations are currently under review.
- In 2024, the 2017 study mapping⁴ was updated to incorporate new topographic survey and more recent, higher resolution LiDAR data. The updated floodplain maps are being used as the basis for amending the floodplain policies, land use regulations, and zoning for the Bedford; Sackville; Sackville Drive; and Beaver Bank, Hammonds Plains, and Upper Sackville plan areas.
- In August 2024, public open houses on updated mapping and draft regulations were held, and property owners with PIDs intersecting with the proposed flood extents were notified by mail of the website updates and the public meetings, in addition to general notices sent out by area Regional Councilors and via the halifax.ca website and social media.
- In 2025 staff anticipate that the proposed policies and regulations will be presented to Regional Council, for adoption following the amendments to the Regional Plan.

Priority Site 2: Shubenacadie Lakes – Large Natural Watershed System (Shubenacadie/Stewiacke River Watershed)

- The Shubenacadie Lakes Floodplain Study was completed in 2020, which delineated the projected 1:20-year and 1:100-year flood extents within the study area.
- Development of a new webpage on the halifax.ca site is currently in progress to support the public release of the Shubenacadie Lakes Floodplain Study, and to host an online interactive map application, common questions, and link to available resources on flooding, floodplains, and flood preparedness. It is expected that the appearance and content of the new webpage will be similar to the existing Sackville Floodplains website⁵.

²[Sackville Floodplains Website](#)

³[Use of Managed Retreat as a Climate Adaptation Approach - Mar 19/24 Regional Council | Halifax.ca \(Attachment A\)](#)

⁴[Technical Memo – Sackville Rivers Floodplain Model Updates – Structure Investigation and Survey and Updated Mapping \(April 2024\)](#)

⁵ [Sackville | Floodplains | Halifax](#)

- A review of Planning & Development policies and regulations related to the Shubenacadie Lakes Floodplain area is expected to begin in 2025. There are plans to procure a Flood Mitigation Planning Study for the Shubenacadie Lakes Floodplain area to identify specific actions and opportunities for the Municipality to consider in mitigating flooding and damage from flooding in the area identified in the Shubenacadie Lakes Floodplain Study. At time of writing this project has not been scheduled.

Priority Site 3: Karlson's Wharf at Upper Water Street – Tidal Influence System

- In 2020 this project was transferred to the Cogswell project for implementation. The new storm sewer at Karlson's Wharf and grading of Upper Water Street has been completed.

Priority Site 4: Inglis Street at Barrington Street – Localized Drainage Infrastructure

- Capital and operation/maintenance works have been implemented at this location over the past few years by the municipality, including raising the sidewalks around the low point to mitigate stormwater overflow into adjacent properties. Halifax Water has undertaken sewer separation projects in this area to mitigate impacts to the system.
- This is one of the lowest locations on the peninsula and the system may become overwhelmed during extreme rain events, as has occurred in the past. Scheduling and completing the recommended hydraulic/hydrologic study for this site will be done in collaboration with Halifax Water.

Priority Site 5: Fall River – Highway 2 from Holland Road to Miller Lake Road – Localized Drainage Infrastructure

- The Fall River at Highway 2 Flood Mitigation Study was completed in 2023 and was 50% funded through the Province of Nova Scotia Flood Risk Infrastructure Investment Program (FRIIP).
- The study recommendations include upgrades to existing stormwater drainage infrastructure or installation of new stormwater drainage infrastructure at various locations along the defined corridor.
- In July 2023 HRM staff applied for funding through the Disaster Mitigation and Adaptation Fund (DMAF) Project for "Implementation of Stormwater Systems C, E, and H Upgrades, Highway 2/Fall River" through Infrastructure Canada (INFC). The DMAF program 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. DMAF provides up to 40% federal cost sharing on eligible projects.
- In May of 2024, HRM received approval-in-principle from INFC for the "Implementation of Stormwater Systems C, E, and H Upgrades, Highway 2/Fall River". Funding is pending the submission of a GHG assessment and Indigenous Consultation and is expected to be programmed and completed in the next 4 – 5 years.

Priority Site 6: Pleasant Street near Dartmouth General Hospital – NDMP Site 7 – Localized Drainage Infrastructure

- The Pleasant Street at Mount Hope Avenue Drainage Study was completed in 2023 and was 50% funded by the Province of Nova Scotia Flood Risk Infrastructure Investment Program (FRIIP).
- The study recommends upgrades to the existing stormwater drainage system near Pleasant Street at Mount Hope Avenue.
- In July 2023 HRM staff applied for funding through the Disaster Mitigation and Adaptation Fund (DMAF) Project for "Pleasant Street at Mount Hope Avenue Stormwater Drainage System Upgrade" through Infrastructure Canada (INFC). The DMAF program 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.). DMAF provides up to 40% federal cost sharing on eligible projects.

- In May of 2024, HRM received approval-in-principle from INFC for the “Pleasant Street at Mount Hope Avenue Stormwater Drainage System Upgrade” project. Funding is pending the submission of a GHG assessment and Indigenous Consultations and is expected to be programmed and completed in the next 4 – 5 years.

Priority Site 7: Cole Harbour Road at Perrin Drive – NDMP Site 5 – Large Natural Watershed System (Bissett Run)

- The Cole Harbour NDMP Follow-Up Mitigation Study was completed in 2019.
- In July 2023 HRM staff applied for funding through the Disaster Mitigation and Adaptation Fund (DMAF) Project for “Cole Harbour Road Stream Daylighting, Naturalization, and Pocket Park” through Infrastructure Canada (INFC). The DMAF program 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. DMAF provides up to 40% federal cost sharing on eligible projects.
- In May of 2024, HRM received approval-in-principle from INFC for the “Cole Harbour Road Stream Daylighting, Naturalization, and Pocket Park” project. Funding is pending the submission of a GHG assessment and Indigenous Consultations and is expected to be programmed and completed in the next 4 – 5 years.
- In 2023, a project to recapitalize the soccer field at Cole Harbour Common was approved in the 2024/25 Parks and Recreation Capital Budget. Parks and Recreation, Property Fleet and Environment, and Planning & Development staff recognized this recapitalization project as an opportunity to investigate the integration of an underground stormwater management facility (SWMF) under the playing surface to mitigate ongoing flooding issues in the area. Parks and Recreation agreed to defer the project to the 2025 construction season to allow for the integration of the underground SWMF into the recapitalization project, utilizing funds available through the HalifACT “Build Back Better” program to cover the capital cost differential. At time of writing this report, the RFP for the design of the SWMF and soccer field has closed and is in process of being awarded.

Priority Site 7: Shore Road Eastern Passage – Tidal Influence System

- The “Shore Road: Building with Nature” Project is ongoing. This project is in partnership with Infrastructure Canada (INFC) through the National Infrastructure Fund (NIF). NIF provides up to 60% federal cost sharing on approved projects.
- This project is focused on a 480m section of Shore Road between Norman’s Lane and Oceanlea Drive in Eastern Passage and involves the construction of a nature-based approach for erosion mitigation. This approach consists of building a new slope with native vegetation, a cobble beach and a submerged breakwater to dissipate wave energy.
- HRM signed the Contribution Agreement with Infrastructure Canada to receive funding for the “Shore Road: Building with Nature” project in May of 2023.
- The 60% design submission for this project was received in September 2024, and the project is currently in the detailed design phase.
- More work will be required along Shore Road to fully address the recommendations from the NDMP report. Should the naturalized shoreline approach prove successful, it is likely that staff will return with similar recommendations to mitigate flooding and erosion for other areas of Shore Road with similar energy and erosion profiles.

Priority Site 7: Hammonds Plains Road at Bluewater Road – Localized Drainage Infrastructure.

- The recommended Hammonds Plains at Bluewater Road drainage upgrades will be considered as part as part of the recommendations and implementation of the Future Service Communities Study which is examining potential future serviced development expansions at four locations including Sandy.

- Preliminary studies have been completed and indicate that much of the flooding at this intersection can be mitigated by raising the road and providing for water storage. However, this area was heavily impacted during the July 2023 storm and flooding, and it is expected that additional interventions will be needed. This work will be integrated with the potential initiation of secondary planning for the Sandy Lake Special Planning Area currently being considering through the Future Serviced Communities study. Subject to further reviews, developers will may be responsible to share the cost to re-construct this intersection and associated stormwater management facilities to accommodate potential development.

Priority Site 7: Bedford Highway at Mount Saint Vincent University – NDMP Site A2 – Localized Drainage Infrastructure.

- Several of the recommended actions from the 2018 NDMP study report will be addressed by the pending Seton Ridge development as well as the planned upgrades to the Bedford Highway through the ongoing Bedford Highway Mobility Corridor project that will be implemented by HRM. Completion of the Seton Ridge development is expected in 2028.

NDMP Implementation and HalifACT⁶ – working together for Critical Infrastructure Prioritization:

The National Disaster Mitigation Plan study report was carried out in response to a significant rainfall event that occurred in 2014 to help identify, prioritize, and seek funding opportunities for flood mitigation projects. Funded by Public Safety Canada, the focus of the 2018 NDMP study report was specific to flood hazards.

HalifACT was adopted by Council in 2020, and while having much broader and more comprehensive goals related to climate change, has several actions that are relevant to the continued work on the NDMP Implementation Plan. These actions include:

- A project to complete HRM-wide “Other Climate Hazards” mapping was completed in 2023. In this instance “Other Climate Hazards” refers to hazards that are not specifically flooding;
- Flood hazard mapping for the whole of HRM was completed in 2024. This mapping includes mapping flood hazard areas associated with pluvial and fluvial flooding as well as coastal flooding;
- A Hazard, Risk and Vulnerability Assessment (HRVA) study is underway to identify and map critical infrastructure across the municipality.

In the future, it will be possible to combine and analyze the conclusions, recommendations, and data contained in these studies to better identify which critical infrastructure assets may require upgrades to become more resilient to climate change in general (not exclusively to flooding), and to prioritize action, investment, and project implementation accordingly. This will include multiple assets across multiple asset categories and multiple climate hazards, including overlapping climate hazards.

Following completion of the projects to address the top ten priority sites, staff will continue working to reassess the remaining NDMP sites, as well as those sites and infrastructure assets in need of upgrades that may not have been captured through the NDMP process and its specific focus on flood hazards and public safety. This work can then be appropriately prioritized and implemented through the HalifACT Critical Infrastructure funding programs, or other funding programs where appropriate.

FINANCIAL IMPLICATIONS

As of October 2024, approximately \$1.04M has been spent by HRM on the delivery of NDMP-related projects. This is roughly 56% of the \$1.86M total spent to date on HRM NDMP-related projects, as much of the associated work has been completed with external funding support, which is detailed in this report. This does not include the cost associated with HRM staff resources, or the 2018 NDMP Study Report.

⁶[HalifACT: Acting on Climate Together](#)

There are no immediate financial implications arising from this report. The estimated capital cost to HRM to implement the known remaining actions is **\$10.21 million** in 2024 dollars which is roughly 57% of the total implementation cost. Of this, approximately \$870,000 (just under 5%) has not been included in a capital budget. The estimated remaining cost per project is presented in Table 3.

Table 3: Resource Summary for Remaining NDMP Actions and Projects

NDMP Action / Project	Est. Cost	Cost Sharing	Timeframe	Funding Source	
				Operating	Capital
Shubenacadie Lakes – P&D Policies	-	-	To follow Sackville Rivers project	Staff resources	-
Inglis at Barrington Hydrologic/ Hydraulic Study	\$0.35M ⁷	-	1-5 years	-	Required (not yet funded)
Shore Road (Eastern Passage) – Land Use Policies	-	-	After completion of Shore Road NIF project	Staff resources (P&D)	-
Sackville Rivers Floodplain – Land Use Policies	-	-	2025	Staff resources (P&D)	-
Shubenacadie Lakes Flood Mitigation Planning Study	\$0.52M	-	1-5 years	-	Required (not yet funded)
DMAF Project – Implementation of Stormwater System Upgrades, Highway 2/ Fall River	\$3.7M	\$1.5M (DMAF)	Substantial completion by Dec. 2032	HW resources HRM PW Design and Construction Staff (1 Designer, 1 Inspector)	CZ230600 – HalifACT Critical Infrastructure Projects
DMAF Project – Implementation of Stormwater System Upgrades, Pleasant Street	\$0.73M	\$0.48M (DMAF)	Substantial completion by Dec. 2032	HW resources HRM PW Design and Construction Staff (1 Designer, 1 Inspector)	CZ230600 – HalifACT Critical Infrastructure Projects
NIF Project - Shore Road Shoreline Protection	\$4.4M	\$2.0M (NIF)	Substantial completion by 2026	Reduced over existing HRM PW Design and Construction Staff (1 Designer, 1 Project Manager, 1 Inspector)	CZ230600 – HalifACT Critical Infrastructure Projects
Cole Harbour Common Soccer Field and Stormwater Management Facility (Design)	\$5.25M	N/A	Construction planned for 2025 season	Staff resources (P&D, PFE, Parks and Recreation)	CZ230600 – HalifACT Critical Infrastructure Projects
DMAF Project - Cole Harbour Road Stream Daylighting, Culvert Replacement, and Pocket Park	\$2.82M	\$2.56M (DMAF) \$1.02M (HW/ Other)	Substantial completion by Dec. 2032	HRM Parks and Recreation, PW Design and Construction Staff (1 Designer, 1 Project Manager, 1 Inspector)	CZ230600 – HalifACT Critical Infrastructure Projects

⁷2024 dollars - costing based on order-of-magnitude estimates provided in the 2018 NDMP Report (WSP), with inflation applied

Total	\$17.77M	\$7.56M			
Net HRM Cost	\$10.21M				

Operating costs for actions planned for 2025 can be accommodated within existing budgets, and future actions are subject to the review and approval of future operating budgets.

CZ230600 – HalifACT Critical Infrastructure Project budget was approved by Regional Council for the 2023/24 and 2024/25 budget years. The project account budgets an allocation for critical infrastructure and adaption and includes retrofits to municipal buildings as well as developing a framework for assessing and protecting critical infrastructure.

The critical infrastructure analysis is currently underway, which will determine the amount of Strategic Initiative funding for HalifACT that can be allocated to NDMP implementation. At this time, it is anticipated that the HRM portion of the approved-in-principal DMAF projects, as well as the additional costs associated with the Cole Harbour Common Stormwater Management Facility will be funded through HalifACT projects. The Hydrologic/Hydraulic Study at Inglis/Barrington, the Shubenacadie Lakes Flood Mitigation Planning Study as well as the 20 remaining “lower priority” NDMP sites will then be evaluated and prioritized through the critical infrastructure analysis, ensuring that these actions are appropriately prioritized for investment based on a more recent critical infrastructure assessment through a multi-hazard lens.

Staff are continuously seeking external funding programs and opportunities to complete NDMP actions in alignment with other ongoing HRM projects. This was the case with Karlson’s Wharf project where the climate adaptation action was integrated into the Cogswell Redevelopment project, the Cole Harbour Commons Soccer Field integration into a pending Parks project, Bedford Highway at MSVU, which has been integrated into the Bedford Highway functional plan project, and the Pleasant Street, Highway 2 Fall River, and Cole Harbour Road DMAF projects which have received approval-in-principle for 40% federal funding through the INFC DMAF program. Recognizing and taking advantage of these opportunities for alignment and external funding programs as they arise can significantly reduce costs to the municipality while simultaneously integrating resilience into our infrastructure investments and increasing staff capacity for climate adaptation work.

RISK CONSIDERATION

The projects outlined in this report are intended to mitigate risks associated with ongoing flooding at the 10 priority NDMP sites identified in the referenced 2022 staff report. There are risks associated with the completion of these projects as well as risks associated with not completing them, as follows:

1. Delay on implementation of the identified projects is associated with increased costs, both through anticipated escalation in construction costs, but also due to additional infrastructure repairs resulting from repeated flooding events, which are also anticipated to increase in frequency over time.
2. Through the course of completing the identified projects, there is a high likelihood that additional follow-up actions for implementation may be identified. This will likely lead to increased costs and extended timelines for full implementation of the actions recommended in the NDMP Study Report and subsequent works. The full scope of the work needed to address a given issue may not be fully known or fully understood until a given project has begun. As an example, the completion of the Sackville Rivers Mitigation Plan Study identified additional locations for investigation and investments to fully address the flooding issues within the Sackville Rivers watershed – not exclusively those locations that had been previously identified as existing within the floodplain.
3. The projects presented in this report address only the 10 “priority” NDMP sites. The 2018 NDMP report identified 30 sites for recommended action on flood mitigation, and the municipality is aware of still more locations that are vulnerable in a changing climate beyond those in the NDMP reports. This means that there are still an additional 20 sites (at a minimum) that have not yet received the level of investigation recommended.

4. There are risks associated with the available capacity of existing HRM staff and local industry to complete these projects.
5. Additional risks associated with project management for the individual projects, such as land acquisition, meeting funding deadlines, environmental permitting, etc., would be identified in individual project charters and risk registers.
6. At present, the projects outlined in this report are being implemented as separate projects into which the NDMP projects may be integrated as they proceed, as funding sources become available, and as staff and industry resources allow. In the future, these projects may require capital budget funding to be approved by Regional Council and may need to be included in future HRM and HW workplans.

COMMUNITY ENGAGEMENT

Community engagement for NDMP projects is being done on a project-by-project basis, depending on the type of project as well as the phase of the project.

For example, there is an ongoing community engagement program in place for the amendment of the Sackville Rivers Floodplains development regulations. However, there has not yet been community engagement activity related to the DMAF Highway 2/Fall River Stormwater System project as the preliminary design phase is not yet complete – community engagement will be a component of each of the NDMP implementation projects as needed.

ENVIRONMENTAL IMPLICATIONS

The recommendations provided in this report are intended to mitigate risks associated with ongoing flooding at the 10 priority NDMP sites identified in the referenced 2022 staff report. Flood risks are often considered together with environmental implications, as flood events may significantly impact the environment through physical processes like erosion and deposition of sediments, but also through damage from flooding leading to the release of substances into the environment that may have negative impacts. However, there are also environmental risks associated with the completion of each of the recommended actions, as well as those risks associated with not completing them, as follows:

1. Delay on implementation of the recommended actions is associated with increased potential for environmental degradation from repeated flooding events, which are likely to increase in frequency over time.
2. Several of the identified actions do include proposed in-water works. In-water work does pose environmental risk through habitat destruction or release of substances associated with construction that may have negative impacts activities into the environment. These risks are partially managed through the requirements of the environmental permitting process.

ATTACHMENTS

There are no attachments to this report.