

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed

Denise Schofield, Acting Chief Administrative Officer

DATE: January 19, 2022

SUBJECT: **National Disaster Mitigation Plan – Flood Risk Implementation Plan**

ORIGIN

October 16, 2018 Halifax Regional Council motion 14.2.1:

MOVED by Councillor Mancini, seconded by Councillor Nicoll

“THAT Halifax Regional Council:

1. Accept the methodology contained in the National Disaster Flood Risk Assessment study as set out in Attachment E of the staff report dated September 10, 2018, as the basis for prioritizing mitigation projects in flood prone areas; and
2. Direct the Chief Administrative Officer to:
 - a. Work with Halifax Water to develop a joint flood risk assessments implementation plan for the ten sites outlined in the Discussion section of the staff report dated September 10, 2018, which will include a funding/cost-sharing strategy with options for consideration of Regional Council during the 2019/20 and 2020/21 business plan and budget deliberations; and
 - b. Submit an application to the National Disaster Mitigation Program to carry out follow-up studies for the Sackville Rivers and Shubenacadie Lakes systems. “

MOTION PUT AND PASSED UNANIMOUSLY

LEGISLATIVE AUTHORITY

The *Halifax Regional Municipality Charter*, S.N.S. 2008, c. 39 subsection 35(1)(d)(i) provides:

35 (1) The Chief Administrative Officer shall: ...

(d) subject to policies adopted by the Council, (i) make or authorize expenditures, and enter into contracts on behalf of the Municipality, for anything required for the Municipality where the amount of the expenditure is budgeted or within the amount determined by the Council by policy, and may delegate this authority to employees of the Municipality, ...

RECOMMENDATION

It is recommended 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 this report, which considers opportunities within HRM's Street Recapitalization Program, HalifAct and the Halifax Water capital plan.

BACKGROUND

The 2007 Transfer Agreement between the Municipality and Halifax Water transferred municipal wastewater and stormwater assets to Halifax Water within the Service Boundaries. A primary purpose of the agreement was to evolve the operation and administration of these services towards a system whereby the general HRM taxpayer does not subsidize the utility rate payer of Halifax Water, and the utility rate payer of Halifax Water does not subsidize the HRM taxpayer.

The overall responsibility for stormwater management is multi-jurisdictional. The federal, provincial, and municipal governments along with Halifax Water and private property owners each have specific roles and responsibilities as stormwater moves through the stormwater cycle.

In 2013, Halifax Regional Council and the Halifax Water Board approved a two-year interim funding framework for stormwater systems that defined cost sharing responsibilities for HRM, Halifax Water, Residents, and Developers for various types of projects. The framework was used to address several priority areas that included Cow Bay Road, First Lake Drive, and Metropolitan Avenue.

The demand for upgraded stormwater facilities continued to grow and far exceeded the ability of either benefiting party to fund them over the short to medium terms. Since the expiry of the interim funding solution in 2015, an alternative cost sharing arrangement needed to be developed for capital projects between HRM and Halifax Water.

In January 2018, the HRM/Halifax Water Integrated Stormwater Management Policy Draft Framework was adopted by both Halifax Council and the Halifax Water Board. The Policy Framework identified the need for a Capital Investment Strategy for stormwater infrastructure that is consistent with the Transfer Agreement.

Fortunately, during this time federal/provincial programs addressing flooding and stormwater issues were being announced. One such program was the National Disaster Mitigation Program (NDMP). HRM and Halifax Water jointly carried out a flood risk assessments study under the NDMP to identify and seek funding for larger scale projects.

In October 2018, Halifax Council and the Halifax Water Board approved the methodology outlined in the NDMP report¹ to prioritize projects in flood prone areas. The report analyzed a Council-approved list of 30 sites and narrowed the prioritization to 10 sites. Based on the report's recommendations, staff were directed to develop a joint flood risk assessment plan for the top 10-sites identified in the NDMP study.

DISCUSSION

HRM-Halifax Water Stormwater Cost Sharing Policy

Following HRM Council's October 2018 direction to address the top 10 sites identified in the NDMP report, as part of the implementation plan to address these sites, HRM and Halifax Water have agreed on a draft set of guiding principles and a cost sharing framework that provides the necessary guidance on project governance and implementation. The appropriate sharing of costs between the Municipality, Halifax Water and private sector owners of real property is a key component of the integration plan. Staff and Halifax Water have determined the following principles will guide the sharing of such stormwater capital costs between the Municipality and Halifax Water:

1. Support the policies and principles outlined in the Draft Framework of the Integrated Stormwater Management Policy.
2. Apply to projects that have been identified as joint priorities or general stormwater projects, as well as opportunities that are identified during right of way or utility renewal projects.
3. Costs shall be allocated to the cost causer and/or to those deriving a direct benefit as defined by this document. This includes private property owners.
4. Costs shall be apportioned in a reasonable, fair, and equitable manner.
5. Cost apportionment of stormwater capital costs should not apply to upgrades required by the subdivision and/or future development of land. In these cases, the developer is responsible for the required upgrades. Halifax Water or the Municipality may choose to cost share if there is a joint benefit arising from the upgrade or an oversizing of proposed infrastructure.
6. Consider the effects of climate change to be required in design, and project costs will include the cost of climate change adaptation.
7. The assignment of cost shall be on a broad basis and shall depend on the number of benefitting parties (i.e., 100%, 50-50, 1/3-1/3-1/3), and whether the level of benefit is significant or insignificant.
8. The assignment of cost shall be by mutual agreement between Halifax Water and HRM.

The proposed cost apportionment between the Municipality, Halifax Water and private property owners, which uses the 2013 interim funding framework as a guide, are as follows:

¹ See report online at [Natural Disaster Mitigation Program – Flood Risk Assessment Study - Oct 16/18 Regional Council | Halifax.ca](#)

Cost Sharing Summary				
Project Type	Project Lead	Cost Responsibility		
		HRM	Halifax Water	Private Property Owner
Minor or Major Drainage System Asset Renewal and/or Upgrade	Halifax Water		100%	
New Storm Sewer required to upgrade Existing Combined Sewer	Halifax Water		100%	
New Deep Storm Sewer to provide minor drainage to address Private Property Minor Stormwater Impacts, which reduces I/I into a wastewater system, and which prolongs the life of a Municipal road	HRM or Halifax Water	34%	33%	33%
Remedy Street Flooding and Icing Problems within HRM right-of-way	HRM	100%		
New Major Drainage System where one has not been historically required or provided	HRM	50%		50%

There are a number of ways which this cost sharing may be incorporated into a formal document – for example, Halifax Water and the Municipality are negotiating an updated service level agreement which will govern a number of aspects of the relationship between the two organizations. As these negotiations continue and the service level relationship document moves forward, it may be that this cost sharing structure is incorporated into the service level agreement as a schedule.

National Disaster Mitigation Program – Flood Risk Assessment Study

Ranking	NDMP Site #	Site Name
1	25	Bedford HWY, Union Street to Highway 102 (Sackville Rivers)
2	A6	Shubenacadie Lakes
3	8	Karlsons Wharf @ Upper Water Street
4	9	Inglis Street @ Barrington Street ²
5	24	Highway 2, from Holland Road to Miller Lake Road, Fall River
6	7	Pleasant Street near Dartmouth General Hospital
7	5	Cole Harbour Road @ Perrin Drive ³
7	2	Shore Road – Eastern Passage
7	22	Hammonds Plains Road at Bluewater Road
7	A2	Mount Saint Vincent at Bedford Highway

² Halifax Water performed stormwater system maintenance in late 2021

³ Details presented in the council information report entitled John Stewart Arklow Drive – Cole Harbour

The NDMP study identified short (1-2 years), medium (3-5 years), and long (5+ years) term mitigation strategies for each site. Strategies included updating planning policies, creating new stormwater master plans, conducting further drainage studies, conducting feasibility studies, and constructing new infrastructure.

For some sites, there were previous studies that assisted WSP, the Municipality's consultant, in defining problems and identifying mitigation strategies. This includes NDMP sites 2, 5, 22 and 25. The remainder of the sites had very little information other than historical flood and maintenance records.

In October 2018, an opportunity arose to carry out follow up work on the top two priority sites. At the direction of Council, staff applied for and received additional funding through the NDMP program to carry out the Sackville Rivers Mitigation Planning Study and the Shubenacadie Lakes Floodplain Study. Both studies were completed on time and under budget. An overview of the results of these two studies is as follows:

Sackville Rivers Mitigation Planning Study

The Sackville Rivers Mitigation Planning Study was a follow up study to the floodplain modelling study carried out in 2017. The main objective of the current study was to assess the effectiveness of several flood mitigation measures in the area. While the study focused on the four main sites identified in the NDMP report, it also included sites identified in previous studies and discussions with HRM and Halifax Water operations staff.

Site 25, Bedford Highway, Union Street to Highway 102, was identified as the top priority site in the NDMP study. Flooding in this area has been well documented and impacts Range Park, Bedford Place Mall, and other homes and businesses in the area. The following mitigation measures were considered:

- Property Purchase
- Property Raising
- Accept Flood Conditions
- Berm Construction
- Emergency Overflow
- Bridge/Culvert Upgrades, and
- Channel Widening

The cost and effectiveness of mitigation options identified in the study range from an overall emergency flow system that would divert flow away from the Sackville River (similar to those in place in Winnipeg and New Orleans) at a cost of \$260 million, to a staged approach where impacted homes are purchased as they become available, properties are raised as sites are redeveloped, and bridge spans increased as they are upgraded or replaced.

Shubenacadie Lakes Floodplain Study

The purpose of the Shubenacadie Lakes Floodplain study was to carry out comprehensive hydrologic and hydraulic modelling of the Shubenacadie Lakes system, and to prepare flood inundation maps for a range of watershed and storm scenarios. The study produced flood lines for the 1:20 and 1:100-year events for planning and regulatory purposes. The next steps are to conduct stakeholder consultation, assess vulnerable floodplain infrastructure, review land uses and services, and review existing and future planning opportunities

Ultimately, a mitigation planning study would be carried out similar to the one carried out for the Sackville Rivers watershed.

Identified NDMP Actions

The following actions were developed using the above guiding principles and the NDMP reports as a guide and are anticipated to assist in the formation of a future implementation plan:

NDMP Flood Risk Assessment Action					
	Action	Timeframe	Estimated Cost⁴	Staff Resources (Staff commitment level)	Status
1	Sackville Rivers Mitigation Study	Short		Med	Complete
2	Shubie Lakes Floodplain Study	Short		Med	Complete
3	Incorporate Karlsons Wharf into Cogswell Redevelopment Project	Short	\$600K	Low	Complete
4	Cole Harbour Drainage Study	Short		Low	Complete
5	Hammonds Plains at Bluewater Preliminary Design	Short		Low	Complete
6	Shubie Lakes – Review/Update Planning and Development Policies	Short		High	
7	Inglis at Barrington Hydrologic/Hydraulic Study	Medium	\$75K	Low	
8	Highway 2 Drainage Study	Medium	\$100K	Low	
9	Pleasant Street Hydrologic/Hydraulic Study	Medium	\$75K	Med	
10	Shore Road Review/Update Planning and Development Policies	Medium		High	
11	Cole Harbour at Perron Drive Implementation	Medium	\$2.6 M	Med	
12	Hammonds Plains at Bluewater Road - Implementation	Medium	\$5 M	Med	
13	Sackville River Floodplain Property Acquisition	Medium	\$1.55 M		
	TOTALS		\$10 M		

Short (1-2 yrs) (Medium 3-5 yrs)

The HRM portion of storm sewer projects were previously funded through Account No.CR000001, Storm Sewer Upgrades. This account also funded opportunity stormwater projects generated by Halifax Water projects and HRM's paving program. In 2019, the account was used to cost share with Halifax Water on the Ellenvale Run project and to carry out storm sewer improvements on the street recapitalization of Herring Cove Road (19-248). Financial Services has confirmed that there is no funding left in this account.

The HalifACT – Climate Change Action Plan budget was presented to the Budget Committee in January 2022. The project account budgets an allocation for critical infrastructure and adaption over the next four years. This includes retrofits to municipal buildings as well as developing a framework for assessing and protecting critical infrastructure. A critical infrastructure analysis is budgeted to be carried out in 2022. The amount of Strategic Initiative funding for HalifACT which can be allocated to the NDMP implementation will not be known until this study is complete.

In addition, staff are continuously looking for synergistic opportunities to complete the identified actions. This was the case with Site 8 – Karlson's Wharf where the mitigation action was integrated as part of the Cogswell Redevelopment project. Taking advantage of such synergistic opportunities can realize significant cost reductions.

⁴ 2020 Class D cost estimates

FINANCIAL IMPLICATIONS

The estimated cost to implement the entire NDMP Flood Risk Assessment Action Plan is \$10M over a 5-year period. There is a possibility that some of these projects can be completed by integrating with HRM's own Street Recapitalization program and Halifax Water's capital work in order to realize synergistic cost savings. Also, pending the result of a critical infrastructure analysis, a HalifACT initiative, some of the work above may be included in HalifACT's strategic initiative funding. Staff will use 2022/23 as a planning year to try to identify these synergistic opportunities and bring a program and timeline back for Council's consideration as part of the 23/24 capital budget process.

RISK CONSIDERATION

Adopting an NDMP joint implementation plan will form the basis of a long-term funding strategy for the provision of stormwater facilities aimed at reducing flooding in the municipality. The outcomes include the protection of property, protection of the municipal right-of-way, and enhanced water quality in lakes and streams.

ENVIRONMENTAL IMPLICATIONS

Minimizing flood risk at these locations supports climate adaptation and increased infrastructure resiliency and is therefore supportive of HalifACT.

By identifying the short (1-2 years), medium (3-5 years), and long (5+ years) term mitigation strategies for each site, the implementation plan provides a roadmap for addressing flood risk in these areas.

ALTERNATIVES

1. Halifax Regional Council could choose not to approve the guiding principles and draft cost sharing mechanisms.
2. Halifax Regional Council could choose not to include the NDMP site implementation plan in the 2023/2024 business plan and budget deliberations.

ATTACHMENTS

No attachments.

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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