



WEST HANTS REGIONAL MUNICIPALITY REPORT

Information ☐	Recommendation ☒	Decision Request ☐	Councillor Activity ☐
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To: West Hants Reginal Municipal Council

Submitted by: Councillor Jim Ivey, District 11, Windsor South

Date: February 24, 2026

Subject: CSO Buyout Recommendation Report - Amended

LEGISLATIVE AUTHORITY

Municipal Government Act (MGA), Section 50

RECOMMENDATION or DECISION REQUEST

Council directs the CAO, (subject to the cost of funding being shared amongst the Federal Government of Canada and the Province of Nova Scotia and the West Hants Regional Municipality) to implement the West Hants Reginal Municipality's policy as drafted for its combined sewer overflow, CSO Residential Property Buyout Program.

BACKGROUND

Property ☒	Public Opinion ☒	Environment ☒	Social ☐	Economic ☒	Councillor Activity ☐
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OLDER HISTORY

Issues flooding around the Cunnable Creek area have existed for 142 years +/-.

The oldest engineering report able to be sourced online is dated 1884. (Included at the end of the appendix of this report. Original File Source: University of Alberta. The online source is from a collaborative, [Hathi Trust, Online Digital Archive](#)).

MORE RECENT HISTORY

Awareness of the issues of flooding by combined sewer overflow "CSO" in the creek area of Windsor increased substantially during the summers of 2021, 2022, 2023, and 2024. In early meetings with residents and staff following the 2021 summer floods, it was identified that the

former town had identified its intent (in a 2014 meeting) to have the deteriorated condition of the Cunnabel Creek sewer addressed in 2024. Though 2024 was three years away, that target date seemed a long way off given the nature of the sewer overflows that were taking place.

Since that time, (nearly 5 years ago), a significant volume of motions from council, information gathering, work by staff, studies with model analysis, options to consider by consultants and letters to federal and provincial government representatives has yet to yield a, 'ready-to-go solution'.

Meanwhile, the residents continue to try and survive while fearing future events involving more combined sewer-overflows into their homes. The health and safety risks associated with this situation are debilitating.

The table below reflects flooding on Stannus Street during the more recent years and prior. This was sourced from the more detailed ([Flood Chronology Information Update Report](#)) presented to West Hants Council on September 28, 2024.

Pre-2021	2021	2022	2023	2024
Sept 1999	Jul 27, 2021	Jan 17, 2022	Jan 26, 2023	Jun 24, 2024
Nov 7, 2010	Sept 2, 2021	Feb 18, 2022	July 21, 2023	July 6, 2024
Oct 6, 2011	Sept 10, 2021		July 27, 2023	July 8, 2024
Nov 2, 2014	Oct 17, 2021		Aug 8, 2023	July 11, 2024
Jun 21, 2019	Nov 1, 2021		Aug 30, 2023	
	Nov 23, 2021		Sept 14, 2023	

DISCUSSION

Discussions about property buyouts and / or managed retreats of residents in higher risk flood areas surfaced provincially (Halifax / Bedford / Union Street) following the flash floods of 2023 and earlier (late 2016 with property buyouts in Cape Breton). It was around late September 2023 when West Hants initially broached the topic and then in greater depth beginning in April 2024.

The purpose of this report is to bring the buyout policy discussions into focus, and to determine the forward direction of Council.

Summary of amendments for Council to consider within the policy are noted below. Changes within the full policy document can be viewed in the Appendix of this document (blue ink to highlight).

In summary the amendments for Council to consider include:

- **[1.1]** the removal / reduction of property addresses from the policy that have not been subjected to or identified a CSO event to date. The original policy versions included property addresses from 364 Stannus Street to 430 Stannus (6 properties). The address range proposed is now amended from 364 Stannus to 406 Stannus (4 properties).

This same amendment also occurs in paragraphs, **[3.10]** and **[4.1]**.

- **[3.3]** Funding Limit was originally identified as “TBD”.

It has been amended to now reflect

“Funding and Funding Limit” which means, “shared contributions from the Federal Government of Canada, the Province of Nova Scotia and the Municipality as defined by the formulas within this Policy, in articles 5.5.1 and 5.5.2.

- **[4.5]** Housekeeping amendment to remove an errant, ‘i taxes’

- **[5.1 and 5.1.1]** Housekeeping amendment the reflect the forward year-end as 2026

A few other items informationally included in the appendix are as follows

- Previous summary report circulated by staff to Council dated December 2, 2025

- Halifax City Council Report - Use of Managed Retreat as a Climate Adaptation Approach

- Town Creek and Sewer Outlet Report, Windsor NS 1884

NEXT STEPS

To be determined by Council.

FINANCIAL IMPLICATIONS

To be determined based on Council discussion.

Within the financial discussion at the CoTW meeting on December 2, 2025 it was suggested that if -

- Council approved the policy
- 3 of the 4 properties applied to accept the buyout
- the total buyout cost was \$1,000,000
- the debt rate was 7% - and if –
- Council fully funded the program without federal or provincial cost sharing...

It would cost West Hants 1/3rd of a cent on the tax rate.

Federal and provincial contributions received would reduce that rate accordingly.

ALTERNATIVES

For discussion

ATTACHMENTS

As noted within the report

CHIEF ADMINISTRATIVE OFFICER REVIEW

(For use if report is from a Councillor. CAO to provide additional comments on background, department/staff responsible and workload, budget, options, preferred strategy. State “Not Applicable” if report is from staff which already incorporates CAO review.)

Report Prepared by: Jim Ivey, Councillor, Windsor South, District 11

Report Reviewed by: _____
(Name and Title)

Report Approved by: _____
(Name and Title)

Appendix Follows

TITLE

This policy shall be known, and cited, as the Combined Sewer Overflow (CSO) Residential Buyout Program (the “**Policy**”).

SCOPE AND PURPOSE

- 1.1. This Policy is applicable to the Combined Sewer Overflow (CSO) Residential Buyout Program for West Hants Regional Municipality and all qualifying residential properties. This Policy shall only apply to those eligible properties identified between 364 and 430 406 Stannus Street, Windsor, NS that have been exposed to an over the curb or overland CSO event. The program may evolve in the future.
- 1.2. The purpose of this Policy is to define the operational parameters of the Combined Sewer Overflow (CSO) Residential Buyout Program. This includes specifying the program’s eligibility criteria, methods of assessing applications, methods and parameters for determining the market value of eligible homes, relocation costs, and details regarding funding.
- 1.3. The purpose of the Combined Sewer Overflow (CSO) Residential Buyout Program is to provide a voluntary opportunity for the homeowners to individually apply for or accept a buyout plan if they so choose.

REFERENCES

- 2.1. Nova Scotia *Municipal Government Act*, Section 50 (1)
- 2.2. Nova Scotia *Municipal Government Act*, Section 65 A and B.

DEFINITIONS

- 3.1. “**Applicant**” means an individual or individuals who jointly are the registered owner (s) of the qualifying properties on Stannus Street, Windsor Nova Scotia.
- 3.2. “**CAO**” means the Chief Administrative Officer of the Municipality.
- 3.3. “**Funding and Funding Limit**” ~~TBD~~ means subject too equally shared contributions from the Federal Government of Canada, the Province of Nova Scotia and the Municipality as defined by the formulas within this Policy, in articles 5.5.1 and 5.5.2.
- 3.4. “**Municipality**” means West Hants Regional Municipality.

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- 3.5. **“Program”** means the Combined Sewer Overflow (CSO) Residential Buyout Program.
- 3.6. **“Program Application”** means an application to the Combined Sewer Overflow (CSO) Residential Buyout Program.
- 3.7. **“The Property”** means all land and structures located at the applicant’s address inclusive of the primary residence of the applicant (s) or a residential home.
- 3.8. **“Combined Sewer Overflow (CSO) Event”** means the property, and specifically the primary residence, has been exposed to an over the curb or overland water and CSO flooding event as a result of an extreme weather event.
- 3.9. **“Relocation Costs”** means the moving costs, realtor fees, legal costs associated with buyout program, compensation or taxation offsetting associated with the difference between current annual property tax values and property tax values associated with future home purchased by the applicant within the Municipality.
- 3.10. **“Qualifying Property”** is existing properties between 364 and 430 406 Stannus Street, Windsor, NS that meets all the eligibility requirements set out in this Policy.

QUALIFICATIONS

To qualify for the Program, the following conditions must be met:

- 4.1 The property must be an existing property between 364 and 430 406 Stannus Street, Windsor, NS before the date of adoption by Council of this Policy;
- 4.2 The property must have been exposed to a CSO event;
- 4.3 The property must be privately owned by an individual or jointly by individuals and registered with the Land Registry of Nova Scotia, before the date of adoption by Council of this Policy. The property cannot be owned or rented by the Federal, Provincial or Municipal government or by a for-profit Corporation;
- 4.4 If the property is jointly owned, the program application must be signed by all registered owners in order to be eligible;

- 4.5** The owner (s) of the property must not be in arrears of any Municipal taxes, ~~taxes~~, including penalties and interest.

APPLICATION AND APPROVAL

- 5.1.** The program will not be reoccurring year after year. Eligible properties must submit their application between the date of the approved policy and the submission deadline of [December 31, 2026](#).

5.1.1. Applications will be review, evaluated and forwarded to Council for review as applications are received on an ongoing basis up to [December 31, 2026](#)

5.1.2. All Applicants must submit their Program Application by the submission deadline.

- 5.2.** All properties must be appraised in order to determine market value for the purpose of the buyout.

5.2.1. All properties will require two independent appraisals by appraisers who are current and registered members of the Appraisal Institute of Canada (AIC).

5.2.1.1 One appraisal will be conducted by an appraiser selected by the municipality at the cost of the municipality.

5.2.1.2 The second appraisal will be conducted by an appraiser of the homeowner's choice with the cost to be reimbursed by the municipality.

5.2.1.3 The applicant must provide documentation to the Chief Administrative Officer that the appraiser recognizes all components within section 4 of the policy as well as an accompanying quote for the appraisal before the appraisal is conducted. The Chief Administrative Officer must approve the appraisal reimbursement before the appraisal proceeds. No reasonable request for appraisal services from a vendor of the property owner's choice will be denied.

5.2.2. Separate and independent consent forms for each appraisal must be completed by the applicant before the appraisals are conducted.

- 5.2.3.** Special instructions will be provided to the appraiser that fair market value of the property is to be valued without consideration of the recent flooding events impacting the property.
- 5.2.4.** Confidentiality of the two appraisals will be strictly maintained between the municipality and the homeowner and will not be presented or discussed by the municipality in public.
- 5.3.** Following the Program Application submission deadline, Staff will review all Program Applications.
- 5.4.** Staff will evaluate all Program Applications based on eligibility set out in Sections 4 and 5 of this Policy. Staff will then recommend approval to Council. Program Applications are subject to written approval by Council or its designate.
- 5.5.** The total value of the buyout and offer to the applicant associated with the application including the property value and all eligible relocation costs is at the sole discretion of Council for their determination and guided by the formulas as noted in articles 5.5.1 and 5.5.2.
- 5.5.1.** The property value for the purpose of the buyout will be guided by the average value calculated between the two separate appraisal values.
- Example: Appraisal #1 plus (+) Appraisal #2 divided by (/) 2 = (property value)
- 5.5.2** The value associated with all relocation costs will be determined by adding an additional 10% to the property value as defined in article 5.5.1.
- Example: Property value multiplied by (X) 10% = relocation cost reimbursement.
- 5.6.** Applicants are not eligible to apply for grants or contributions under any other grant program established by Council after submitting their application to the program as it relates to their property. Should the applicant withdraw their application, or it be denied by Council, only then can the applicant apply for the established grants and contributions established by Council as per the set terms of the grants or programs.



West Hants Regional Municipality
Combined Sewer Overflow (CSO) Residential
Buyout Program

RCOXX-###.00

- 5.7.** Applicants should submit with their Program Application, all applicable supporting documentation to attest to the severity and frequency of flooding. This may include, but is not limited to, photos with a timestamp and/or documents that supported past insurance claims.

5.7.1. The Municipality reserves the right to inspect the home and/or property to verify applications.

5.7.2. The public records of the municipality noting flooding and CSO events are to be used to supplement and support an application.

PARTICIPATION AGREEMENT

- 6.1** Successful Applicants must enter into a participation agreement with the Municipality's CAO or their designate.

I, Deanna Snair, Municipal Clerk of the West Hants Regional Municipality, in the Province of Nova Scotia, do hereby certify that this is a true copy of the Combined Sewer Overflow (CSO) Residential Buyout Program as adopted by the Council of the West Hants Regional Municipality at a meeting duly called and held on the ____ day of (month), ____ (year).

Deanna Snair

Adoption	
Notice to Council	Date
Approval	Date
Description	



P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. 5

Halifax Regional Council
March 19, 2024

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed

SUBMITTED BY:

Cathie O'Toole, Chief Administrative Officer

DATE: March 12, 2024

SUBJECT: Use of Managed Retreat as a Climate Adaptation Approach

INFORMATION REPORT

ORIGIN

On September 12, 2023, the following motion of Regional Council was put and passed:

MOVED by Councillor Outhit, seconded by Councillor Cuttell

THAT Halifax Regional Council:

1. Direct the Chief Administrative Officer (CAO) to provide a staff report on managed retreat as a climate adaptation approach to manage risks and impacts associated with extreme weather events in the municipality.
2. Direct the Mayor to write a letter to the Premier of Nova Scotia requesting the provincial government work with the municipality to create a provincial buyout program specific to the Union Street properties in Bedford impacted by extreme flooding in July 2023, similar to what was done in 2016 in Sydney, Cape Breton.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, S.N.S. 2008, c. 39

7A The purposes of the Municipality are to (a) provide good government; (b) provide services, facilities and other things that, in the opinion of the Council, are necessary or desirable for all or part of the Municipality; and (c) develop and maintain safe and viable communities.

61 (1) The Municipality may acquire, and own property granted or conveyed to the Municipality either absolutely or in trust for a public or charitable purpose.

61 (3) The property vested in the Municipality, absolutely or in trust, is under the exclusive management and control of the Council, unless an Act of the Legislature provides otherwise.

65 (1) Where the Council considers it necessary to acquire real property, including real property outside the Municipality, for a purpose for which it may spend money, the Council may expropriate the real property, but this power to expropriate does not authorize the Municipality to expropriate property of another municipality.

79A (1) Subject to subsections (2) to (4), the Municipality may only spend money for municipal purposes if (a) the expenditure is included in the Municipality's operating budget or capital budget or is otherwise authorized by the Municipality; (b) the expenditure is in respect of an emergency under the Emergency Management Act; or (c) the expenditure is legally required to be paid.

BACKGROUND

Climate change adaptation means planning for and acting on the anticipated impacts of climate change. Climate change is already causing impacts such as warmer temperatures, more frequent and severe storm events, increased drought, and warmer and rising seas, among others. Adaptation helps build resilience by increasing capacity to prepare and respond to climate-related impacts such as natural disasters.

Flooding is Canada's most frequent and most costly natural disaster¹. In 2022 alone, damage from extreme weather cost \$3.1 billion in insured damages, and Canadians now pay \$3 out-of-pocket for every \$1 in damage covered by insurance². Residential and commercial districts face increasingly frequent and intense floods due to climate change. Sea-level rise, heavy precipitation, rapid snowmelt, and more frequent and severe storms can overwhelm urban drainage infrastructure. These risks are further perpetuated by decades of development in floodplains³.

In addition to protection and accommodation, managed retreat is a climate change adaptation approach to managing the risks and hazards shorelines pose to built infrastructure. Managed retreat is a collective term for management and mitigation tools designed to move existing and planned development out of areas at risk to hazards such as floodplains, eroding coastlines, and coastal hazards. Managed retreat is based on proactively moving out of harm's way and strategies include: 1) abandonment, 2) relocation, and 3) avoidance. These strategies employ management tools, such as building restrictions, setbacks, land acquisition (buyouts), and disincentives to development⁴.

This information report provides an overview of managed retreat strategies and opportunities that could be employed within HRM to adapt to flood hazards and risks associated with climate change.

¹ Kennedy, B. 2019. "[There Will Be Floods](#)". *The Star*. June 6, 2019.

² Insurance Bureau of Canada. 2023. "[Severe Weather in 2022 Caused \\$3.1 Billion in Insured Damage -- making it the 3rd Worst Year for Insured Damage in Canadian History](#)."

³ Thistlethwaite, J., Le Geyt, M., Martin, G., Cottar, S., & Whittaker, L. 2023. *Buying Out the Floodplain: Recommendations for Strategic Relocation Programs in Canada*. Partners for Action, University of Waterloo.

⁴ Neal, W. J., Bush, D. M., & Pilkey, O. H. (2005). Managed retreat. *Encyclopedia of coastal science*, 14, 603-605.

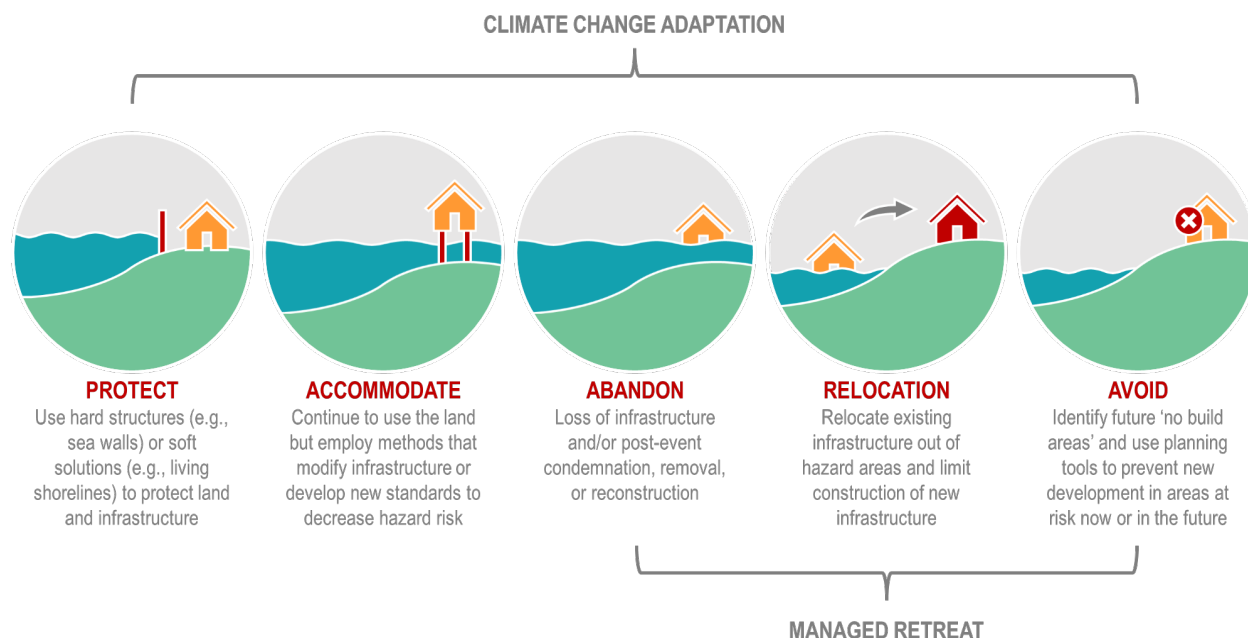


Figure 1: Climate change adaptation responses to coastal hazards⁵

DISCUSSION

1. ABANDONMENT

Abandonment can occur unexpectedly or as part of a deliberate withdrawal strategy. Historically, unplanned abandonment often follows destructive events like storms, leading to the loss of buildings and land, making reconstruction impractical, especially in cases of bluff retreat. A long-term planned abandonment approach, sometimes referred to as the "do nothing" strategy, involves acknowledging the fixed lifespan of infrastructure. When the infrastructure is overcome by the sea, bay, or lake, no effort is made to safeguard it. Alternatively, planned abandonment can be executed by either prohibiting post-storm reconstruction or mandating relocation landward of the revised post-storm setback control line. Discouraging rebuilding after storms can also be achieved through other methods, such as denying flood insurance and other subsidy programs⁶.

This approach can be applied to several types of infrastructure such as roads and wells, especially when rebuilding and relocation are not possible after a disaster due to significant damage or contamination.

2. RELOCATION

Relocation is the primary form of managed retreat. Active relocation is the proactive relocation of infrastructure before any threat arises or, if threatened, before it is damaged. Passive relocation entails reconstructing a demolished or damaged structure in a different area, positioned away from the shoreline and beyond the reach of coastal hazard zones.

The concept of long-term relocation typically involves a comprehensive strategy embedded in community zoning or land use plans. These plans identify a frontal zone of infrastructure susceptible to the impacts of

⁵ Based on: Tasman District Council. (2021) *Coastal Management Options for Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua*.

⁶ Neal, W. J., Bush, D. M., & Pilkey, O. H. (2005). *Managed retreat*. *Encyclopedia of coastal science*, 14, 603-605.

known erosion rates or projected flood levels resulting from storm surge and coastal flooding. Subsequently, these identified structures are slated for relocation over an extended period, assuming they won't be lost in impending storms. Relocation can be applied to several types of infrastructure including (but not limited to), residential buildings, roads, telecommunications infrastructure, and other utilities. For example, the Province of Nova Scotia recently announced plans to relocate a 500-metre section of road along Lawrencetown Beach farther away from the coast to protect it from storm surges and pounding surf. The current section of road will be naturalized and made available for new recreation and amenities⁷.

One relocation managed retreat tool is a property buyout/land acquisition program — which involves the relocation of high-risk infrastructure (often neighbourhoods) via the government acquisition of property. These programs are considered among the most effective forms of risk management since they directly reduce exposure to flooding. Strategic relocation intentionally withdraws people from hazardous, flood-prone areas and relocates or demolishes buildings and infrastructure. Well-planned buyout programs can effectively eliminate flood risk to people and property, restore natural flood protection along shorelines, and open land for public recreation⁸.

A buyout program can be designed in several ways and may include the following considerations:

- **Compensation:** Assessments can be based on the previous year's Market Value Assessment per the Assessment Roll provided by Property Valuation Services Corporation (PVSC). Most programs use pre-disaster property values as a baseline to calculate compensation, sometimes using third-party appraisals, and while such offers are more appealing for residents, they also result in higher program costs⁹. Other programs cap property values based on a damage threshold. For example, New Brunswick has a structural damage payout program and a buyout program for homeowners affected by floods where individuals can receive up to \$200,000 in financial assistance over a property's lifetime, after which the property is ineligible for further aid. In Newfoundland and Labrador, after Hurricane Fiona, the province employed a buyout program that set a home's replacement value at a minimum of \$200/ft² based on a detailed assessment, replacement value of the property contents in accordance with Disaster Financial Assistance Arrangements, and a value for land or provision of a suitable land option^{10,11}. The consensus in research is that financial offers need to be high enough that they make homeowners feel like they are getting appropriate value for their property and allow them to recreate their same quality of life elsewhere.
- **Program Approach:** Buyouts can be mandatory or voluntary, however, mandatory programs are rare since they face social and political opposition. As such, most buyout programs are explicitly voluntary by design even though legal mechanisms exist in some jurisdictions for authorities to acquire property for public safety. While voluntary programs are likely to be more acceptable to residents and elected officials since they offer flexibility for individuals to determine whether they want to participate, they can also be less efficient as property that is left behind remains exposed to flooding. In the case of Gatineau, Quebec, the buyout program offered after spring flooding in 2017 called for mandatory buyouts for damaged properties within the 1:20 zone (area that is at risk of flooding during floods that have a five per cent chance of occurring in any given year) and voluntary buyouts for damaged properties outside the 1:20 zone¹². Relocation also risks disproportionately impacting the already socially vulnerable, however, research has shown that through robust engagement, public consultation, program

⁷ Deer, T. 2023. ["Province to relocate road along Lawrencetown Beach to avoid storm damage."](#) CBC News.

⁸ Calil, J., & Newkirk, S. 2017. "Aligning Natural Resource Conservation, Flood Hazard Mitigation, and Social Vulnerability Remediation in Florida." *Journal of Ocean and Coastal Economics* 4 (1).

⁹ Salvesen, D., T. BenDor, C. Kamrath & B. Ganser. 2018. "Are Floodplain Buyouts a Smart Investment for Local Governments?" UNC Policy Collaboratory.

¹⁰ Mullin, M. 2023. ["They were displaced en masse. A year on from the storm, Fiona's victims are still living in limbo."](#) CBC News.

¹¹ Province of Newfoundland and Labrador. 2022. *Provincial Government Announces Financial Support Details for Residents Impacted by Hurricane Fiona. Executive Council and Justice and Public Safety News Release. November 15, 2022.*

¹² Laucius, J. 2019. ["Letting nature take its course: insurance, relocation may be part of the solution."](#) Ottawa Citizen. May 2, 2019.

transparency, and partnership with local community groups and leaders, trust can be built, and resource deficits can be addressed¹³.

- **Timing:** A major flood brings attention to an inundated community's risks, opening a post-disaster window of opportunity to initiate new policies that involve significant changes and costs. Proactive programs can be more cost-efficient, engage a wider set of stakeholders, and facilitate a more systematized rollout. This is especially important in the face of known and compounding hazards such as hurricanes, flood risks, and extreme precipitation¹⁴.
- **Governance:** Most programs are implemented by local level governments using provincial and federal investments. As such, implementing a buyout program requires collaboration across all levels of government. The federal Disaster Mitigation and Adaptation Fund (DMAF) has previously funded provincial buyout programs (e.g., Grand Forks, British Columbia¹⁵). Well-run, efficient buyout programs require significant human and financial resources and capacity—from consulting with the public and administering the program to processing funding applications and managing land use planning¹⁶.

Property Buyout Opportunities

Nova Scotia's Disaster Financial Assistance programs are designed to help municipalities, small businesses, and not-for-profit groups after a major storm or natural disaster. This program helps those whose losses aren't covered by insurance and can cover damage up to \$200,000¹⁷. In the wake of recent extreme flooding events and in anticipation of future extreme events, there is the opportunity to discuss and partner with the Province of Nova Scotia on the development of a new buyout program or modify the existing provincial disaster assistance program to include buyouts. For example, after major flooding in parts of Sydney, Nova Scotia, and area in 2016, the Government of Nova Scotia bought out 18 homeowners whose properties were deemed uninhabitable¹⁸. The homes were assessed at their pre-flood fair market value, and there was a \$200,000 financial assistance limit set by the province. Homes were demolished and the area was deemed a 'no-build zone'¹⁹.

When considering land acquisition and property buyouts, it is important to note that they are primarily funded by provincial and federal governments, in collaboration with municipalities. For example, in 2018, Grand Forks and surrounding area faced a 1-in-200-year flood, displacing 1,471 households and causing extensive damage, costing the city nearly \$60 million. The Government of British Columbia sought federal assistance through DMAF, leading to the approval of a buyout program by the Grand Forks City Council. The municipality reserved the right to expropriate homes if owners chose to stay, and the DMAF funding mandated returning acquired properties to their natural state²⁰. The program yielded a 3.4:1 return on investment according to a cost-benefit analysis²¹.

HRM and Halifax Water have previously identified the ten most flood prone areas within the municipal service boundary, which included the Sackville River Floodplain, and identified potential solutions and costs, one being property buyouts²². Lastly, as per the September 12, 2023, Regional Council Motion, Mayor

¹³ Thistlethwaite, J., Le Geyt, M., Martin, G., Cottar, S., & Whittaker, L. 2023. *Buying Out the Floodplain: Recommendations for Strategic Relocation Programs in Canada*. Partners for Action, University of Waterloo.

¹⁴ Baker, C.K., S. B. Binder, A. Greer, P. Weir & K. Gates. 2018. "Integrating Community Concerns and Recommendations into Home Buyout and Relocation Policy." *Risk, Hazards & Crisis in Public Policy* 9 (4): 455–79. <https://doi.org/10.1002/rhc3.12144>

¹⁵ Thistlethwaite, J., Le Geyt, M., Martin, G., Cottar, S., & Whittaker, L. 2023. *Buying Out the Floodplain: Recommendations for Strategic Relocation Programs in Canada*. Partners for Action, University of Waterloo.

¹⁶ Mach, K. J., C.M. Kraan, M. Hino, A. R. Siders, E. M. Johnston & C. B. Field. 2019. "Managed Retreat through Voluntary Buyouts of Flood-Prone Properties." *Science Advances* 5 (10): eaax8995

¹⁷ Government of Nova Scotia. n.d. [Disaster Financial Assistance](#).

¹⁸ Parnham, H. 2023. "[managed] retreat: the elephant in the adaptation framework." Prepared for CLIMAtlantic by DV8 Consulting.

¹⁹ Weeks, J. 2016. "[Sydney Flood Victims Agree Home Should be Torn Down](#)." CBC News. October 24, 2016.

²⁰ Thistlethwaite, J., Le Geyt, M., Martin, G., Cottar, S., & Whittaker, L. 2023. *Buying Out the Floodplain: Recommendations for Strategic Relocation Programs in Canada*. Partners for Action, University of Waterloo.

²¹ NOR-EX Engineering Ltd. 2019. "[City of Grand Forks DMAF Step II Hazard Risk Assessment](#)."

²² [National Disaster Mitigation Plan - Flood Risk Implementation Plan - May 3/22 Regional Council | Halifax.ca](#)

Savage wrote a letter to the Premier of Nova Scotia requesting the provincial government work with the municipality to create a provincial buyout program specific to the Union Street properties in Bedford impacted by extreme flooding in July 2023, like what was done in 2016 in Sydney, Cape Breton. A copy of the letter is provided in Attachment A. As of the writing of this report, HRM has not received a response from the Premier.

3. AVOIDANCE

Avoiding hazards is the most effective method to eliminate losses of property and lives by not establishing infrastructure in hazardous areas. Here, zoning plays a vital role in ensuring the secure placement of infrastructure, keeping it away from coastal dangers through setbacks and easements.

Setbacks are an avoidance management tool that aims to keep structures out of extreme-to-high hazard zones, or at least at a distance from the hazardous processes (e.g., coastal erosion, storm surge). Setbacks can be a fixed distance from a reference point or adjusted, for example, as the shoreline erodes or storm impacts change. "Safe" setback distances vary from location to location according to erosion rates, climate projections, the type of infrastructure, and other factors.²³.

CONCLUSION

This report provides an overview of managed retreat strategies in response to climate change and extreme weather. When choosing an adaptation strategy (i.e., protection, accommodation, or managed retreat), considerations for public safety, infrastructure type, asset lifespan, budget, available budget, legislative authority, insurance coverage, type and degree of climate risk/hazard, and political/social will must be made. As climate change and extreme weather continue to threaten to HRM assets, critical infrastructure, communities, and the environment, managed retreat is a key adaptation tool that can be employed to maintain or improve levels of service and public safety.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this information report.

COMMUNITY ENGAGEMENT

There are no community engagement implications associated with this information report.

ATTACHMENTS

Attachment A: Letter to the Premier of Nova Scotia Re: Buyout Program for Union Street Properties in Bedford Impacted by Extreme Flooding in July 2023

A copy of this report can be obtained online at [halifax.ca](https://www.halifax.ca) or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Shannon Fernandes, Manager, Climate Adaptation, Property, Fleet, and Environment,
782.641.1069

²³ Neal, W. J., Bush, D. M., & Pilkey, O. H. (2005). *Managed retreat. Encyclopedia of coastal science*, 14, 603-605

Larissa Sweeney, Junior Environmental Professional, Property, Fleet, and Environment,
902.877.4007

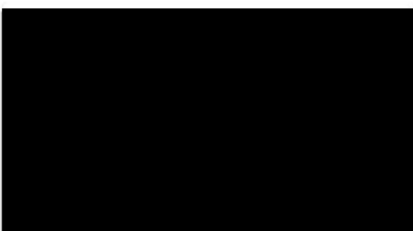
HALIFAX



MIKE SAVAGE

MAYOR
LE MAIRE
ME'R

October 16, 2023



Dear Premier Houston:

Re: Buyout Program for Union Street Properties in Bedford Impacted by Extreme Flooding in July 2023

Overview:

Solutions need to be found for the impacted properties on Union Street that have been damaged by repetitive severe floods, particularly the extreme flooding that occurred in July 2023. Property buyout programs—which involve the relocation of high-risk neighbourhoods via the government acquisition of property—are considered among the most effective forms of risk management since they directly reduce exposure to flooding. Well-planned buyout programs can effectively eliminate flood risk to people and property, restore natural flood protection along shorelines, and open up land for public recreation.

Background:

Flooding is Canada's most frequent and most costly natural disaster. In 2018 alone, damage from extreme weather cost \$1.9 billion in insured damages, and Canadians now pay \$3 out-of-pocket for every \$1 in damage covered by insurance. Due to climate change, residential and commercial districts face increasingly frequent and intense floods, whether from sea-level rise along the coasts, heavy precipitation and rapid snowmelt that overflow riverways, and more frequent and severe storms that overwhelm urban drainage infrastructure. And these risks are all perpetuated by decades of development in floodplains.

After major flooding in parts of Sydney, Nova Scotia, and area in 2016, the Government of Nova Scotia bought out 18 homeowners whose properties were deemed uninhabitable. The homes were assessed at their pre-flood fair market value, and there was a \$200,000 financial assistance limit set by the province. Homes were demolished and the area was deemed a 'no-build zone'.

Buyout Program Considerations:

A buyout program can be designed in several ways and may include the following considerations:

- *Compensation:* Assessments can be based on the previous year's tax assessment, pre-flood fair market value, post-flood fair market value etc. Most programs use pre-disaster property values as a baseline to calculate compensation, sometimes using third-party appraisals. While such offers are more appealing for residents, they also result in high program costs. Others capped property values based on a damage threshold. However, the consensus in the research is that financial offers need to be high enough that they make homeowners feel like they are getting appropriate value for their property and allow them to recreate their same quality of life elsewhere.
- *Program Approach:* Buyouts can be mandatory or voluntary, for example, if a property is in a floodplain that's likely to experience a one in twenty years flood. Mandatory buyouts can be enforced through expropriation. These programs, however, are rare since they face social and political opposition. As such, most buyout programs are explicitly voluntary by design even though legal mechanisms exist in some jurisdictions for authorities to acquire property for public safety. While voluntary programs are likely to be more acceptable to residents, they can also be less efficient as property that is left behind remains exposed to flooding. Relocation also risks disproportionately impacting the already socially vulnerable. However, research has shown that through robust engagement, public consultation, program transparency, and partnership with local community groups and leaders, trust can be built, and resource deficits can be addressed.
- *Timing:* A major flood brings attention to an inundated community's water risks, opening a post-disaster window of opportunity to initiate new policies that involve significant changes and costs. Proactive programs can be more cost-efficient, engage a wider set of stakeholders, and facilitate a more systematized rollout. This can be especially important in the face of known and compounding hazards such as hurricanes, flood risks, and extreme precipitation.

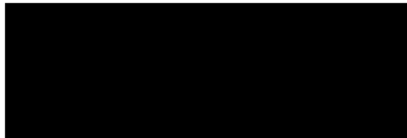
The Honourable Tim Houston, Premier of Nova Scotia
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- *Governance:* Most programs are implemented at local levels by governments with national and sub-national governments are often involved as sources of financial and administrative capacity. The federal Disaster Mitigation and Adaptation Fund has previously funded provincial buyout programs (e.g., Grand Forks, British Columbia). Well-run, efficient buyout programs require significant human and financial resources and capacity—from consulting with the public and administering the program to processing funding applications and managing land use planning.

Ask:

Nova Scotia's Disaster Financial Assistance programs are designed to help municipalities, small businesses, and not-for-profit groups after a major storm or natural disaster. This program helps those whose losses aren't covered by insurance and can cover damage up to \$200,000. In the wake of extreme flooding events and in anticipation of future extreme events, the time is now for the Province of Nova Scotia to discuss and partner with Halifax Regional Municipality on the development of a new buyout program or modification of an existing provincial disaster assistance program to include the buyout of properties on Union Street, Bedford that were impacted by extreme flooding in July 2023.

Kind regards,

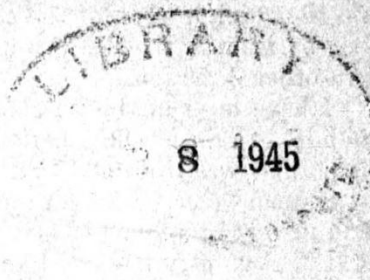
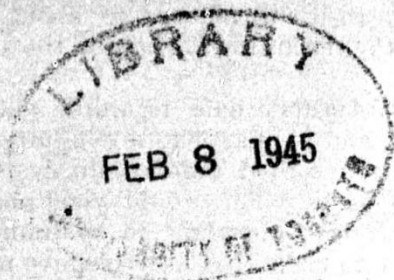


Mike Savage
Mayor

/bmj

Pamph
TEH
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Keating, Edward Henry (1844-1912)



REPORT

—ON THE—

TOWN CREEK AND SEWER OUTLET. WINDSOR, N. S.

J. B. Black, Esq., M. D., Warden of Windsor.

SIR,—In compliance with a request from your Council, I visited Windsor, on the 11th ultimo, for the purpose of examining the Creek and reporting upon what course it would be most advisable for you to follow before expending any further sums of money in extending the existing "Trunk" or outlet Sewer. This Sewer is built of heavy planking, and measures in the clear three feet in height by two and a half feet in width. Its depth at the upper end (which is within a few feet of the Railway culvert) is $6\frac{1}{2}$ feet below the average level of the ground or marsh, and its total length about 278 feet to the tidal valve or "clapper." I am unable to say what its actual condition is, inside, as the statements given to me were conflicting, and I did not feel disposed to take a journey through it. It is, however, asserted that with the exception of the portion recently built at the upper end, it is in an unsatisfactory state, and by no means to be relied upon, having been originally built "piece-meal" at different times, by different parties and in different ways. If this assertion is correct there can be no doubt that your proper course would be to remodel that portion of the work before proceeding further, and if it is incorrect the question still remains if it would not be advisable in any case to do so.

From below the Railway embankment to a point near Flat Iron Corner, I staked out a line and took levels upon it. The result shows that the ground—which is marsh land—is level from end to end, and that the Railway culvert is too high at its upper end (even if it were in perfect order) to admit of carrying off the water as effectually as the existing wooden trunk sewer would allow at its present grade.

The area of the water shed of the Creek, as nearly as I can arrive at

it from the information received, is about 74 acres, but this, I estimate from the configuration of the ground, can easily be reduced to about 50 acres, by leading the storm waters from the remaining portion of the area off in other directions.

I have been unable to obtain any satisfactory data regarding excessive falls of rain in short periods of time, and in answer to my enquiry on this point I was informed that the heaviest recorded rain-fall, during the past sixteen years, was 3.65 inches in 24 hours. This would yield about $9\frac{1}{2}$ cubic feet of water per minute on each acre requiring to be drained, but it is obviously too small an allowance to make, because excessive rain storms in this country never continue regular for 24 hours in succession, i. e., the rain does not fall continuously at the same rate, as some hours will often yield ten or twenty times as much as others. In the absence of more reliable information I am therefore obliged to assume that the conditions as to rain-fall will be similar to what they are in this city, and a number of years experience here has led me to adopt 12 cubic feet per minute per acre as the minimum allowance which should be made for combined sewage and rain-fall during our heaviest storms.

It follows therefore that if we provide for the drainage of only 50 acres, your outlet sewer must have sufficient capacity and inclination to discharge 600 cubic feet of water per minute, and the existing trunk sewer is capable of discharging about three times this quantity.

The difficulty in this case, however, is that the highest Spring tides rise about eight feet higher than the general level of the lowest part of the town which it is required to drain, and the sewer remains tide-locked for about four hours.

These, I admit, are serious difficulties and add greatly to the expense of dealing with your sewerage and rain-fall.

I have given these matters very careful consideration, much more, in fact, than I at first thought would be necessary, and I am of opinion that although the existing trunk sewer is of more than ample capacity to discharge the heaviest storm waters, it is a long way inadequate to hold those waters in store, not only for the time that the mouth of the sewer is tide-locked, but for the much shorter period that elapses from the moment that the tide reaches the level of the marsh until it rises to its highest point and recedes again to the same level. If therefore you extend the present sewer or wooden trunk, without taking further precautions, the inevitable result will be that the low parts of the town will be inundated much more frequently and to a greater extent than has ever happened before.

During the shorter period of time to which I have alluded, viz. : from the moment that the incoming tide reaches to about the level of the marsh, or low part of the town, until the ebb tide falls again to the same level, it is absolutely necessary to get rid of the storm waters from the drainage area, either by pumping them out or by providing some means of storing them safely, in order to prevent the flooding of the low lying district. This period, from the best information I can gather, is about two hours, and we have therefore to provide for the storage of at least 72,000 cubic feet of water from the 50 acres of ground required to be drained.

A tank sewer to hold this large quantity of water would require, in your case, to be about 10 feet wide by six feet in height and 1200 feet in length, which I take to be impracticable on account of the expense it would

involve. I have therefore to suggest as probably the only plan which is likely to prove at the same time satisfactory and within your reach financially, that you construct an independent tank or reservoir which will hold in store all the storm waters which must of necessity find their way into the creek or, now, open ditch. The proper size and depth and the best position for this reservoir I have marked upon the accompanying plan and profile. It would also appear advisable to lower the existing trunk sewer about two feet at its upper end, in order to obtain sufficient fall for a main sewer to take the place of the present open creek. This sewer I have marked upon the plans as 30 inches by 21 inches, with an inclination of 3 inches in each 100 feet, or sufficient to produce a current of about 3 feet per second with a depth of one foot of water. It is advisable to obtain this velocity in order that the sewer should be self-cleansing and to avoid the expense of occasionally cleaning it out by hand, or of providing special flushing arrangements. A sewer of this capacity, when running full, will discharge about 980 cubic feet per minute, or over 50 per cent more than is required. The tank or reservoir is shown to be 115 feet in diameter, and it is necessary to make it of about this size in order that it may hold in store 72,000 cubic feet of water at a depth of seven feet, or within one foot nine inches of the level of the lowest ground or marsh level, and it is calculated that the water should seldom or never exceed this depth in the tank, providing the tidal valves are looked to and always kept in working condition.

The outlet sewer from the tank is made 36x30, or the same size as the present trunk sewer, so as not only to give the water a free outlet but also to make the old work available if it should be found sufficiently sound and perfect to be utilized, by being lowered to the proper depth.

The river end of the outlet is shown to be slightly enlarged from the proposed man-hole in Water Street to the outer valve, so that it can be easily examined by men passing through it. If, however, this end is found to be in good condition there will be no occasion to disturb it, beyond making the tidal valve or clapper as perfect and tight as possible, and providing a good vertical fall for the water at the mouth and a timber apron which will keep itself clear of deposits of mud.

A second or inner valve is also provided, as shown on the section, for fear that the outer one should at any time fail to act.

Man-holes are provided at regular intervals to give easy access to the sewer, so that it can be readily examined at any time.

The ventilators marked upon the plans are intended to answer as well for the drainage of the surface water from the adjoining lands. The exact number of these which should be provided I cannot now estimate, more may be required than I have shown, but they are mere trifles and may be inserted wherever needed.

The Railway culvert, upon the proposed plan, needs to be lowered about four feet at its upper end and three feet at the lower end. If, however, the Manager of the W. & A. Railway raises no objection to the proposed sewer being extended under the embankment, as shown on Cross Section No. 3, it would be better to increase the thickness of the wood-work one inch all round for that distance, or say about 60 feet. A wooden culvert of this description will last, in its proposed position, infinitely longer than the one which was originally placed there by the Railway Company, and which is now in a useless condition.

I have shown the sewer upon the plan as extending from the outlet to the centre of Victoria Street, a distance of about 117.0 feet, and there appears to be no occasion for the town to incur the expense of carrying it further. The sewer, shown as running northwardly along Victoria Street and thence eastwardly along Stannus Street to Flat Iron Corner, will not only answer all necessary purposes but it will also serve effectually for the drainage of that portion of the town, and its size can advantageously be somewhat diminished.

When the works, as herein proposed, are completed the drainage of the remaining portions of the town will be a simple matter.

ESTIMATE OF COST.

The following estimate of cost provides for extending the new sewer up to Victoria Street and for building anew that portion which is already in existence, so that if any part of that sewer can be utilized, it will be a clear gain.

Excavations for sewer, 935 feet, at 40 cts. per foot.....	\$ 374.00
“ “ outlet, 150 feet, at \$2.00 “	300.00
30 feet of outlet sewer No. 1, at \$1.50 “	45.00
130 feet of outlet sewer No. 2, at \$1.00 “	130.00
935 feet of sewer No. 3, at 60 cts. “	561.00
Man-holes, ventilators, iron gratings and tidal valves	160.00
Tank complete.....	1,000.00
Add 10 per cent for contingencies.....	257.00
Total estimated cost	<u>\$2,827.00</u>

Respectfully submitted,

E. H. KEATING, C. E.

Halifax, 3rd May, 1884.

Extract of Letter to Warden, May 5th, 1884.

There is another plan which might prove considerably cheaper than the one suggested, and if it is practicable at all, would be even more satisfactory in the results, but as I am not sufficiently acquainted with the nature of the land about the mouth of the creek I did not care to recommend it or even propose it in the report. It is simply this, to put a strong water-tight bulkhead across the mouth of the creek, as far out towards the river as may appear practicable, and between the wharves of Harding and Curry & Shand, which will at once form your tank or reservoir without any further trouble. There would also be a saving in the cost of the sewers, as the smallest size marked would then be ample. Of course, if the wharves on each side are not water-tight, or not easily made so, this plan would prove a total failure, but it appears to me well worth looking into.

Yours very truly,

E. H. KEATING.