This document was created using best practices in document accessibility. Should you need assistance reading or understanding this document, call 902-543-8181 or email info@modl.ca.

Please note: A Public Hearing re Amendments to Riverport & District Land Use By-law will be held at 8:30 a.m. on January 9, 2024.

REVISED Municipal Council Meeting Agenda

Tuesday, January 9, 2024 – 9:00 a.m.

MODL Council Chambers – 10 Allée Champlain Drive, Cookville

1. Call to Order

1.1 Mi'kma'ki Territorial Acknowledgement

2. Announcements, Acknowledgements, Recognition

2.1 Firefighter 50 Year Services Awards, Wayne Wentzell and Retired Chief Richard Nowe

3. Public Input (15 Minutes)

4. Changes/Approval of Agenda

5. Approval of Minutes - Special Council of December 5, 2023 & Council of December 12, 2023

6. Business Arising from Minutes

7. Awarding of Tenders/RFPs - Nil

8. Presentations/Scheduled Times - Nil

9. Consideration of Correspondence - Nil

10. Recommendations from Committees & Boards

10.1 Nominating Committee

10.1.1 Appointments to Hebbville Area Advisory Committee 1-3

10.2 REMO Advisory Committee

10.2.1 Advocacy for Vulnerable Person Registry..... 4-6

11. Staff Reports

11.1 Administration

11.1.1 Region 6 Budget 2024-2025..... 7-26

11.2 Recreation, Parks & Tourism

11.2.1 LaHave River Trail Funding Request 27-28

11.3 Planning & Development

12. Mayor's/Deputy Mayor's/Councillors' Matters

12.1 Deputy Mayor's Update
12.2 Mayor's Update

13. Added Items

14. In Camera

14.1 Contract Negotiations under Section 22(2)(e) of the MGA
14.2 Contract Negotiations under Section 22(2)(e) of the MGA
14.3 Legal Advice under Section 22(2)(g) of the MGA

15. Adjournment

From: Ella Gindi
Sent: January 3, 2024 11:41 AM
To: Tina Robichaud-Bond
Subject: RE: Nominating Committee

Hi Tina,
Please see attached decision of the nomination committee regarding the appointment if two members of the Hebbville Village Commission to the Hebbville Area Advisory Committee:

The Nominating Committee met on Wednesday, January 3, 2024 to review the recommendation of the Hebbville Village Commission to appoint representatives to the Hebbville Area Advisory Committee.

The Nominating Committee recommends that Council appoint Glenn Hebb and Greg Flinn to the Hebbville Area Advisory Committee as representatives of the Hebbville Village Commission.

Best,

Ella

Ella Gindi (she/her)
Planner I
Planning & Development Services
Municipality of the District of Lunenburg
10 Allée Champlain Drive | Cookville NS | B4V 9E4
Office: (902) 530-2099

Memorandum

To: **Nomination Committee**

From: **Ella R. Gindi, Planner I**

Date: **December 5, 2023**

Re: **Nomination of two Village of Hebbville Commission Members to the Hebbville Area Advisory Committee**

In accordance with the terms of reference outlined by the Hebbville Area Advisory Committee regarding membership, it is stipulated that the committee must comprise a minimum of three and a maximum of eight members, with a requirement for two members to be representatives of the Hebbville Village Commission.

The Commission's Clerk has formally communicated this commitment by submitting a letter (attached for your reference) with the names of two commission members, Glen Hebb and Greg Flinn, who proposed to serve as representatives for the Village of Hebbville on the Area Advisory Committee.

Please consider endorsing the nomination of both Glen Hebb and Greg Flinn to the Hebbville Area Advisory Committee for an indefinite term.

If the Nominating Committee is in agreement with the recommended nominees, the following motion to council would be needed:

“That the Nominating Committee recommends that Glenn Hebb and Greg Flinn be appointed as the Hebbville Village Commission representatives for the Hebbville Village Area Advisory Committee”.

For the record:
Nov. 30/23

At the request of MODL for 2 names and signatures to represent the Village of Hebbville on the Area Advisory Committee. Matters pertaining to the village. A quorum of two commissioners is mandatory for this committee.

These 2 names for this current request will be: Glen Hebb, HVC Chair

Greg Flinn, HVC Commissioner

Submitted by: Lem Hebb
HVC clerk/treasurer

Memorandum

To: **Regional Emergency Management Organization Partners**

From: **Angela Henhoeffer, Lunenburg County REMO Manager**

Date: **December 13, 2023**

Re: **Advocacy for Vulnerable Person Registry**

Recommendation

Move that Council authorize the mayor to write a letter to the Nova Scotia Federation of Municipalities (NSFM) and the minister Responsible for the Office of Emergency Management, advocating for the creation of a province-wide vulnerable persons registry.

Background

The Regional Emergency Management Advisory Committee met on October 31, 2023 to discuss a range of issues, including the need for a vulnerable persons registry. Such registries are voluntary but can provide critical support for persons with disabilities or other vulnerabilities who are more likely to be impacted by emergencies. After discussion, the Committee passed the following motion:

> "Move that the Regional Emergency Management Advisory Committee recommend that partner councils write to the Nova Scotia Federation of Municipalities and the Provincial Minister of Emergency Management, requesting the creation of a province wide vulnerable person registry."

A draft letter has been prepared and provided to municipal staff in each of the partner units to send to the minister responsible for emergency management and to the Nova Scotia Federation of Municipalities. A motion supporting the letters is being sought from each of the partner units.

Conclusion

The frequency and severity of risks and impacts in our community is increasing as the effects of climate change are felt in our region. A province-wide registry for vulnerable persons would assist in providing adequate public safety for all Nova Scotians and would be an essential tool in our region's emergency preparedness.

Via email emo@novascotia.ca

The Honourable John Lohr
Minister Responsible for the Office
of Emergency Management
Emergency Management Office
PO Box 2581
Halifax NS B3J 3N5

Dear Minister Lohr,

Re: Voluntary Vulnerable Persons Registry

I am writing with respect to the issue of a province-wide, voluntary vulnerable persons registry. The increased need for emergency management services over the past year has made it apparent there is a consistent gap in our ability to serve the most vulnerable citizens in our community.

The UN has reported that persons with disabilities are at least two times as likely to die in a disaster. Unfortunately, Nova Scotia has the highest rates of disability in the country and a rapidly aging population. The Regional Emergency Management partners in Lunenburg County strongly believe there is a need for a provincial registry for vulnerable populations. Disasters do not respect political boundaries and municipal capacity and expertise varies significantly across municipalities in Nova Scotia. A consistent centrally managed registry is necessary to ensure that all Nova Scotians have access to the same level of public safety.

Other jurisdictions have successfully implemented central voluntary registries and have addressed the range of concerns that can come with a registry including privacy, managing expectations and maintenance of information.

Our Council strongly urges the province to proceed with the development of a province-wide, voluntary vulnerable persons registry to provide consistent public safety to all residents of nova scotia.

Sincerely,

Via Email mayor@modl.ca

Mayor Carolyn Bolivar-Getson
NSFM President
c/o NSFM
1304 – 1809 Barrington St.
Halifax NS B3J 3K8

Dear President,

Re: Voluntary Vulnerable Persons Registry

I am writing with respect to the issue of a province-wide, voluntary vulnerable persons registry. The increased need for emergency management services over the past year has made it apparent there is a consistent gap in our ability to serve the most vulnerable citizens in our community.

The UN has reported that persons with disabilities are at least two times as likely to die in a disaster. Unfortunately, Nova Scotia has the highest rates of disability in the country and a rapidly aging population. The Regional Emergency Management partners in Lunenburg County strongly believe there is a need for a provincial registry for vulnerable populations. Disasters do not respect political boundaries and municipal capacity and expertise varies significantly across municipalities in Nova Scotia. A consistent centrally managed registry is necessary to ensure that all Nova Scotians have access to the same level of public safety.

Other jurisdictions have successfully implemented central voluntary registries and have addressed the range of concerns that can come with a registry including privacy, managing expectations and maintenance of information.

Our Council strongly urges the NSFM to advocate for the province to develop a voluntary vulnerable persons registry to provide consistent public safety to all residents of Nova Scotia.

Sincerely,

cc: Juanita Webber, Chief Executive Director
jspencer@nsfm.ca

Tom MacEwan
Municipality of the District of Lunenburg
PO Box 200
210 Aberdeen Rd.
Bridgewater, NS B4V 2W8

December 6, 2023

RE: Budget Approval 2024-25

Dear Mr. MacEwan,

On Friday, December 1, 2023, the Region 6 Inter-Municipal Committee met regarding the budget for the upcoming fiscal April 1, 2024 – March 31, 2025.

The following motion was passed:

MOTION: to recommend approval of the 2024-25 Region 6 Inter-Municipal Committee Budget to member units, as circulated. **M/C**

Pursuant to FINANCES of the Region 6 Inter-Municipal Agreement; items 34 – 39

"34. The proposed Committee budget shall be submitted to the Councils of each of the Parties prior to 4:30 p.m. on December 31st of each year.

35. The Councils of each of the Parties shall approve said budget, or refuse to do so, by 4:30 p.m. on March 14th of the year to which said budget applies.

36. Should the Council of any of the Parties fail to approve or refuse to approve the proposed Committee budget and so notify in writing the Committee by the stated deadline, then the said budget is deemed to have been approved by that Council.

37. The proposed Committee budget shall be binding on all of the Parties if approved by the Councils of 75% or more of the Parties, so long as the Parties whose Councils have approved represent a minimum of 50% of the total population represented by the Parties to this agreement – said figures to be taken from the most recent available Census of Canada statistics.

38. In the event that motions of refusal to approve result in a proposed Committee budget not receiving approval of the necessary majority of Councils, the Committee shall revise the proposed budget taking into account any comments that may have been provided and submit a revised budget to the Councils of the Parties.

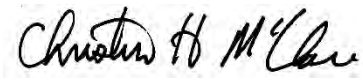
39. Should the Council of any of the Parties fail to approve or refuse to approve a revised proposed Committee budget within 45 days after receipt of same then the said budget is deemed to have been approved by that Council."

Respecting the enclosed budget, please review with your council and respond to Region 6 before 4:30 pm, March 15, 2024 on your approval or refusal.

Should you have any questions on either document please feel free to contact myself at 902-624-1339 or Chair, Wayne Thorburne at 902-543-7771.

If you require my attendance at the council meeting when the budget is up for discussion, feel free to contact me by phone or email.

Regards,



Christine H. McClare BA Psych
Regional Coordinator

encl.

Region 6 Solid Waste Management

INCOME	2023-24 Actuals as of September 30	2023-24 Projection	2023-24 Budget	2024-25 ESTIMATE
Contracts/Service Agreements				
Education Contract	$ 11,710	$ 80,392	$ 80,392	$ 80,392
Coordinator Agreement	$ 9,410	$ 43,286	$ 43,286	$ 43,286
Enforcement Contract	$ 13,326	$ 89,425	$ 89,425	$ 89,425
Sub-total	$ 34,446	$ 213,103	$ 213,103	$ 213,103
Stewardship/Incentives				
Dairy Stewardship	$ -	$ 81,350	$ 90,000	$ 90,000
Diversion [1]	$ 317,200	$ 350,000	$ 350,000	$ 350,000
Municipal Approved Programs	$ 60,600	$ 80,500	$ 80,500	$ 80,500
Interest	$ 4,047	$ 8,095		
Sub-total	$ 381,847	$ 519,945	$ 520,500	$ 520,500
Municipal Contribution				
Municipal Billing [2]	$ 60,689	$ 127,975	$ 127,975	$ 145,057
Previous Year Deficit (Surplus) [2]	$ -	$ (6,596)	$ (6,596)	$ 7,864
Sub-total	$ 60,689	$ 121,379	$ 121,379	$ 152,921
TOTAL	**$ 476,983**	**$ 854,427**	**$ 854,982**	**$ 886,524**

Inter-Municipal Reserves Schedule	Previous Years Expenses	F2023-24 Projection	Approved Expense	Program Amount Remaining
Inter-Municipal program	$ 37,432	$ -	$ 37,432	$ -

EXPENSES	2023-24 Actuals as of September 30	2023-24 Projection	2023-24 Budget	2024-25 ESTIMATE
OPERATING EXPENSE				
Coordinator Salary	$ 35,589	$ 85,329	$ 85,329	$ 89,200
Coordinator Benefits	$ 8,222	$ 11,350	$ 11,350	$ 16,020
Travel (Coordinator)	$ -	$ 2,200	$ 3,500	$ 3,000
Training and conference	$ 1,097	$ 2,500	$ 2,000	$ 2,200
Office Rental	$ 5,366	$ 10,731	$ 10,000	$ 9,675
Cell phones	$ 1,024	$ 2,049	$ 1,000	$ 2,000
Internet/Phone/Fax	$ 600	$ 1,200	$ 1,300	$ 1,300
Office supplies and services	$ 850	$ 1,700	$ 3,500	$ 3,000
Computer/materials	$ 383	$ 3,000	$ 1,500	$ 3,600
Insurance	$ -	$ 3,900	$ 3,700	$ 3,900
Administration	$ -	$ 9,390	$ 9,390	$ 9,390
Legal & Auditor	$ -	$ 9,281	$ 10,000	$ 9,500
Sub-total	$ 53,131	$ 142,630	$ 142,569	$ 152,785
EDUCATION				
Education salary	$ 27,087	$ 66,305	$ 66,305	$ 69,780
Educator Benefits	$ 5,976	$ 11,279	$ 11,279	$ 14,390
Travel (education)	$ 5,552	$ 13,886	$ 14,000	$ 14,000
Advertising	$ -	$ -	$ 1,500	$ 1,000
R6RECYCLES	$ 12,777	$ 12,777	$ 12,000	$ 12,780
Program materials	$ 575	$ 2,500	$ 4,000	$ 4,000
Sub-total	$ 51,966	$ 106,746	$ 109,084	$ 115,950
PAYMENTS TO UNITS				
Enforcement Contract	$ -	$ 89,425	$ 89,425	$ 89,425
Dairy Stewardship	$ -	$ 90,000	$ 90,000	$ 90,000
Diversion [1]	$ -	$ 350,000	$ 350,000	$ 350,000
Municipal Approved Programs	$ -	$ 80,500	$ 80,500	$ 80,500
Sub-total	$ -	$ 609,925	$ 609,925	$ 609,925
TOTAL	**$ 105,097**	**$ 859,301**	**$ 861,578**	**$ 878,660**
Revenue/Expenditure	$ 371,886	-$ 4,874	-$ 6,596	$ 7,864

Notes to **BUDGET:**

1. Diversion Credits - $5.5 million is available Provincially, up from $5 million available last year. It is expected that a new smoothing agreement will take place during this year.

2. Municipal Billing - this now includes two lines, the first line pays for the operations that are not covered through grant and contracted services. The second line, shows the decifict for 2022-23 which is added to the first line resulting in the subtotal, showing the required Municipal Billing (see Table 1 for details).

TABLE 1: **Municipal billing 2024-25**

Municipal Area Serviced:	*2021 Population*	*% of Region*	*2024-25*
Shelburne Shared Services	6,456	6.99%	$ 10,696.42
Town of Bridgewater	8,790	9.52%	$ 14,563.43
Town of Mahone Bay	1,064	1.15%	$ 1,762.85
Municipality of Lunenburg	25,545	27.68%	$ 42,323.42
Municipality of Barrington	6,523	7.07%	$ 10,807.42
Town of Clark's Harbour	725	0.79%	$ 1,201.19
Municipality of Chester	10,804	11.71%	$ 17,900.26
Town of Lunenburg	2,396	2.60%	$ 3,969.74
Region of Queens Municipality	10,486	11.36%	$ 17,373.39
West Hants Regional Municipality	19,509	21.14%	$ 32,322.86
Total	**92,298**	**100.00%**	**$ 152,921.00**

Region 6 Activities Summary 2023-24

Region 6 staff are responsible to delivery Solid Waste Education and Administration throughout our 12 member municipalities. In addition to representing and liaising for the region at the provincial level and accomplishing the required activities under the Education and Regional Coordinator contracts with Divert NS, some focus areas included:

Education

- Collaboration with Scotian Shores group to clean up Ghost Fishing Gear and other litter on our beaches and coastlines went to a new level this past summer. A partnership with another group has allowed for a helicopter to be used in inaccessible areas. At Cape Sable (Cape Sable Island, Barrington) they have removed many pounds of gear that were identified last year.

- Use of social media and videos aims to reduce litter and educate on proper waste management. Posts are an additional and effective way to reach more of our residents and businesses (What Goes Where Wednesday, Let's Be Clear Litter Doesn't Belong Here and many more).

- The Master Recycler program is being offered to both youth and adults. This on-line and in person, has educated residents to spread the word on the benefits of recycling.

Administration

- Work continues with the province to implement EPR for Printed Paper and Packaging (PPP) with the first milestone of municipalities getting registered for the industry-led. Assistance and guidance provided to units to supply the required recycling program data to register for the industry-led program. Between now and October 1, 2023, industry will consult municipalities and develop a program plan for submission to the province. Contracts may be negotiated with municipalities for collection and/or education services.

- Other EPR programs are being created simultaneously for Batteries, Light Bulbs and Small Appliances. The program plans are due to the province and programs are to be in place by July, August and September 2024. Once in effect, these programs will see more material diverted from landfill and industry covering the cost of managing these materials.

- Getting to 300kg/person/year consultation feedback to the province to maximize diversion while minimizing negative impacts to funding and managing programs.

- Working with the Province to mitigate the impact of the ban on pressure treated lumber from disposal at C&D sites. New methods will be required to keep pressure treated timber separate. Compliance steps continue to be taken.

- Ongoing work to lessen the impact of waste generated by natural disasters. Wildfire and Flooding impacts this past summer, saw additional material sent for disposal. With documentation on weights, it is possible that these materials will not count against diversion.

Christine H McClare
Regional Coordinator
Dec 7, 2023

REGION 6 SOLID WASTE MANAGEMENT

FINANCIAL STATEMENTS

YEAR ENDED MARCH 31, 2023

KENT & DUFFETT
Chartered Professional Accountants

REGION 6 SOLID WASTE MANAGEMENT

FINANCIAL STATEMENTS

YEAR ENDED MARCH 31, 2023

KENT & DUFFETT
Chartered Professional Accountants

Incorporated Partners
Forse Investments Limited
Crosby Smith Holdings Limited

46 Chipman Dr, Unit 1, Box 817
KENTVILLE NS B4N 3V7
Phone: (902) 678-1125
Fax: (902) 678-1060

www.kentandduffett.ca

INDEPENDENT AUDITOR'S REPORT

REGION 6 SOLID WASTE MANAGEMENT

Opinion

We have audited the financial statements of ***Region 6 Solid Waste Management*** which comprise the statement of financial position as at March 31, 2023, statement of financial activities, accumulated surplus and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements of the Region are prepared, in all material respects, in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Region in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Region's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Region or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Region's financial reporting process.

KENT & DUFFETT
Chartered Professional Accountants

Incorporated Partners
Forse Investments Limited
Crosby Smith Holdings Limited

46 Chipman Dr, Unit 1, Box 817
KENTVILLE NS B4N 3V7
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INDEPENDENT AUDITOR'S REPORT (continued**)**

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Region's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Region's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Region to cease to continue as a going concern.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Kent & Duffett

Kentville, Nova Scotia
September 8, 2023

Chartered Professional Accountants
Registered Municipal Auditor

REGION 6 SOLID WASTE MANAGEMENT

STATEMENTS OF FINANCIAL ACTIVITIES AND ACCUMULATED SURPLUS

YEAR ENDED MARCH 31, 2023

	2023	2022
Revenues		
Operating and education		
Coordinator funds (RRFB)	**$ 43,286**	$ 43,286
Education contract (RRFB)	**61,494**	89,405
Inter-municipal programs	**-**	16,793
Services	**-**	450
Other	**-**	2,496
Funds		
Diversion credits	**384,506**	432,529
Dairy recycling	**111,664**	76,664
Municipal approved program	**80,746**	82,574
Enforcement	**89,021**	102,552
Interest	**5,769**	4,069
Municipal contributions	**130,175**	72,292
	906,661	923,110
Expenditures		
Operating and education		
Overhead	**216,794**	195,151
Regional programs	**17,779**	26,644
Salaries and benefits	**10,273**	10,318
Distributions		
Diversion credits (note 3)	**496,170**	509,193
Inter-municipal programs	**3,742**	3,505
Municipal approved programs	**80,746**	82,574
Enforcement	**89,021**	89,129
	914,525	916,514
EXCESS OF REVENUE OVER EXPENDITURES	**$ (7,864)**	$ 6,596
ACCUMULATED SURPLUS AT BEGINNING OF YEAR	**$ 221,185**	$ 230,660
Excess of revenues over expenditures	**(7,864)**	6,596
Change in reserve	**4,581**	(16,071)
ACCUMULATED SURPLUS AT END OF YEAR	**$ 217,902**	$ 221,185

The accompanying notes are an integral part of these financial statements.

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF FINANCIAL POSITION

AS AT MARCH 31, 2023

	2023	2022
FINANCIAL ASSETS		
Cash	**$ 106,414**	$ 312,647
HST recoverable	**19,516**	17,226
Due from West Hants Regional Municipality	**100,972**	-
	226,902	329,873
LIABILITIES		
Payables and accruals	**9,000**	9,000
Due to West Hants Regional Municipality	**-**	99,688
	9,000	108,688
NET ASSETS	**$ 217,902**	$ 221,185
ACCUMULATED SURPLUS		
Operations and education funds	**$ 43,019**	$ 49,500
Diversion program funds	**13,166**	10,054
Future projects funds	**84,979**	84,893
Enforcement program funds	**76,738**	76,738
	$ 217,902	$ 221,185

Approved on Behalf of the ~~Board~~ R6 Inter-Municipal Committee

Wayne Thorburne ~~Director~~ Chair

Christine H McClare ~~Director~~ Coordinator

Christine McClare

Date: Sept 8, 2023

The accompanying notes are an integral part of these financial statements.

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF CASH FLOWS

YEAR ENDED MARCH 31, 2023

	2023	2022
CASH FLOWS FROM OPERATING ACTIVITIES		
Excess of revenues over expenditures	**$ (7,864)**	$ 6,596
Items not involving cash		
Change in reserves	**4,581**	(16,071)
	(3,283)	(9,475)
Net change in non-cash working capital balances		
Receivables	**-**	2,785
Harmonized Sales Tax	**(2,290)**	(6,679)
	(5,573)	(13,369)
CASH FLOWS FROM FINANCING ACTIVITIES		
Changes to West Hants Regional Municipality balance	**(200,660)**	27,580
NET INCREASE (DECREASE) IN CASH DURING THE YEAR	**(206,233)**	14,211
CASH POSITION AT BEGINNING OF YEAR	**312,647**	298,436
CASH POSITION AT END OF YEAR	**$ 106,414**	$ 312,647

The accompanying notes are an integral part of these financial statements.

REGION 6 SOLID WASTE MANAGEMENT

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED MARCH 31, 2023

1. NATURE OF OPERATIONS

On August 7, 1998, and amended on December 22, 2008, the below units signed the Region 6 Inter-Municipal Services Agreement (the "Agreement") to form the Region 6 Inter-Municipal Committee (Sections 1 and 2 of the Agreement). In this Agreement, the parties agree to provide certain solid waste-resource management services for Region 6 Solid Waste Management region.

Solid waste-resource management services include:

a) Education;
b) Regional co-operation and encouragement of common standards;
c) Provision of a Regional Coordinator as well as office equipment and space;
d) Disbursement of Resource Recovery Fund Board (RRFB) diversion credits;
e) Implementation of any RRFB approved projects; and
f) The parties have power to add by amendment to this Agreement.

Region 6 Solid Waste Management consists of the following towns and municipalities pursuant to Clause 39(1) of the Solid Waste-Resource Management Regulations:

Town of Clarks Harbour
Town of Mahone Bay
Town of Lunenburg
Town of Bridgewater
Town of Lockeport
Town of Shelburne
West Hants Regional Municipality
Municipality of the District of Chester
Municipality of the District of Lunenburg
Municipality of the District of Shelburne
Region of Queens Municipality
Municipality of the District of Barrington

2. SIGNIFICANT ACCOUNTING POLICIES

Basis of accounting

The financial statements of Region 6 Solid Waste Management are the representations of management prepared in accordance with Canadian Public Sector Accounting Standards (PSAS) as established by the Public Sector Accounting Board (PSAB) of the Chartered Professional Accountants of Canada.

Outlined below are those considered particularly significant:

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

Revenue

Revenue is recorded on the accrual basis.

Special programs including Dairy Funding, Enforcement Funding and Municipal Approved Program funds (MAP) are paid on the condition that the funds be used for qualifying projects in solid waste-resource management. Qualifying projects include:

Municipal Waste Diversion Programs including source reduction; reuse, regional and municipal recycling and composting programs;
Municipal Household Hazardous Waste Program;
Municipal Waste Management Education Program; and
Eligible Enforcement Programs.

Government contributions are recognized as revenue in the period the transfer is authorized, and all eligibility criteria have been met.

Revenue for operations and education is negotiated annually and is recorded as earned.

Expenditures

Expenditures are recognized as they are incurred and measurable as a result of receipt of goods or services and the creation of a legal obligation to pay.

Diversion credits are paid to municipalities based on a formula established by the Department of Environment of the Province of Nova Scotia using data supplied by the municipalities and landfill operators. This formula provides funding for municipalities which have implemented waste management programs and diverted waste from disposal (Sections 53 and 54 of the Agreement).

Cash

Cash includes cash and amounts held on deposit with a financial institution.

Use of estimates

The preparation of financial statements in conformity with PSAS requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and the reported amounts of revenues and expenses during the reporting period. Significant estimates include certain accruals. Actual results could differ from those estimates.

Funds

Certain amounts, as approved by the Inter-Municipal Committee, are set aside in accumulated surplus for future operating and capital purposes. Transfers to/from funds are an adjustment to the respective funds when approved.

REGION 6 SOLID WASTE MANAGEMENT

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED MARCH 31, 2023

3. DISTRIBUTION TO MUNICIPAL UNITS

	2023		
	Diversion Credits	**Dairy Recycling**	**Total**
Municipal Joint Services Board	**$ 172,720**	**$ 40,039**	**$ 212,759**
Region of Queens Municipality	**45,564**	**20,128**	**65,692**
West Hants Regional Municipality	**88,859**	**14,956**	**103,815**
Municipality of the District of Chester	**56,253**	**8,802**	**65,055**
Municipality of the District of Shelburne (shared services)	**8,651**	**17,316**	**25,967**
Town of Lunenburg	**11,689**	**1,932**	**13,621**
Municipality of the District of Barrington	**39**	**7,696**	**7,735**
Town of Clark's Harbour	**731**	**795**	**1,526**
	$ 384,506	**$ 111,664**	**$ 496,170**

	2022		
	Diversion Credits	Dairy Recycling	Total
Municipal Joint Services Board	$ 185,846	$ 34,679	$ 220,525
Region of Queens Municipality	44,344	7,685	52,029
West Hants Regional Municipality	106,514	10,205	116,719
Municipality of the District of Chester	61,059	10,383	71,442
Municipality of the District of Shelburne (shared services)	8,916	6,154	15,070
Town of Lunenburg	13,068	3,932	17,000
Barrington/Clarks Harbour	2,040	215	2,255
	$ 432,529	$ 76,664	$ 509,193

4. FINANCIAL RISKS AND CONCENTRATION OF RISKS

Financial assets

Financial assets include cash which is recorded at fair value and accounts receivable which are recorded at amortized cost.

Liquidity risk

The Board's objective is to have sufficient liquidity to meet its liabilities when due. The Board monitors its cash balance and cash flows from operations to meet its requirements. As at March 31, 2023, the most significant financial liabilities were payables and accruals.

5. OTHER INFORMATION

The statement of changes in net assets was not prepared as it is deemed to not provide useful information to users.

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF OPERATIONS AND EDUCATION

SCHEDULE 1

YEAR ENDED MARCH 31, 2023

	Budget Unaudited	**2023 Actual**	2022 Actual
Revenue			
Coordinator funds (RRFB)	$ 43,286	**$ 43,286**	$ 43,286
Education contract (RRFB)	80,392	**61,494**	89,405
Inter-municipal programs	-	**-**	16,793
Interest	-	**2,571**	3,349
Services	-	**-**	450
Other	-	**-**	2,496
	123,678	**107,351**	155,779
Expenditures			
Administration	9,390	**9,386**	9,386
Cell phones	1,100	**887**	932
Education and regional programs	5,500	**4,126**	1,828
Employee benefits	22,774	**28,223**	24,239
Insurance	3,500	**6,347**	3,426
Inter-municipal programs	-	**7,432**	16,793
Office	4,800	**3,742**	3,505
Office equipment	1,500	**1,414**	3,027
Office rental	10,000	**9,198**	9,290
Professional fees	10,000	**8,760**	9,068
Recycling application	11,000	**10,347**	9,851
Salaries	136,536	**141,698**	134,273
Training and conference	2,000	**1,917**	261
Travel	15,000	**15,111**	9,739
	233,100	**248,588**	235,618
Excess of expenditures over revenue	(109,422)	**(141,237)**	(79,839)
Balance, beginning of year	49,500	**49,500**	42,902
Changes to reserves	59,922	**134,756**	86,437
Balance, end of year	$ -	**$ 43,019**	$ 49,500

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF DIVERSION CREDITS FUND

SCHEDULE 2

YEAR ENDED MARCH 31, 2023

	2023	2022
Revenue		
Resource Recovery Fund Board diversion credits	**$ 384,506**	$ 432,529
Dairy recycling fund	**111,664**	76,664
Interest	**3,112**	700
Municipal contributions	**130,175**	72,292
	629,457	582,185
Expenditures		
Distribution to Municipal units (note 3)		
Municipal Joint Services Board	**172,720**	185,846
Municipality of the District of Chester	**56,253**	61,059
Town of Lunenburg	**11,689**	13,068
West Hants Regional Municipality	**88,859**	106,514
Region of Queens Municipality	**45,564**	44,344
Municipality of the District of Barrington	**39**	10,742
Town of Clark's Harbour	**731**	2,039
Municipality of the District of Shelburne	**8,651**	8,917
Dairy recycling (note 3)	**111,664**	76,664
	496,170	509,193
Excess of revenue over expenditures	**133,287**	72,992
Balance, beginning of year	**10,054**	9,354
Changes to reserves	**(130,175)**	(72,292)
Balance, end of year	**$ 13,166**	$ 10,054

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF FUTURE PROJECTS FUNDS

SCHEDULE 3

YEAR ENDED MARCH 31, 2023

	2023	2022
Revenue		
Interest	**$ 86**	$ 20
Expenditures		
Programs	-	-
Excess of revenue over expenditures	**86**	20
Balance, beginning of year	**84,893**	101,666
Changes to reserves	-	(16,793)
Balance, end of year	**$ 84,979**	$ 84,893

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF RRFB MUNICIPAL APPROVED PROGRAM

SCHEDULE 4

YEAR ENDED MARCH 31, 2023

	2023	2022
Revenue		
RRFB funding		
Municipal approved program	**$ 80,746**	$ 82,574
Expenditures		
Municipal Joint Services Board	**30,968**	31,669
West Hants Regional Municipality	**17,067**	17,454
Region of Queens Municipality	**9,174**	9,381
Municipality of the District of Chester	**9,452**	9,666
Municipality of the District of Shelburne	**5,648**	5,776
Municipality of the District of Barrington	**5,707**	5,836
Town of Clark's Harbour	**634**	649
Town of Lunenburg	**2,096**	2,143
	80,746	82,574
Excess of revenue over expenditures	-	-
Balance, beginning of year	-	-
Changes to reserves	-	-
Balance, end of year	**$ -**	$ -

REGION 6 SOLID WASTE MANAGEMENT

STATEMENT OF RRFB ENFORCEMENT PROGRAM

SCHEDULE 5

YEAR ENDED MARCH 31, 2023

	2023	2022
Revenue		
RRFB funding	**$ 89,021**	$ 102,552
Expenditures		
Municipal Joint Services Board	**34,142**	33,925
West Hants Regional Municipality	**18,816**	18,736
Municipality of the District of Chester/Town of Lunenburg	**12,731**	12,508
Municipality of the District of Barrington	**6,991**	7,295
Municipality of the District of Shelburne	**6,227**	6,466
Region of Queens Municipality	**10,114**	10,199
	89,021	89,129
Excess of revenue over expenditures	-	13,423
Balance, beginning of year	**76,738**	76,738
Changes to reserves	-	(13,423)
Balance, end of year	**$ 76,738**	$ 76,738

Council
Item: #11.2.1
Date: January 9, 2024
Authorization: T. MacEwan

Municipality of the District of Lunenburg

Request for Decision

Report to:	**Municipal Council**
Submitted by:	**Trudy Payne, Director of Recreation, Parks & Tourism**
Date:	**LaHave River Trail Association – Funding Request**
Re:	**January 9, 2024**

Recommendations

That Municipal Council pre-approves $7,695 in the 2024-2025 operating budget for the LaHave River Trail Association for capital projects to come from the Canada Community Building Fund.

Background

This summer the LaHave River Trail Association suffered some damage on the trails due to the floods. They have made application to the Disaster Relief Fund which is being administered by the Nova Scotia Trails Federation. They have been informed that funding in the amount of $21,7640.65 has been approved but have not received the funding yet. The Association has depleted their bank account to pay each of the local contractors a portion of their invoices. The Association still has invoices outstanding in the amount of $7,630.80. They do not have the funds to pay these invoices until the Disaster Relief Funds are received.

Executive Summary

The LaHave River Trail Association are requesting that the Municipality consider pre-approving the grant funding that staff include in the operating budget to assist the trail groups with capital projects so they can pay the local contractors sooner rather than later. They have built good working relationships with these local contractors and would like to keep these relationships in good standing.

For some time, the Municipality has included in the operating budget capital funds for the trail associations based on a km rate which comes from the Canada Community Building Fund (gas

tax). Last year the rate was $531 per km in which the LaHave River Trail Association received $7,965.00 for the 15 kms of trail they manage. This is the amount that is being proposed in the 2024-2025 budget.

To assist the LaHave River Trail Association in paying the outstanding invoices, bills that were incurred due to no fault of their own, but due to mother nature, staff are recommending that the Municipality pre-approve the LaHave River Trail Association's funding in the amount of $7,965.

Summary

All seven of the trail associations and the Central Nova ATV Club are managed by volunteers who spend a great deal of time and energy maintaining this recreational and active transportation infrastructure that is used by residents and tourists alike. The trails are a true asset, and are so, because of the passion and dedication of the volunteers! Pre-approving the funding will assist the Association during a challenging time and help them keep good working relationships with the local contractors. Just as important, pre-approving the funds will further demonstrate the support the Municipality provides to the trail groups and conveys the value the Municipality places on both the trails and the volunteers!

Report Preparation	
Department	Recreation, Parks & Trails
Report Prepared by	Trudy Payne, Director of Recreation, Parks & Tourism
Report Approved by	
Date Reviewed by C.A.O.	

Council
Item: #11.3.1
Date: January 9, 2024
Authorization: T. MacEwan

Municipality of the District of Lunenburg

Report to Council

Report to:	**Mayor Bolivar-Getson and Council**
Submitted by:	**Elizabeth Carr, Planner I**
Date:	**January 9, 2024**
Re:	**Second Reading – By-law 015F Amendments to the Riverport & District Land Use Bylaw**

On December 12, 2023, Council conducted First Reading of the proposed amendments to the Riverport & District Land Use By-law and gave notice of its intention to adopt the By-law on January 9, 2024. Council also set a date of January 9, 2024 for a Public Hearing.

Notice was given through local media and the MODL website that Municipal Council would be holding a Public Hearing and subsequently conducting Second Reading to adopt the proposed amendments. If adopted, the amendments would rezone portions of two properties on Cook's Brook Diversion (Property Identifiers 60718046 and 60718038) from the Environmentally Sensitive zone to the Rural Three zone, and repealing policy 4.13 'Accessory Uses' and replacing it with a revised policy titled 'Miscellaneous Minor Accessory Structures' in alignment with policies found in MODL's other Land Use Bylaws.

The attached By-law 015F Amendments to Riverport & District Land Use By-law has been updated from the previous version to the accessible format.

To adopt the proposed by-law, the following motion is required:

That Municipal Council conducts Second Reading and approves By-law 015F a By-law amending the Riverport & District Land Use Bylaw, regarding miscellaneous minor structures and rezoning Parcel Identifiers 60718046 and 60718038 from the Environmental Sensitive Zone to the Rural-Three Zone as presented.

Report Preparation	
Department	Planning Services
Report Prepared by	Elizabeth Carr, Planner I
Report Approved by	
Date Reviewed by C.A.O.	

Municipality of the District of Lunenburg

Amending By-law Details	
Name	Amendments to Riverport & District Land Use By-law
Number	015F
Legislative Authority	Municipal Government Act, Section 205
Effective Date	

Be it enacted by the Council of the Municipality of the District of Lunenburg, under the authority of Section 205 of the **Municipal Government Act**, as follows:

Title

1 This By-law is titled the Amendments to the Riverport & District Land Use By-law (2023).

Amendments to the Land Use By-law (By-law 015)

2 By-law 015 is amended by repealing and substituting Section 4.13 with the following Section:

Policy 4.13
It shall be the policy of Council to establish within the Land Use By-law provisions enabling miscellaneous minor structures, such as but not limited to, fences less than 2 metres in height, children's play structures, pet houses, and accessory buildings less than 20 m2 (215 ft2) in floor area, to be erected, located, constructed, or altered without the necessity of obtaining a development permit.

3 Schedule "A" titled "Zoning Map" of By-law 015 is amended by rezoning the portions of PIDs 60718046 and 60718038 that are zoned Environmentally Sensitive (ES) to the adjacent Rural Three Zone (RU-3).

By-law Adoption	
Date of first reading of amending by-law	December 12, 2023
Date of second reading of amending by-law	January 9, 2024
Date of advertisement of passage of amending by-law **Effective date of the by-law unless otherwise specified in the text of this by-law.**	
Date of mailing a certified copy of amending by-law to Minister	
I certify that this Bylaw to Amend By-law 015F was adopted by Municipal Council and published as indicated above.	
Signature of Municipal Clerk	**Date**

Council
Item: #10.3.1
Date: December 12, 2023
Authorization: T. MacEwan

Municipality of the District of Lunenburg

Memo

Report to:	**Council**
Submitted by:	**Elizabeth Carr, Planner I**
Date:	**December 12, 2023**
Re:	**Amendments to the Riverport & District Secondary Planning Strategy and Land Use Bylaw**

Recommendations

On November 23, 2023, the Planning Advisory Committee met to discuss proposed amendments to the Riverport & District Secondary Planning Strategy and Land Use Bylaw pertaining to both the process for regulating development near wetlands and the 'Accessory Uses' policy. The Planning Advisory Committee approved of the following recommendations:

- Repeal policy 4.13 'Accessory Uses' of the Riverport & District Land Use Bylaw and replace it with a revised policy titled 'Miscellaneous Minor Accessory Structures' in alignment with similar policies in MODL's other Land Use Bylaws.
- Rezone the two properties in question (PIDs 60718046 and 60718038) that are currently zoned Environmentally Sensitive to the adjacent Rural-Three zone.

If Council wishes to conduct First Reading, the following motions are in order:

That Municipal Council accept the recommendations of the Planning Advisory Committee and give notice of its intention to approve By-law 015F a By-law amending the Riverport and District Land Use By-law regarding Miscellaneous minor structures and rezoning Parcel Identifiers 60718046 and 60718038 from the Environmental Sensitive Zone to the Rural-Three Zone, and conduct First Reading of the same;

And further, that the Council hold a Public Hearing on Tuesday, January 9, 2024, at 8:30 a.m. in the Municipality's Council Chamber.

Municipality of the District of Lunenburg

By-law

Title: Amendments to the Riverport & District Land Use By-law (2023)	
By-Law number 015F	**Legislative authority:** **Municipal Government Act**, Section 205
Effective date:	**Amended date:**

Be it enacted by the Council of the Municipality of the District of Lunenburg, under the authority of Section 205 of the **Municipal Government Act**, as follows:

Title

1 This By-law is titled the Amendments to the Riverport & District Land Use By-law (2023).

Amendments to the Land Use By-law (By-law 015)

2 By-law 015 is amended by repealing and substituting Section 4.13 with the following Section:

> **Policy 4.13**
> **It shall be the policy of Council to establish within the Land Use By-law provisions enabling miscellaneous minor structures, such as but not limited to, fences less than 2 metres in height, children's play structures, pet houses, and accessory buildings less than 20 m2 (215 ft2) in floor area, to be erected, located, constructed, or altered without the necessity of obtaining a development permit.**

3 Schedule "A" titled "Zoning Map" of By-law 015 is amended by rezoning the portions of PIDs 60718046 and 60718038 that are zoned Environmentally Sensitive (ES) to the adjacent Rural Three Zone (RU-3).

Annotation for official by-law book

Date of first reading	
Date of advertisement of notice of intent to consider	
Date of second reading	
Date of advertisement of passage of by-law*	
I certify that this "Amendments to the Riverport & District Land Use By-law (2023)" was adopted by Municipal Council and published as indicated above.	
_____ **Municipal Clerk**	_____ **Date**

*Effective date of the enactment unless otherwise specified in the text of this By-law

Municipality of the District of Lunenburg

Staff Report

Report to:	**Planning Advisory Committee**
Submitted by:	**Elizabeth Carr, Planner I**
Date:	**November 23, 2023**
Re:	**Amendments to the Riverport & District Secondary Planning Strategy and Land Use Bylaw.**

Recommendations

Staff recommended that the Riverport Area Advisory Committee respectfully recommend to the Planning Advisory Committee that:

1. Council approves the following proposed amendments to the Riverport Secondary Planning Strategy:
    a. Revise policies 4.2.1 and 4.2.2 to only include the following lands within the Environmental Protection Designation and Environmentally Sensitive zone:
        i. Gaff Point
        ii. Murphy Wetland
    b. Repeal policy 4.2.3.
    c. Add a policy to section 4.2 stating that all wetlands and salt marshes in Riverport shown on the Nova Scotia Department of Natural Resources Wetlands and Coastal Habitats Inventory, including the tree covered wetland at Hirtles Pond, will be included in Schedule "B" – Development Constraints map.
    d. Add a policy to section 4.2, pursuant to the previous policy, stating that properties can be removed from Schedule "B" where study of a wetland or salt marsh, by a qualified person, shows that land depicted in Schedule "B" is not wetland or salt marsh.

2. Council approve the proposed amendment to the Riverport Land Use Bylaw to remove wetland areas captured within Schedule "A" – Zoning map that are currently zoned Environmentally Sensitive (ES), including the tree covered wetland at Hirtles Pond, and add these areas to Schedule "B" – Development Constraints map.
3. Council repeal policy 4.13 'Accessory Uses' of the Riverport & District Land Use Bylaw and replace it with a revised policy titled 'Miscellaneous Minor Accessory Structures' in alignment with similar policies in MODL's other Land Use Bylaws.

The Riverport & District Area Advisory Committee rejected staff's recommendations pertaining to development near wetlands, and proposed the following recommendation to the Planning Advisory Committee:

- **The Riverport & District Area Advisory Committee respectfully recommend to the Planning Advisory Committee that no changes be made to Riverport & District's existing policies around developing near wetlands due to the following concerns:**
    - **Unclear definition for the term 'wetland'.**
    - **Unclear qualifications for designated professionals.**
    - **Outdated maps from Province.**

The Riverport & District Area Advisory Committee approved of staff's recommendation to repeal and replace the 'Accessory Uses' policy in the Riverport & District Land Use Bylaw and respectfully recommends to the Planning Advisory Committee that:

- **Council repeal policy 4.13 'Accessory Uses' of the Riverport & District Land Use Bylaw and replace it with a revised policy titled 'Miscellaneous Minor Accessory Structures' in alignment with similar policies in MODL's other Land Use Bylaws.**

Background

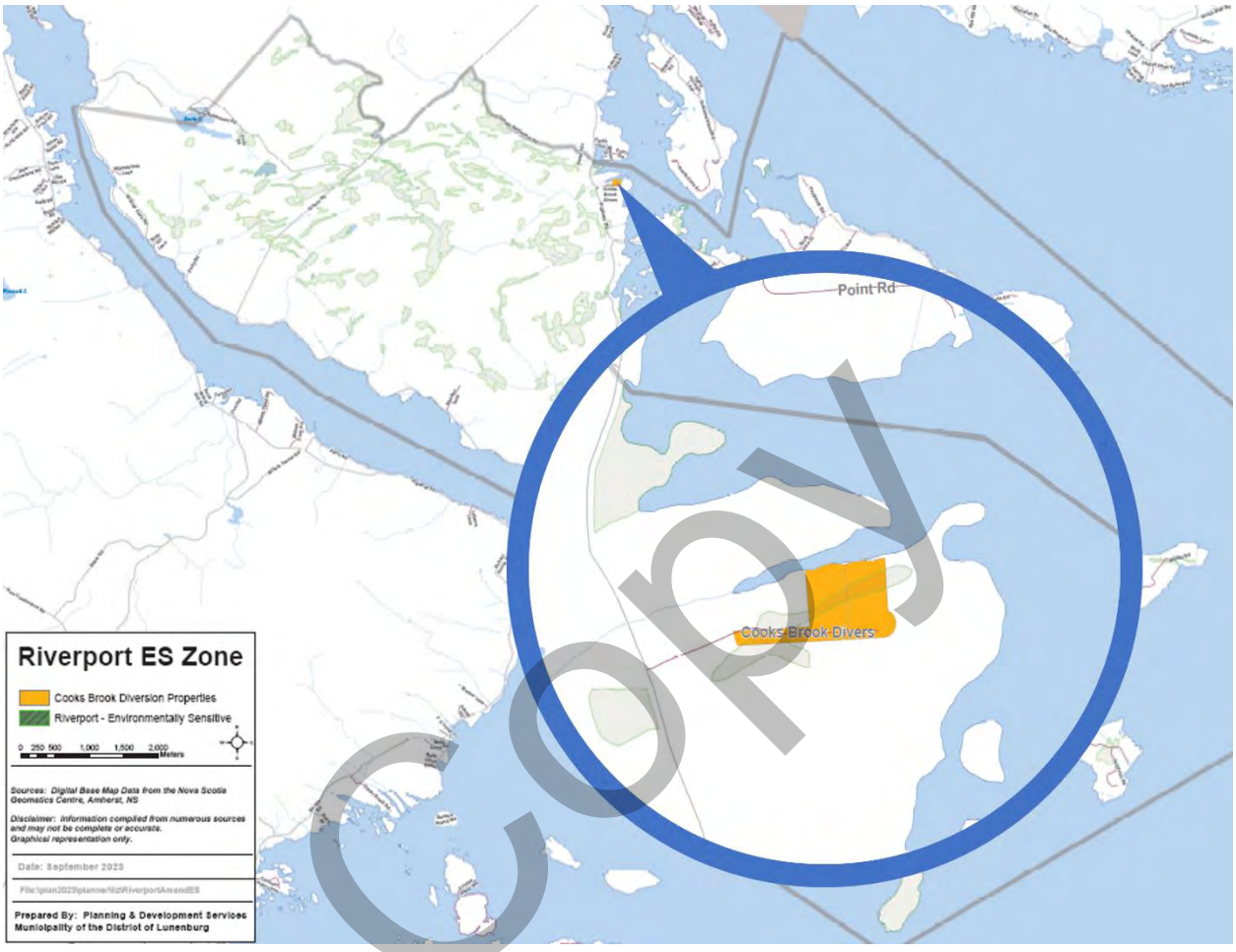
The proposed amendments fall into two categories:

- Regulating development near wetlands.
- Accessory Uses policy.

Wetland Amendments

A situation has arisen related to development near wetlands that may require amendments to Riverport's Secondary Planning Strategy (SPS) and Land Use Bylaw (LUB). There are two properties, that according to Schedule "A" – Zoning Map in the Riverport LUB, are zoned Environmentally Sensitive (ES) due to the presence of wetlands or salt marshes that have been

identified through the Department of Natural Resource's Wetlands and Coastal Habitats Inventory.



Map of Riverport showing Environmentally Sensitive zones and the two properties in question.

Section 4.2.2 of Riverport's SPS states that ES zones are "no build" zones; however, section 4.2.3 states that rezoning of ES zones is possible provided that a survey confirming that no wetland is present has been conducted by a designated professional.

A qualified professional has surveyed both properties in question and has determined that there are no wetlands or salt marshes present. It is known that the provincial wetland mapping has not been updated in several years, and it is possible that there could be inaccuracies within MODL's ES zone mapping as it is largely based on the provincial mapping.

As mentioned above, rezoning of ES zones is permitted provided that a survey has been conducted by a designated professional; however, because it is known that the provincial wetland mapping is outdated, it is possible that there will be similar requests for rezoning in this area in the future which has prompted staff to investigate other ways that development near wetlands could be regulated in Riverport in the future.

Accessory Uses Amendments

An amendment to section 4.13 'Accessory Uses' in the Riverport & District SPS has been proposed to align Riverport's 'Accessory Uses' policy with sections titled 'Miscellaneous Minor Accessory Structures' in MODL's other existing SPS documents.

Riverport's current 'Accessory Uses' policy refers only to use of land that does not require a development permit and does not refer to the types of accessory **structures** that are permitted without a development permit. The revision of section 4.13 will provide more details about the types of structures that may be permitted as an accessory structure without a development permit.

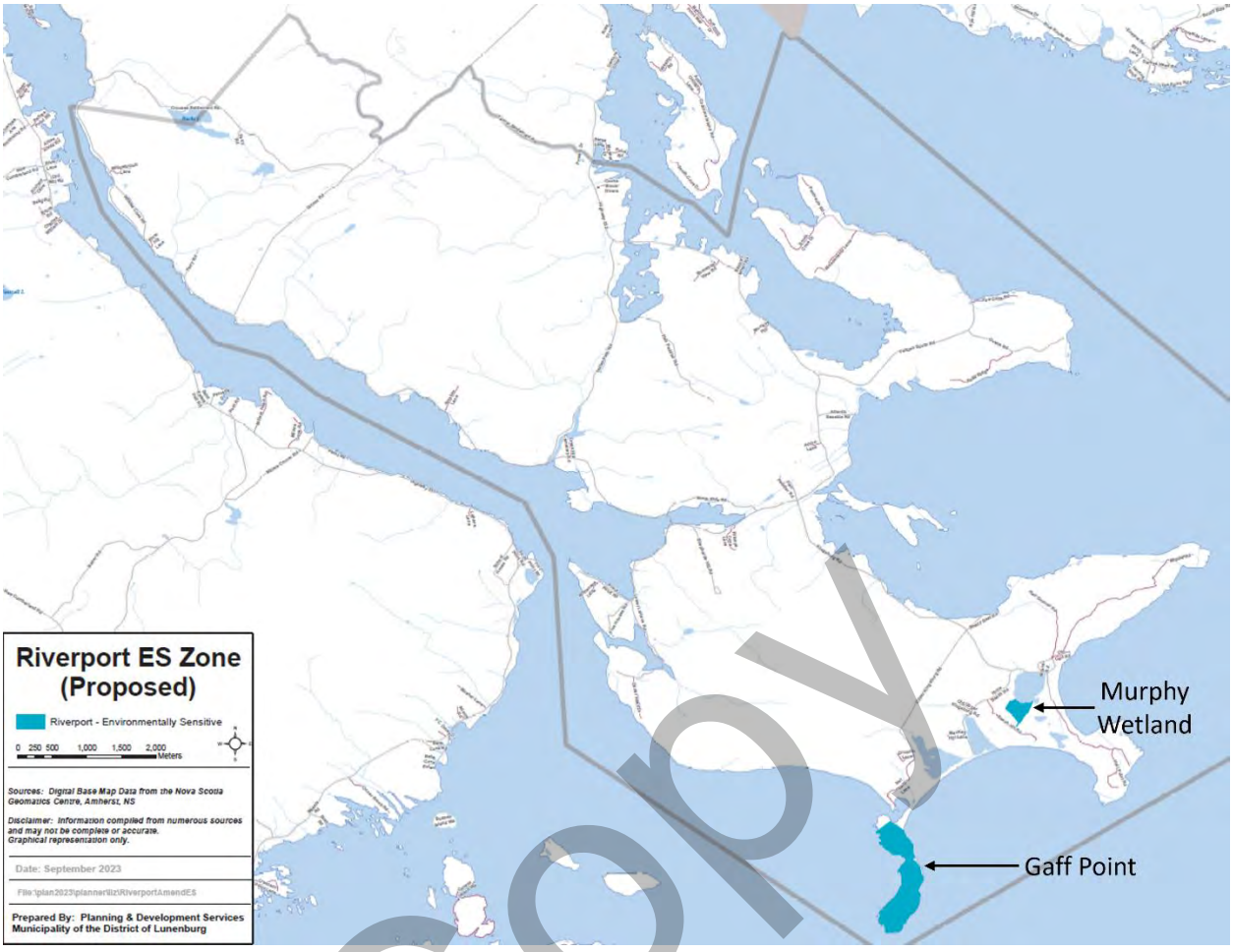
Discussion

Planning staff brought the proposed amendments to the Riverport & District SPS and LUB to Council on September 12, 2023. Council referred the amendments to the Riverport & District Area Advisory Committee and directed staff to hold a public information session for the proposed amendments.

Per MODL Policy 066 – Public Engagement Policy s. 8 and 9 respectively, a public information session was scheduled, and notice of the proposed amendments and public information session were posted a week in advance for the public and the Area Advisory Committee members. Public postings were also made on MODL's website, Facebook page, and engage website to inform the public of the information session and encourage interested residents to attend.

Proposed Wetland Amendments

The proposed amendments involve adding the identified wetlands and salt marshes from ES zones to Schedule "B" – Development Constraints map. For clarity, there are lands that have been zoned ES by the Municipality such as Gaff Point and the Murphy Wetland owned by the Kingsburg Coastal Conservancy that do not fall within the provincial wetland mapping. These lands would remain on the zoning map as ES zones which would prohibit any future development in those areas.



Map of Riverport showing Gaff Point and the Murphy Wetland.

Adding wetlands captured within the ES zones to the Development Constraints map would continue prohibiting development in areas identified as wetlands or salt marshes but would also provide the opportunity for property owners to dispute the presence of a wetland through a survey conducted by a designated professional. This way of regulating development near wetlands would be like the wetlands policy in the Hebbville SPS and LUB.

Village of Hebbville Wetlands Policy

The Village of Hebbville has wetlands mapped in Schedule "C" Significant Watercourses and Identified Wetlands which were identified using the provincial Wetlands and Vegetation Classification System Inventory. Per Hebbville's wetland policy, no development permit application will be issued until the province has confirmed that the proposed development would not affect, or be inconsistent with, any related provincial policies, and where necessary, would satisfy any wetlands-related approvals processes.

Other Considerations

Discussion with Wetland Expert from Nova Scotia Environment

Planning staff met with a wetland expert from the Nova Scotia Department of Environment to discuss the proposed amendments to the Riverport SPS and LUB and to clarify the provincial regulations for developing near wetlands.

Staff asked about the provincial approvals needed for infilling wetlands. The provincial expert stated that a permit from the Department of Environment and Climate Change is required for alterations to wetlands. The province also requires no net loss of wetlands meaning if a wetland is infilled it is expected to be compensated for at a 2:1 ratio. For more significant wetlands, the ratio may be increased to 4:1.

Staff also asked whether the existing provincial wetland mapping would be updated. The wetland expert confirmed that the existing mapping is outdated and mentioned that though there is currently no timeline for updating the existing wetland maps, there is support within the Department of Environment for updating the maps.

The Department of Environment recently released what has been described as a 'routine clarification' of its wetland policy. The clarification of the policy included that wetlands of special significance (WSS) are limited to:

- Wetlands known to support threatened and endangered species only, and exclude vulnerable/special concern species (for which there are no prohibitions to harm).
- Only a portion of a wetland directly supporting species at risk, as determined by a qualified expert.
- The portion of wetlands that overlap with a designated Ramsar site (sites of international importance), provincial wildlife management area, provincial park, nature reserve, wilderness area or lands owned or legally protected by non-government charitable conservation land trusts.
- Wetlands where a proponent at the time of their application, through their own fieldwork, has included an observation of a species at risk in the wetland and the wetland meets the habitat requirements of that species. Databases of historic occurrences of species at risk will no longer be considered."

Though the Department of Environment has stated that nothing has changed within the policy, the clarification of the policy's contents concerned environmentalists who fear that it will reduce the number of wetlands protected by the province. The wetland expert stated that they were unsure what impact the clarification of the wetlands policy would have on updating the mapping of provincially identified and protected wetlands.

After the discussion with the provincial expert, staff investigated how neighbouring municipalities are mapping development constraints such as wetlands. Planning strategies and land use bylaws from Cumberland, East Hants, King's, and Queens were reviewed and it was found that most of the municipalities rely on provincial mapping and regulations to protect wetlands. Some of the municipal documents that were reviewed also included requirements for developers to disclose any wetlands on their property before it is developed, or requirements to disclose any wetlands when applying for amendments to the land use bylaw.

Proposed Accessory Uses Amendments

To accommodate future regulation of accessory structures, it is proposed that policy 4.13 'Accessory Uses' of the Riverport & District Land Use Bylaw is repealed and replaced with a revised policy titled 'Miscellaneous Minor Accessory Structures' in alignment with similar policies in MODL's other Land Use Bylaws.

Other Considerations

Discussion with Municipal Development Officer

Staff discussed the proposed amendment to the 'Accessory Uses' policy with the Development Officer and determined that the proposed amendment would provide more clarity about the types of accessory structures permitted without a development permit on properties with an existing structure and would change the language to reflect regulation of structures rather than land use.

Feedback from Public Meetings

Public Information Session

A public information session was held on the evening of September 20, 2023. Councilor Whynot was in attendance, but no community members attended the event. Staff reviewed the proposed amendments with the Councilor and adjourned the meeting.

Riverport & District Area Advisory Committee

The Riverport & District Area Advisory Committee met on October 11, 2023, at 6:30PM at the Riverport District Fire Department. There were a few members of the public in attendance as well as both the Area Advisory Committee Members Reid Whynot and Barry Olivella.

Staff provided a presentation with background on the current policies both for regulating development near wetlands and the 'Accessory Uses' policy, and covered details about the proposed amendments. Members of the public expressed that they were concerned about the speed at which the amendment was progressing and worried that the change in process would make it easier for people to develop near wetlands. Several questions were also brought forward including:

1. How do we define a wetland?

The province defines a wetland in the Environment Act as,

> "a marsh, swamp, fen or bog that:
>
> - either periodically or permanently has a water table at, near or above the land's surface, or that is saturated with water; and
> - sustains aquatic processes as indicated by the presence of poorly drained soils, hydrophytic vegetation, and biological activities adapted to wet conditions."

Nova Scotia's Wetland Conservation Policy provides definitions for a variety of wetlands, marshes, and bogs, including the unique features associated with each type. Certain types of wetlands, including salt marshes, are categorized as Wetlands of Special Significance (WSS) by the province, which cannot be altered unless an alteration is required to maintain, restore, or enhance a WSS, or would provide a necessary public function. Aside from WSS, wetlands can only be altered if the proper Wetland Alteration Application or Environmental Assessment is completed and approved by the province.

Riverport's ES zones are based on the province's wetland mapping including provincially mapped WSS. Not all wetlands are captured in the province's mapping because the map is known to be outdated and was based on aerial maps which have resulted in the underrepresentation of tree-covered wetlands and inaccurate wetland boundaries. MODL uses the province's mapping as it is the best mapping available currently, and MODL relies on the provincial wetland delineators as part of the existing policy in Riverport. Through the Municipal Government Act, municipalities can regulate or prohibit development on land that is low-lying, marshy, or unstable which could include wetlands. We can use provincial mapping and apply municipal requirements to better protect wetlands from development.

2. What are the qualifications of a wetland delineator? Are the results of surveys disproving the presence of wetlands on a property ever verified by another professional?

Staff reached out to the Department of Environment to confirm the qualifications required for a designated professional assigned to delineate wetlands and were told that these professionals take a wetland delineation course and are trained under a senior wetland delineator until they are confident in their own assessment abilities.

Currently, the province only requires one survey conducted by a designated professional to disprove the presence of wetlands on a property. A suggestion received from members of the public and the Area Advisory Committee members in attendance included requiring surveys

conducted by more than one qualified professional to determine whether a wetland exists on a property, and, having some oversight for who is considered a qualified professional.

3. Is the province updating their wetland mapping?

Members of the public brought to staff's attention the possibility that the province is actively updating their wetland mapping. Staff reached out to the Department of Environment to confirm the existence of new wetland maps and it was clarified that the wetland maps the community were referring to are a new model for identifying wetlands on the ground and not a new map showing provincially protected wetlands.

Due to the questions and concerns brought forward by members of the public, there was hesitancy from the Area Advisory Committee to push staff's recommendation forward to the Planning Advisory Committee. As a result, there was a new recommendation put forward suggesting that no changes be made to the current process for regulating development near wetlands until a clear definition for wetlands and better mapping from the province can be procured.

Alternatives

Wetland Amendments

- Rezone the two properties in question that are currently zoned ES to Rural Three.

An alternative option is to rezone the two properties in question to an adjacent zone [Riverport has only two zone types making the adjacent zone Rural Three (RU-3)] which is already made possible through section 4.2.3 of the Riverport SPS that states,

> "Pursuant to Policy 4.2.2, it shall be the policy of Council to rezone the Environmentally Sensitive (ES) Zone in the Land Use By-law to an adjacent zone where study of a wetland or salt marsh, by a qualified person, shows that land within the Environmentally Sensitive (ES) Zone is not wetland or salt marsh."

Rezoning ES zones in Riverport is already permitted through the SPS; however, because it is known that the provincial wetland mapping is outdated, it is possible that there will be similar requests for rezoning in this area in the future which is why another recommendation has been proposed.

Next Steps

The recommendations from the Riverport & District Area Advisory Committee will be taken to the Planning Advisory Committee meeting scheduled for the evening of November 23, 2023. Planning staff will add the item to the Planning Advisory Committee agenda, and per MODL

Policy 066 – Public Engagement Policy s. 10, will inform the public of the opportunity to attend the Planning Advisory Committee meeting via the Municipality's website, social media pages, and an ad in the local newspaper.

The Planning Advisory Committee will discuss the matter and will consider the Area Advisory Committee's recommendation and will then make their own recommendation that will be taken to the next Council meeting. If Council approves of the recommendation, it will conduct first reading where the intent to approve the amendment application will be made known. After Council's first reading, a public hearing will be scheduled where members of the public will be able to voice their opinions on the matter and be heard by Council. Council will then make its final decision.

Conclusion

Staff's recommendation to the Riverport & District Area Advisory Committee was to recommend to the Planning Advisory Committee that Council approve of the proposed amendments to the Riverport Secondary Planning Strategy and Land Use Bylaw pertaining to the process for regulating development near wetlands, and the 'Accessory Uses' policy.

After discussions with both the Riverport Area Advisory Committee and members of the public, it was determined that more information about defining wetlands, the qualifications of provincial wetland delineators, and the provincial wetland mapping should be collected before any changes are made to the existing process for regulating development near wetlands. The Riverport Area Advisory Committee decided to reject staff's recommendation to the Planning Advisory Committee, and instead recommended that Council not make any changes to the process at this time. The Riverport Area Advisory Committee did approve of staff's recommendation pertaining to the 'Accessory Uses' policy.

All comments and concerns from the Planning Advisory Committee, Riverport Area Advisory Committee, and the public will be taken into consideration by Council.

Report Preparation	
Department	Planning & Development
Report Prepared by	Elizabeth Carr, Planner I
Report Approved by	Jeff Merrill, MCIP, LPP, Director of Planning & Development Services

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Council
Item: #11.3.2
Date: January 9, 2024
Authorization: T. MacEwan

Municipality of the District of Lunenburg

Request for Decision

Report to:	**Municipal Council**
Submitted by:	**Ella R. Gindi, Planner I**
Date:	**January 9, 2024**
Re:	**Coastal Protection – Policy Recommendations**

This report contains a summary of the Council meeting held on November 28, 2023, as well as planning staff's recommendations and draft motions. For more detailed information regarding the Coastal Protection project and proposed policy recommendations, please see the attached Background Report (see Appendix II) and the Planning Advisory Committee (PAC) Request for Decision Report (see Appendix III).

Background

On Tuesday November 28, 2023, Council met to discuss PAC's recommendations pertaining to the Coastal Protection regulations. The PAC recommendations were not accepted by Council and additional options were requested. To accomplish this, Council passed the following motion:

"That Municipal Council direct Staff to prepare alternative options for coastal protection land use policy recommendations based on the public consultation, Planning Advisory Committee recommendation and Council deliberations".

Options for Consideration

At this point in the process, Council's direction is required to move further with the preparation of regulations pertaining to coastal protection. Based on the discussions on November 28 and the motion passed above, planning staff have prepared a list of options and a brief planning analysis of each option below. Option 1 is based on staff's interpretation of Council's desired direction based on discussions held on November 28. Option 2 is a hybrid approach, which

seeks to address the concerns outlined by Council on November 28. Additional options to stop the project or send staff back to PAC are also listed.

Within each option, planning staff have also included high-level estimates on the potential impact of each option, as measured by the number of vacant properties where new residential development would likely be prohibited because of the proposed regulations. It should be noted as well that previous discussions with Council on the numbers of impacted properties did not consider the existing regulations in planned areas including Oakland, Princes Inlet and Riverport, and therefore were previously overestimated. New numbers for each scenario have been included within each option, all which now account for these existing regulations.

Option 1

Description

On November 28, 2023, Council reviewed PAC's recommendation pertaining to the coastal protection regulations and opted not to support the recommendations as written. In the same meeting, Council discussed several revisions to the recommended regulations for coastal flooding, coastal erosion, and coastal ecosystems. Council's preferred regulations are discussed under Option 1 and the proposed policies are listed in Appendix I, Table 1.

Discussion

Vertical elevation setbacks are a commonly used approach to protect development from coastal flooding. Council expressed concern that a vertical elevation setback of 3.97m and prohibiting new residential development in inundation areas as proposed by staff would be too restrictive. Therefore, Option 1 would continue to allow new residential uses within inundation areas provided that any habitable spaces (e.g., bedrooms, kitchens, etc.) within a new structure meet the elevation requirement of 3.97m. This option would also provide an exemption to allow new habitable space additions to existing residential buildings to be built at the same elevation as the existing structure, even if they are below 3.97m, but only to a maximum of a 100% increase beyond the existing habitable space. While providing additional flexibility for property owners, this allowance for new additions would continue to allow new building to occur below the elevation limits that are projected to be flooded in the future and is not supported by staff.

Option 1 also includes a 30m erosion risk area as opposed to the 50m erosion risk area. Because of the ability to do risk assessments, the 50m risk area would not render any areas any less "developable" than the 30m risk area approach, provided that the findings of the assessment permitted the development to occur. It should also be noted that while in some cases, this option would hypothetically allow building to occur 0m from the top of bank, there

are already 20m coastal setbacks in effect in the Riverport & District, Princes Inlet & Area and Oakland Land Use By-laws which will not be altered with the adoption of the new Bylaw.

Option 1 includes a 15m vegetative buffer/setback as a recommendation during development, as part of the erosion risk area along the coast. Vegetative buffers are a known best-practice approach for waterfront development, as they help to both reduce erosion and provide critical habitat to wildlife and aquatic species.

Council supported a 30m horizontal and vegetative wetland buffer proposed by staff which is listed in table 1.

In relation to the boundaries of the proposed regulations, Option 1 would limit the geographic coverage of the proposed regulations by excluding upstream tidal portions of the LaHave, Petite, and Martins rivers.

To assist in providing a high-level of analysis of the possible impacts to coastal properties, staff have prepared various mapping scenarios, including a summary of the number of vacant properties where new residential development would likely be prohibited in the future as a result of different regulatory options. These findings estimate that the regulations proposed in Option 1 could result in residential development being prohibited on approximately 78 privately-owned, vacant properties as opposed to the estimated 256 properties that would have been rendered undevelopable under the PAC Recommendation. It should be noted that this is a high-level estimate which is the result of a desktop analysis, and there may be several additional factors that would make a site undevelopable already, such as its shape, elevation, access or topography.

Per Council's request, maps depicting the regulations for each option are attached to the Council agenda for December 12, 2023, as supplementary material intended to provide additional visual context for the proposed regulations. The maps are included separately from the report due to the large size of the map files.

Motion

If Council wishes to direct staff to draft a Municipal Planning Strategy amendment and new Land Use By-Law as stated in Option 1, staff recommends the following motion:

"That Council endorse the proposed regulations contained within Option 1 as presented in Appendix I, Table 1, and direct staff to draft a Municipal Planning Strategy amendment and new Land Use By-Law respecting these measures and bring back draft regulations for First Reading".

Option 2

Description

Option 2 an alternative option that has been prepared by planning staff by incorporating many of Council's concerns that were expressed on November 28, while also maintaining good planning principles and best practices.

Discussion

Option 3 includes a vertical elevation setback of 3.97m relative to the 2013 CGVD to protect against coastal flooding. Any new habitable additions to non-conforming uses, such as existing residential structures, would have to meet the elevation requirement which aligns with best practices for coastal management. Infilling would be permitted to enable structures to meet the elevation requirement and to enable the installation of engineered infrastructure to protect against flooding.

Option 2 would include a 30m erosion risk area that could be reduced to a minimum of 15m if an assessment is completed by a designated professional, as well as a required 15m vegetative buffer which provides flexibility for property owners while still providing suitable protection for all properties along the coast. A percentage of the 15m vegetative buffer would be permitted to be used for accessory structures, such as boat houses, as well as access to the water. Additions to non-conforming structures would be permissible if the addition extends away from the water, or the property owner engages with a designated professional to determine whether the erosion risk area could be reduced from 50m.

For coastal wetlands, a 30m vegetated buffer and setback is proposed to offer a level of protection for coastal ecosystems, while also aligning with setbacks from some municipalities in Nova Scotia, as well as the watercourse setbacks already in place in Riverport. The rivers were excluded in Option 2 because rivers have different flooding and erosion processes than the coast and do not need the same level of protection as properties directly on the coast.

To assist in providing a high-level of analysis of the possible impacts to coastal properties, staff have prepared various mapping scenarios, including a summary of the number of vacant properties where new residential development would likely be prohibited in the future as a result of different regulatory options. These findings estimate that the regulations proposed in Option 2 could result in residential development being prohibited on approximately 111 privately-owned, vacant properties. It should be noted that this is a high-level estimate which is the result of a desktop analysis, and there may be several additional factors that would make a site undevelopable already, such as its shape, elevation, access or topography.

Motion

If Council wishes to direct staff to draft a Municipal Planning Strategy amendment and new Land Use By-Law, staff recommend the following motion:

"That Council accept the staff recommendations contained within Option 2 as presented in Appendix I, Table 2 and direct staff to draft a Municipal Planning Strategy amendment and new Land Use By-Law respecting these measures and bring back draft regulations for First Reading".

Option 3 (Refer Staff back to PAC)

Description

Option 3 will allow Council to send staff back to seek additional feedback and discuss additional options with PAC and the public before drafting the coastal protection regulations.

Discussion

If Council does not wish to proceed with Options 1 or 2, planning staff highly recommends Option 3 as opposed to stopping work entirely on the project, as outlined in Option 3.

Motion

If Council wishes to send staff back to meet with the Planning Advisory Committee, staff recommend the following motion:

"That Council instruct staff to reconvene with the Planning Advisory Committee for a renewed discussion on the proposed coastal protection regulations and further work on new options for Council's consideration."

Option 4 (End all work on coastal protection)

Description

Option 4 instructs staff to stop all work on the coastal protection project.

Discussion

Option 4 is not recommended by staff due to the increasing severity of storms and rising sea levels leading to heightened coastal flooding and erosion risks. Such conditions pose a significant threat to both development projects and the overall safety and well-being of residents in coastal areas. Furthermore, Option 4 does not align with the public feedback gained during the extensive public engagement campaign for the Coastal Protection project.

Motion

If Council does not wish to proceed with Options 1, 2, or 3, the following motion has been provided:

"That Council formally direct staff to cease any further work on the coastal protection project."

Report Preparation	
Department	Planning & Development Services
Report Prepared by	Ella R. Gindi, Planner I
Report Approved by	Reid Shepherd LPP MCIP, Manager of Planning
Date Reviewed by C.A.O.	

Appendix I

Table 1: Option 1	
Coastal Flooding	
1	Utilize 1.57m Elevation Reference for Sea Level Rise: • Base all calculations on an elevation of 1.57 metres relative to the 2013 CGVD, providing a standardized basis for assessment. This is consistent with recommendations from experts and aligns with the 95th percentile of the IPCC report on sea level rise.
2	Coastal Flooding Zone Approach **Coastal Inundation Area (0-3.97m)** ● New institutional uses prohibited ● New residential uses allowed, provided that habitable areas are elevated to a minimum of 3.97m CGVD 2013. ● Infilling permitted in all cases
3	Specific Exemptions from vertical setback for: • Low-value accessory structures (i.e., sheds, decks, piers, boardwalks, gazebos, stairs, etc.). • Marine related activities
4	Non-conforming allowances • Permit non-conforming developments to undergo renovations, rebuilding, or relocation. New additions, including habitable space (e.g., bedrooms) may be constructed at the current elevation of the structure, even if it is below 3.97m, but only to a maximum of 100% of the floor area of the existing habitable space. The new habitable space may not be any lower than the current elevation.
5	Flexibility for Existing Development • Encouraging the relocation of existing structures in coastal inundation risk areas.

6	Public Awareness & Education • Introduce initiatives to raise public awareness about the new regulations and promote education about coastal protection and the associated risks of coastal flooding.
7	Conduct a 5-year Policy Review and an Annual Update to Council. • Update in accordance with the latest climate change models and projections. • Staff will provide Council with an annual update on the performance of the policy.
	Coastal Erosion
8	Implement a 30m Erosion Risk Area ● A 30m Erosion Risk Area, measured from the top of the bank adjacent to the water (or OHWM if no bank exists)
9	Allow Erosion Risk Area Reduction ● Engage a professional to demonstrate that a lower erosion rate exists to build closer than 30m, down to a minimum of 0m.
10	Vegetative Shoreline Buffer ● Recommended during development, but not mandatory
11	Flexibility for Existing Developments ● Allow property owners with existing developments to expand beyond existing footprints, provided that the expansion is furthest from the erosion area. However, property owners may engage with a designated professional to approve an addition within the erosion area if it is deemed appropriate for the site. ● Property owners interested in relocating existing structures away from eroding banks should be supported. To allow this, obstacles like other development standards, including property line setbacks or even the minimum erosion risk area, might hinder such relocations. In such scenarios, hazard avoidance would be prioritized over regulations relating to community aesthetics.
12	Exemptions for Water-Related Uses & Activities

	• Allow exemptions from horizontal setbacks to address specific cases, including minor vegetation clearance, recreational and scientific installations, safety structures, and buildings that rely on water access for their intended functionality. These exemptions would encompass a variety of water-related uses and activities, such as fish plants, boat construction, boat houses, piers, decks, marinas, and slipways.
13	Public Awareness and Education • Raise public awareness about coastal erosion and the use of soft barriers like living shorelines.
14	Conduct a 5-year Policy Review and an Annual Update to Council. • Update in accordance with the latest climate change models and projections. • Staff will provide Council with an annual update on the performance of the policy.
Sensitive Coastal Ecosystems	
15	Establish a 30m Horizontal Setback and a vegetative buffer for Coastal Wetlands • Using the provincial wetland mapping • Ability to engage a designated professional to assess existence or wetland boundary or correct mapping.
17	Collaboration with Environmental non-governmental organizations • Continue partnerships with Ducks Unlimited Canada and other groups to scientifically identify and map coastal wetlands that are currently not covered by provincial mapping.
18	Public Awareness & Education • Launch public awareness campaigns to highlight the ecological importance of wetlands and dunes.
19	Conduct a 5-year Policy Review and an Annual Update to Council. • Update in accordance with the latest climate change models and projections. • Staff will provide Council with an annual update on the performance of the policy.

	Regulations Boundary
20	• Only includes areas up to the LaHave River at the narrowing between Fort Point and Kraut Point, the Petite River up to the Hwy 331 bridge and Martins River up to the Highway 3 bridge.

Table 2: Option 2	
Coastal Flooding	
1	Utilize 1.57m Elevation Reference for Sea Level Rise: • Base all calculations on an elevation of 1.57 metres relative to the 2013 CGVD, providing a standardized basis for assessment. This is consistent with recommendations from experts and aligns with the 95th percentile of the IPCC report on sea level rise.
2	Employ a Vertical Elevation setback of 3.97m relative to the 2013 CGVD. • All new habitable space must meet the elevation requirement. • Prohibit new institutional use. • Permit all types of infilling.
3	Specific Exemptions from vertical setback: • Non habitable accessory structures (i.e., sheds, decks, piers, boardwalks, gazebos, etc.). • Marine related activities
4	Non-conforming allowances • Permit non-conforming developments to undergo renovations, rebuilding, or relocation, as long as habitable spaces meet the elevation requirement.
5	Flexibility for Existing Development • Encouraging the relocation of existing structures to higher elevation.
6	Public Awareness & Education • Introduce initiatives to raise public awareness about the new regulations and promote education about coastal protection and the associated risks of coastal flooding.
7	Conduct a 5-year Policy Review

	• Update in accordance with the latest climate change models and projections.
Coastal Erosion	
8	Implement a 30m Erosion Risk Area ● A 30m Erosion Risk Area, measured from the top of the bank adjacent to the water. ● Allow Erosion Risk Area Reduction ○ Engage a professional to demonstrate that construction can occur closer to the cost than 30 meters, down to a minimum of 15m.
9	Vegetative setback Requirement ● Require a 15m buffer from top bank.
10	Flexibility for Existing Developments ● Allow property owners with existing developments to expand beyond existing footprints, provided that the expansion is furthest from the erosion area. ● Property owners interested in relocating existing structures away from eroding banks should be supported. To allow this, obstacles like other development standards, including property line setbacks or even the minimum erosion risk area, might hinder such relocations. In such scenarios, hazard avoidance would be prioritized over regulations relating to community aesthetics.
11	Exemptions for Water-Related Uses & Activities within the erosion risk area (including vegetative buffer) ● Allow exemptions from erosion risk area and vegetative buffer to address specific cases, including minor vegetation clearance, recreational and scientific installations, safety structures, and buildings that rely on water access for their intended functionality. These exemptions would encompass a variety of water-related uses and activities, such as fish plants, boat construction, boat houses, piers, decks, marinas, and slipways.
12	Public Awareness and Education ● Raise public awareness about coastal erosion and the use of soft barriers like living shorelines.

13	Conduct a 5-year Policy Review ● Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.
	Sensitive Coastal Ecosystems
14	Establish a 30m Horizontal Setback and a vegetative buffer for Coastal Wetlands ● Using the provincial wetland mapping ● Ability to engage a designated professional to assess existence or wetland boundary or correct mapping.
15	Collaboration with Environmental non-governmental organizations ● Continue partnerships with Ducks Unlimited Canada and other local groups to scientifically identify and map coastal wetlands that are currently not covered by provincial mapping.
16	Public Awareness & Education ● Launch public awareness campaigns to highlight the ecological importance of wetlands and dunes.
17	Conduct a 5-year Policy Review ● Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.
	Regulatory Boundary
18	● Exclude the LaHave, Petite and Martins Rivers from the proposed regulations

Appendix II

Municipality of the District of Lunenburg

Background Report

Report to: Municipal Council
Prepared by: Elizabeth Carr & Ella R. Gindi, Planner I
Date: May 9, 2023
Re: Coastal and Sensitive Coastal Ecosystem Protection

Introduction

Nova Scotia's South Shore is known for its scenic coastal views. However, climate change is causing sea levels to rise along the coastline resulting in increased rates of erosion and higher risk of coastal flooding. Sea level rise is caused by the melting of glaciers, ice sheets, and ice caps, as well as the thermal expansion of the oceans. Nova Scotia has the additional concern of experiencing subsidence due to glacial isostatic adjustment, which causes the shoreline to sink. Rising sea levels can increase the risk of damage to structures, municipal infrastructure, and coastal ecosystems. Sea level rise can be addressed through adaptation measures such as strategic land-use planning that incorporates coastal protection policies. The rise of sea level is already affecting coastal communities, and implementing preventative planning will help reduce the negative effects.

Sensitive coastal ecosystems such as coastal wetlands and sand dunes are another aspect of Nova Scotia's natural environment that is affected by climate change and development. Wetlands along the coastline provide habitat for a variety of species and perform ecological functions such as erosion prevention, pollutant filtration, and coastal protection. Sand dunes offer both protection from the elements as well as nesting areas for several native plant and animal species. MODL's coastline contains a variety of wetlands, salt marshes, spits, and dunes that hold ecological value. The municipality aims to create and adopt policies that protect the coast and sensitive coastal ecosystems.

Municipalities do not have control over armour rock wall approvals, or selecting which wetlands or other sensitive ecosystems are protected. The province is responsible for approving rock wall construction and identifying and protecting wetlands. The purpose of the Coastal and Sensitive Coastal Ecosystem Protection background report is to examine the tools that other

municipalities are using to regulate coastal development. Staff have reviewed relevant provincial and municipal legislation and will discuss the main issues related to coastal and coastal ecosystem protection along with relevant regulatory tools.

Relevant Legislation

Table 1: Relevant Legislation by Level of Government	**NGOs**	**Municipal Government Act**	**Provincial Regulation**	**Federal Government**
Planning	Advocate for policies and plans to protect coastal habitats	Set guidelines for preparing and implementing planning strategies and zoning regulations.	Responsible for Coastal zone planning, addresses land use issues and resource use.	Canada's Ocean Strategy guidelines and aid with coastal zone planning.
Legislation		Municipal Government Act (MGA), Statement of Provincial Interest, Planning Strategies and By-Laws.	Beaches Act, Environment Act, Wilderness Areas Protection Act and Coastal Protection Act (delayed)	Oceans Act, Fisheries Act, Wildlife Act and Species at Risk Act.

Municipal Government Act

The Municipal Government Act (MGA) contains guidelines for preparing and implementing planning strategies and zoning regulations. One of the Statements of Provincial Interest within the MGA related to Coastal Protection is Flood Risk. Though the Flood Risk statement may refer more directly to inland watercourses such as rivers, lakes, and streams, it is also relevant to the coast because coastal flooding will increase as sea levels continue to rise. There are several provisions under the MGA that enable municipalities to regulate development.

- A land-use by-law may regulate or prohibit development, but development may not be totally prohibited, unless prohibition is permitted pursuant to this Part (Section 220 subsection 3).
- *Where a municipal planning strategy so provides, a land-use by-law may (section 220, subsection 5)*
    - *(d) in connection with a development, regulate, or require the planting or retention of, trees and vegetation for the purposes of landscaping, buffering, sedimentation, or erosion control (section 220, subsection 5[d])*

- *prescribe methods for controlling erosion and sedimentation during the construction of a development (section 220, subsection 5[l])*
- *regulate or prohibit excavation, filling in, placement of fill or reclamation of land on floodplains identified in the land-use by-law (section 220, subsection 5[m])*
- *prohibit development on land that:*
  (i) is subject to flooding or subsidence
  (ii) has steep slopes
  (iii) is low-lying, marshy, or unstable
  (iv) is otherwise hazardous for development because of its soil conditions, geological conditions, undermining or topography (section 220, subsection 5[p]).

Environment Act

The Nova Scotia Environment Act is designed to safeguard and promote the natural environment by regulating the use and development of natural resources. The Environment Act recognizes the significance of water resources, including fresh and marine waters, surface water, groundwater, and coastal water. The Provincial Minster of Environment has the power to categorize water resources based on their sensitivity or use, adopt water quality guidelines, and indicators. Additionally, the Minister of Environment can set goals for reducing effluent and determine the total allowable waste-loads for water bodies. Wetlands including marshes, swamps, fens, or bogs are protected under the Act and cannot be altered without prior approval from Nova Scotia Environment. For specifics on the classification of wetlands and their level of protection, refer to the Nova Scotia Wetland Conservation Policy.

Coastal Protection Act

Legislation governing the Coastal Protection Act (CPA) was approved in 2019 and the associated regulations were intended to come into effect in mid-2023. However, the province recently postponed the release date for the regulations and has stated a need to do more public engagement. As of now it is not clear when the CPA will come into effect.

The intent of the Coastal Protection Act is to protect people and properties by mitigating the threats of flooding events due to sea level rise. The regulations would create an 80-100m coastal protection zone which will be a narrow strip surrounding the province's coast where regulations would apply and determine where construction could occur within the coastal protection zone.

Two types of setbacks would apply to municipal building permit approvals:

- **Vertical/Elevation**: The first is a system of vertical setbacks which would be the minimum height above mean sea level for new construction. These elevation requirements would be different along the coast because of differences in tides and storm surge risks faced.
- **Horizontal**: The second type of setback proposed would be a horizontal setback designed to help avoid future erosion risks. Under the Act, horizontal development

setbacks would be determined through a site assessment conducted by a designated professional (e.g., engineering, geoscience, surveying) using methods and tools as laid out in the proposed Coastal Erosion Risk Factor Assessment (CERFA) Standard.
- The proposed regulations would combine new requirements for building permits, development permits and development agreements within the zone. Municipalities would be responsible to ensure that permits align with the Coastal Protection Act.

Nova Scotia Wetland Conservation Policy

The provincial Wetland Conservation Policy outlines specific goals and objectives to prevent the loss of Nova Scotia's wetlands. The policy emphasizes that wetlands perform multiple necessary functions such as helping to maintain watershed health, filtering contaminants and excess nutrients from water, acting as a buffer for storm water runoff, and sequestering carbon, among others. The policy applies to all freshwater wetlands and some tidal wetlands, specifically salt marshes, and coastal saline ponds.

Currently, the province is responsible for identifying, classifying, and mapping any significant wetlands. Municipalities are not able to classify wetlands without the cooperation of the province which limits their ability to protect local wetlands of significance. Wetlands are classified by the province according to criteria outlined within the Canadian Wetland Classification System, but only certain types of wetlands are officially protected by the province. The following types of wetlands are categorized by the province as Wetlands of Special Significance (WSS) and the government prohibits alterations within, or alterations nearby that could pose a risk to a WSS:

- All salt marshes;
- Wetlands within or partially within a Ramsar site, Provincial Wildlife Management Area (Crown and Provincial lands only), Provincial Park, Nature Reserve, Wilderness Area or lands owned or legally protected by non-government charitable conservation land trusts;
- Intact or restored wetlands that are project sites under the North American Waterfowl Management Plan and secured for conservation through the NS–EHJV;
- Wetlands known to support at-risk species as designated under the federal Species At Risk Act or the Nova Scotia Endangered Species Act;
- Wetlands in designated protected water areas as described within Section 106 of the Environment Act.

The Wetland Conservation Policy discusses the consequences of losing wetlands and highlights the risks that coastal development and rising sea levels will have on coastal areas if wetlands continue to be lost. Losing wetlands, especially on the coast, could be catastrophic for both existing infrastructure, and human and environmental health if an extreme weather event were to result in high levels of flooding. To prevent the loss of wetlands, the policy outlines the following objectives:

- To manage human activity in or near wetlands with the goal of no loss in WSS and the goal of preventing net loss in area and function of wetlands.

    - ‘No loss’ refers to effectively prohibiting the destruction of any wetlands.
    - ‘No net loss’ refers to the process of reclaiming and restoring equal amounts of wetland to replace what has been lost.
- To promote wetland protection and stewardship and to increase awareness of the importance of wetlands in the landscape.
- To promote a long-term net gain in wetland types that have experienced high historic losses, to restore beneficial ecosystem services and functions across the province.
- To encourage the use of buffers to better ensure the integrity of wetlands adjacent to development (i .e . residential, commercial, industrial) and agricultural, mining and forestry operations.

Beaches Act

The purpose of the Beaches Act is to protect beaches and dune systems as significant environmental resources and to provide regulations around land uses permitted on protected beaches. Through the Beaches Act, the Minister has the power to both permit or prohibit the disturbance of sands on a beach. There are also specific beaches throughout the province that are protected through the Beaches Act and Provincial Parks Act, the ones contained within MODL include:

- Cherry Hill Beach Nature Reserve
- Grassy Island Nature Reserve
- Gaff Point Conservation Lands
- Hirtle’s Beach Provincial Park
- Indian Island Conservation Lands
- Kingsburg Beach Provincial Park and Meisner’s Beach
- Mosher’s Beach (Reserve)
- Mosher's Bay Conservation Lands
- Pearl Island Nature Reserve
- Second Peninsula Provincial Park
- Selig Island Conservation Lands
- Sheep Island Conservation Lands
- Voglers Cove Conservation Lands
- Rissers Beach Provincial Park
- Zinck's Point Conservation Lands

It is important to note that some of the beaches and islands in the list are provincial parks and are not necessarily protected. Also, beaches that are not listed in the list are not protected under the Beaches Act.

Background

Current Regulations

MODL has seven existing Secondary Planning Strategies (SPS) and Land Use By-Laws for the communities of Blockhouse, Hebbville, Hemford Forest, Oakland, Osprey Village, Princess Inlet,

and Riverport that outline development regulations. Oakland, Princes Inlet and Riverport are communities located along the municipality's coastline. Oakland and Prince's Inlet have similar watercourse protection policies which range from setbacks to erosion controls. The removal of natural vegetation within 10 meters of a significant watercourse including the coastline must adhere to erosion control standards. New development must abide by a 20m horizontal setback from the ordinary high-water mark and a 2.5m vertical setback from datum1928.

Riverport has a horizontal setback of 20m from the ordinary high-water mark but does not have a required vertical setback. Exemptions from the horizontal setback include Wharves and slipways, Private Boathouse/Fishing gear, Boat Building and Boat Repair shops, and Fire halls. Moreover, since the Riverport and District area is prone to erosion the infilling, excavation, or removal of natural vegetation within 20m from the ordinary highwater mark shall be subject to the erosion control standards outlined within the respective SPS. The erosion standards include the use of suitable materials like straw matting to temporarily cover any exposed soil within 48 hours of being disturbed, as well as the installation of erosion control structures like silt fences and dams along the pathway of runoff. Permanent soil cover must be placed within 18 weeks, and erosion control structures and accumulated silt must be removed within 30 days of permanent ground cover placement unless removal would cause negative impacts.

Coastal Protection

Sea level rise caused by climate change is a global issue that will lead to increased coastal erosion and flooding in the near future. According to various projections of global sea level rise, relative sea level rise could reach 1.46m to 1.8m by 2100, with an increase of sea level rise to 5m by the year 2150 (Critchley et al, 2012). Future predictions suggest that sea-level rise will significantly affect MODL, particularly in low-lying areas and along the coastline if no regulations or interventions are implemented (Critchley et al, 2012).

One of the main concerns related to sea level rise is storm surge, which causes water to rise above and beyond relative sea levels. Storm surges occur when wind and atmospheric pressure cause water levels to rise along the coast, leading to flooding and damage to coastal infrastructure. In MODL, the most extreme scenario with consideration of projected sea level rise and storm surge is a total of 4.75m to 5.14m (Critchley et al, 2012). With these projections, coastal flooding and erosion will become more frequent and severe, which will threaten infrastructure, homes, and businesses.

Changes in water quality and the loss of habitat along the coast also have an impact on the region's fishing and aquaculture industries. The primary recommendation or best practice from the literature is to implement horizontal and vertical setbacks. Horizontal setbacks require a certain distance to be maintained between new development and the shoreline, while vertical setbacks require new structures to be elevated above projected sea level rise. Horizontal setbacks can help to protect against erosion and flooding by creating buffer zones between coastal development and the shoreline by:

- Limiting new development in vulnerable areas
- Incentivizing Natural Base Solutions (NBS) such as living shorelines

- Creating protected zones for coastal ecosystems and habitats, and
- Implementing erosion control measures such as beach nourishment and dune restoration.

Vertical setbacks can help to protect buildings and infrastructure from the impacts of sea level rise and storm surges, such as flooding events, by elevating structures above projected sea levels. Implementing horizontal and vertical setbacks can effectively reduce the risks associated with sea level rise and storm surges in MODL.

Climate Change Impacts

Climate change has diverse impacts beyond global warming, including changes in precipitation, wind, snow, ice, and ocean temperature. These changes will result in more intense rainfall, flooding, and coastal erosion to areas like Atlantic Canada. The ocean will also be affected by warming, acidification, and reduced oxygen levels, which has an impact on both natural ecosystems and humans. More dense areas along the coast may experience amplified effects, such as heat and flooding. Coastal flooding and erosion are the main impacts of climate change in Atlantic Canada.

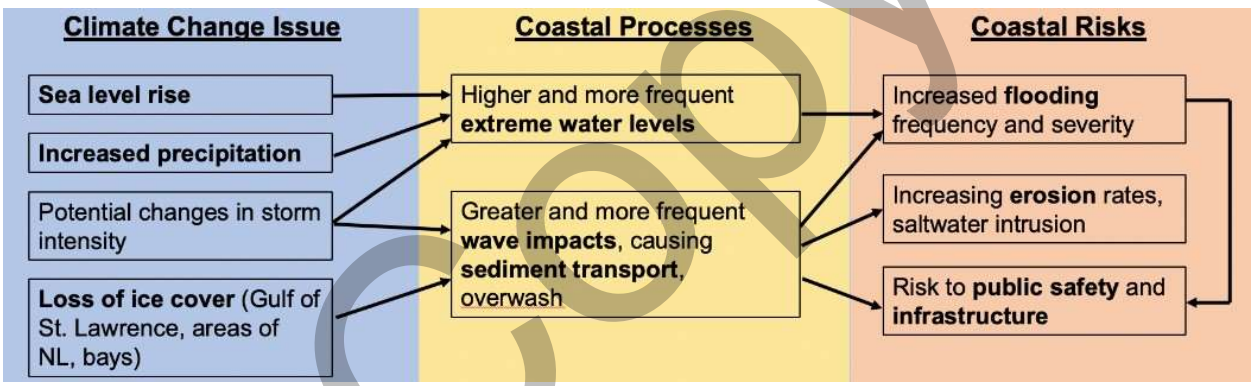

Figure 1: CBCL and CLIMAtlantic (n.d.) Climate Change Impacts on Coastal Areas

Sea Level Rise

Sea level rise is the term used to describe an increase in the level of water in relation to the land. The effects of sea level rise on a particular location will depend on the slope and topography of the land. If the terrain is steep, the shoreline may not be significantly affected. However, in low-lying areas, a rise in sea level can result in the shoreline moving inland at a faster rate. Sea level rise is caused by various factors such as melting ice sheets and glaciers due to higher temperatures, leading to more water entering the oceans and raising sea levels.

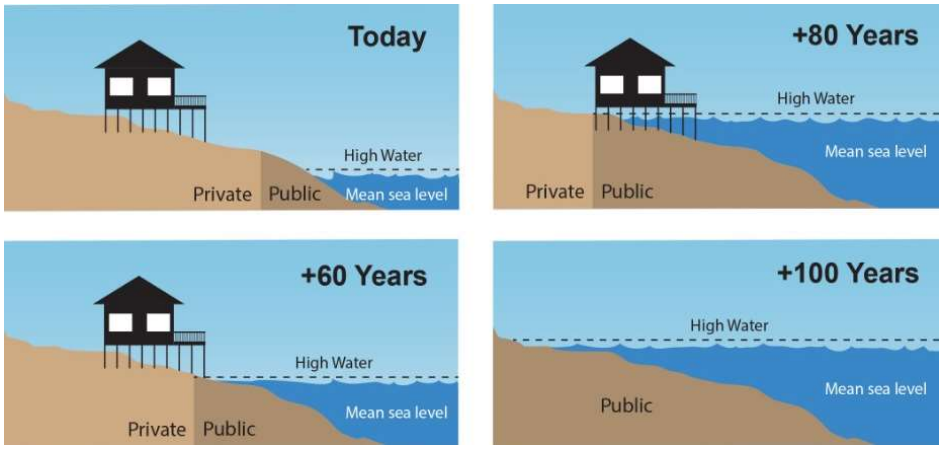

Figure 2: CBCL and CLIMAtlantic (n.d.) Sea Level Rise Scenarios

Two studies were completed over the course of 10 years to determine the Extreme Total Sea Level (ETSL) and its potential impact on MODL. ETSL is defined by Richards & Daigle (2011) as the combination of crustal subsidence, global sea-level rise, storm surges, and the highest astronomical tide. The scenarios for extreme water levels are based on historical data and are referred to as extreme water level predictions. One such prediction combines anticipated sea level rise with Higher High Water at Large Tide (HHWLT) and the water level generated during a 100-year return storm surge. The most severe scenario involves a combination of predicted sea level rise with HHWLT and the storm surge level generated during the benchmark Hurricane Juan storm in 2003. These flood scenarios resulting from extreme storm surges are temporary flooding events. The Sea level rise projections in MODL were determined as follows:

Richards & Daigle (2011) on extreme water level scenarios as follows	Critchley, Muise, Rapaport & Manuel (2012) on extreme water level scenarios as follows
• **25-year storm in 2025: 3.39 ± 0.23m (CD)** • **100-year storm in 2025: 3.53 ± 0.23m (CD)** • **25-year storm in 2055: 3.67 ± 0.35m (CD)** • **100-year storm in 2055: 3.80 ± 0.35m (CD)**	• 100-year storm in 2025: 2.89m (CGVD28) • Hurricane Juan in 2025: 3.47m (CGVD28) • 100-year storm in 2100: 4.56m (CGVD28) • Hurricane Juan in 2100: 5.14m (CGVD28)

Figure 3: Table 2 Sea Level Rise Projections

According to predictions, the relative sea level rise along the District of Lunenburg coast is expected to be 0.18 meters by 2025, which is higher than the observed sea level between 1980 and 1999. According to table 2, the most extreme scenario for flooding, considering relative sea

level rise, HHWLT, and the benchmark storm surge, is 3.47 meters. By 2100, based on various global sea level rise projections, the relative sea level rise could range from 1.46 to 1.85 meters, with worst case flooding scenarios ranging from 4.75 to 5.14 meters.

Subsidence

Atlantic Canada is experiencing subsidence, which is causing coastal areas to sink back down to their previous level due to the weight of the continental glacier during the last ice age tilting the edges upward and now returning to its previous level. Due to the glacial isostatic adjustment phenomenon, Nova Scotia is sinking at a rate of approximately 15 centimeters per century, as it was situated at the thinner edge of the ice sheet. Consequently, the province is experiencing a downward movement like a geological teeter-totter due to the glacial isostatic adjustment phenomenon. Moreover, karst landscapes are more prone to have land subsidence and sinkholes. According to the provincial Karst Risk Map, Martins River, Oakland, Zwicker Island, Ernest Island, Glifford Island, Rous Island, Young Island, Kaulback Island, Highway 3, Madres Cove, Princes Inlet and Area, First and Second Peninsula, and parts of Heckman's Island are at high risk of karst. In addition, with sea level rise, certain areas of Nova Scotia could witness a rise of up to 1 to 2.5 meters by 2100. Thus, Subsidence is another factor to consider when discussing rising sea levels and the impact it will have on coastal communities.

Saltwater Intrusion

As sea levels rise, saltwater can intrude into freshwater aquifers. The intrusion of saltwater can result in various problems for human communities and the environment. It can render reliable sources of freshwater, such as wells, undrinkable and unusable for domestic, agricultural, and industrial purposes. As saltwater mixes with freshwater, it increases the salinity of the water, making it too salty for human consumption and irrigation of crops.

In addition to affecting freshwater availability, saltwater intrusion can damage sensitive wetland ecosystems that rely on freshwater for survival. The intrusion of saltwater can cause soil salinization, which reduces the fertility of the soil and can lead to the death of plants and the loss of biodiversity in the area.

Coastal Erosion

Coastal erosion can be influenced by a variety of factors. Erosion refers to the natural process of rock and sediment breaking down above and below the water surface due to waves, tides, wind, storms, ice, rain, and runoff. Rates of erosion vary across the coast due to factors like exposure, tide, sediment type, human activities, and climate change.

In areas where soil is tightly packed, erosion occurs at a slower rate and is not reversible. When soil is loosely packed, soil erodes quickly and can be restored if the material is allowed to return naturally or is encouraged through human intervention. At the bottom of a slope, erosion occurs due to wave action that weakens the stability of the slope by undercutting the cliff which can result in the collapse of the top portion of the slope into the water.

Erosion at the top of a slope is typically caused by heavy rainfall events that can cause water to cut into the slope. Man-made structures on the coast, such as wharves and shoreline armouring, can disrupt the natural movement of sediment caused by waves.

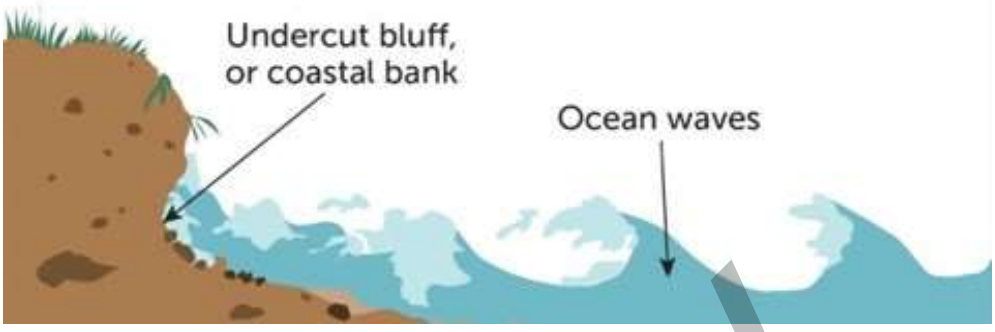

Figure 4: CLIMAtlantic Coastal tool- Erosion Process due to Wave Action

When man-made infrastructure, such as a sea wall, is placed perpendicular to the shoreline within a strong current, there can be a build-up of sediment on one side of a structure and erosion on the other. Sea walls are also not designed to effectively withstand hurricanes. Though the wall may stay intact, it often causes more damage to the surrounding area due to scouring and wave overtopping, which may also compromise the structural integrity of the wall itself.

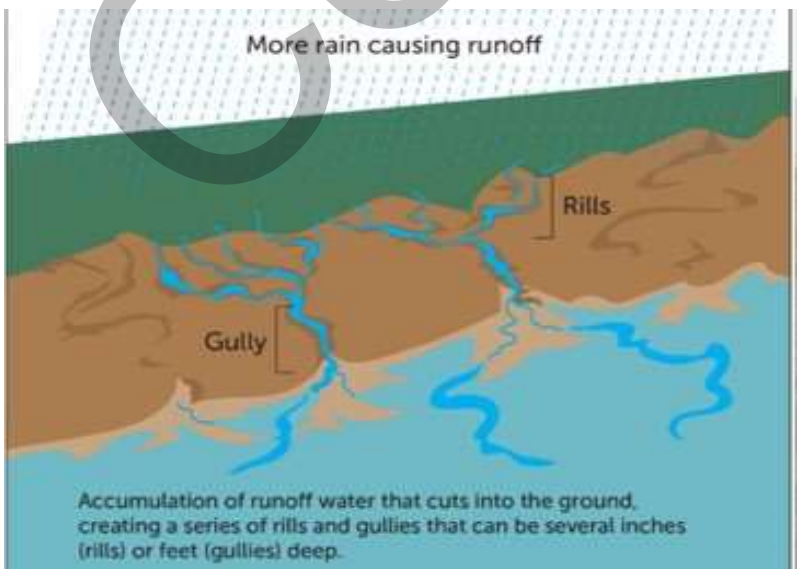

Figure 5: CLIMAtlantic Coastal Tool: Erosion due to Runoff

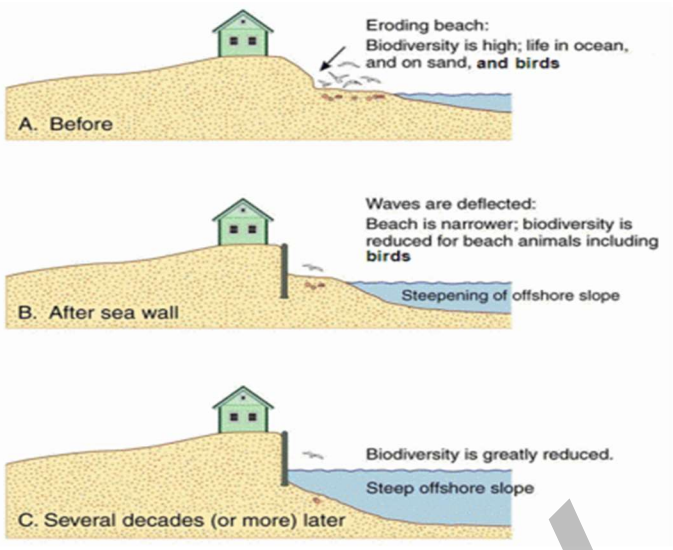

Figure 6: Rock Armouring Leads to Coastal Erosion Pilkey. O.H & Dixon K.L 1996

Coastal erosion will continue to affect MODL's communities and will require adaptation measures to be implemented including a combination of both nature-based solutions such as riparian buffers, living shorelines and coastal restoration, and as a last resort, sea walls. MODL's surficial geology, which refers to the types of soils and rocks that make up the land, changes depending on where you are in the municipality. Based on the province's surficial geology map, much of the geology along MODL's coast is made up of Ground Moraine and Streamlined Drift consisting of stony till plain and drumlins which is at a higher risk for erosion. Stony till drumlins are prone to erosion and the annual erosion rate ranges from 0.4m to 0.7m. according to the development of a coastal erosion risk factor assessment (CEFRA) standard report, the historical annual erosion rate for Hirtle's beach bluff is approximately 0.6m and the CEFRA erodibility allowance is 0.7m. Moreover, the wave exposure index estimates 0.75m per year erosion rate while the geological erodibility index annual erosion rate is about 0.82m per year, meaning that the slope is eroding faster due to its exposure to wave energy. Hence, according to the CEFRA report the horizontal setback for Hirtle's beach bluff should be about 90m. The variables to determine the setback include erodibility (geology and wave exposure), sea level rise, back shore width and slope stability.

However, some of MODL's coastal communities such as Blue Rocks, Cape LaHave Island, and small sections of West Dublin, have a surficial geology consisting of exposed bedrock which is at a low risk for erosion. Soil types such as Bridgewater Loam-Drumlin and Wolfville Loam-Drumlin are prominent along the shoreline (Riverport and District plan area). These soil types have a natural tendency to erode, especially on steep slopes. Maintaining natural vegetation along watercourses helps to minimize soil erosion and sedimentation of watercourses. There is a higher risk of erosion in this area when development occurs near watercourses and sedimentation, particularly when vegetation is removed which is why development regulations for the coast are beneficial.

Storm Surge

Storm surges occur when strong winds and low pressure raise water levels along the coast during passing storms, causing flood damage and loss of life. Sea level rise due to climate change is increasing the severity of storm surges, while climate change generally will also make these events more frequent. Atlantic Canada's diverse coastal systems are all affected by varying levels of storm surge impacts, and a combination of sea level rise and storm surges will result in severe flooding events.

Sensitive Coastal Ecosystem Protection

Coastal ecosystems such as salt marshes, dunes, and beaches are unique and interconnected. Each plays a role in making up a complex ecosystem which is very sensitive to development pressure. These ecosystems offer vital services like coastal protection and habitats for plant and animal life. However, human activities such as development can disturb wetland habitats and can prevent wetlands from performing important ecological functions.

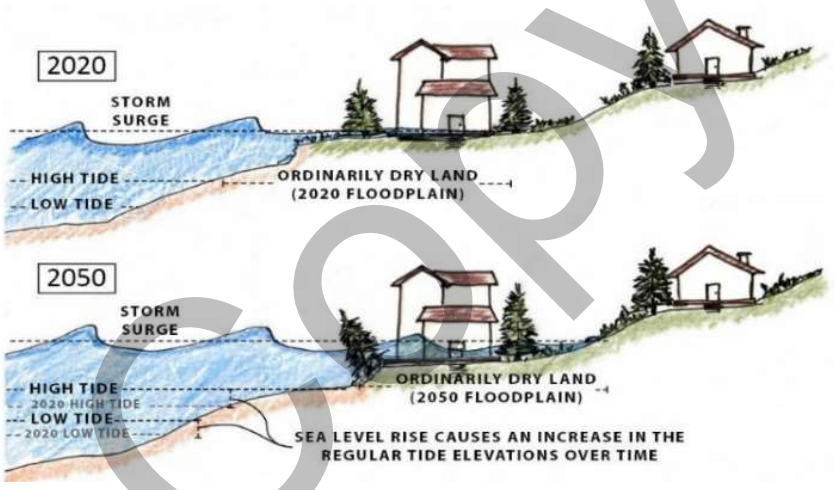

Figure 7: CLIMAtlantic (n.d.) Storm Surge graphic

Wetlands

MODL has over 4000 wetlands of various sizes and ecological significance. In the past, the Municipality has worked with organizations such as Ducks Unlimited to assess the quality of our wetlands, which is information that can be used to play a pivotal role in the survival of these species. MODL's Local Climate Change Action Plan (LCCAP) outlines specific, Council approved actions that will help the municipality reach its goal of protecting 20% of its land and water mass by 2030. MODL's conservation goal was created in alignment with the province's goal of protecting 20% of land and water mass by 2030.

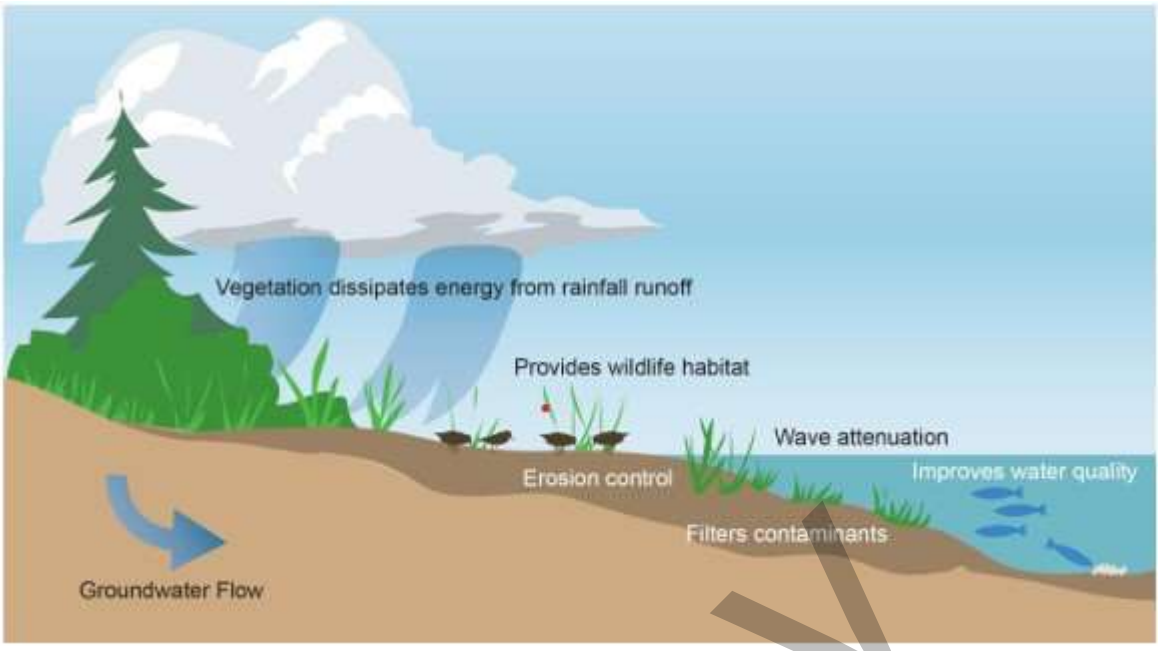

Figure 8: CLIMAtlantic Coastal tool- Ecosystem Services

Sand Dunes

Nova Scotia's beaches and dunes are coastal features that hold significant cultural and economic value to the province. Sand dunes are accumulations of sand formed by wind, waves, and eroding sandstone, and their structure is continually changing, expanding, and contracting with the surrounding environment. Sand dunes provide ecological benefits such as supplying sand to help maintain beaches, protecting shorelines from coastal erosion, and mitigating the effects of rising sea levels caused by climate change.

Dunes are also dynamic ecosystems that offer habitats for a range of plant and animal species, some of which are endangered and migratory species that require a bare sand habitat to survive. For instance, the piping plover, once abundant in Nova Scotia's beaches, has dwindled to just 40 breeding pairs (Bird Studies Canada 2009; Nature Conservancy Canada 2023). Development, recreational activities, and climate change pose a growing threat to beaches and dunes.

Current Regulations

MODL has several Secondary Planning Strategies (SPS) that cover coastal communities such as Oakland, Princes Inlet, and Riverport. The following regulations are included within the SPS:

Oakland and Princes Inlet

- No development permit will be issued for a proposed development affecting a provincially identified wetland until it is confirmed to be consistent with the provincial wetlands policy and has satisfied any necessary wetland-related approvals with the respective provincial departments.

Riverport

- The Nova Scotia Department of Natural Resources has mapped wetlands and salt marshes of 0.5 hectares or larger for protection.
    - Mapping is incomplete and may not identify tree-covered wetlands.
- Environmental Designation and Environmentally Sensitive Zone includes wetlands, beaches, and other sensitive ecosystems.
    - Gaff Point and Murphy Wetland have been protected and will be placed in a "no build" Environmentally Sensitive Zone.
    - Cherry Hill, Kingsburg and Hirtle's Beaches are protected under the Protected Beaches Act and are not included within the Designation/Zone.

Jurisdictional Scan

Municipality of the District of Argyle

Key Points

- Coastal Wetlands zone with both limited development and permitted land uses.

Argyle is a coastal municipality located on the westmost tip of Nova Scotia. A substantial portion of the interior of Argyle is crown land including portions of the Tobeatic Wilderness Area and the Tobeatic Wildlife Management Area- one of the largest protected natural areas in the Maritimes that spans across several counties. The Municipality of Argyle is also included within the UNESCO designated Southwest Nova Biosphere Reserve. According to the Biosphere Reserve website, the intent of the Southwest Nova Biosphere Reserve designation is to promote equilibrium between the natural environment, cultural heritage, and sustainable development.

Argyle's municipal planning strategy has a dedicated section that covers Coastal Wetlands, Conservation, and Environmental Stewardship. The District of Argyle recognizes that lands containing coastal salt marshes and beaches are not suitable for development and that salt marsh habitat holds critical ecological significance for the municipality. To protect areas of ecological significance, Argyle adopted a Coastal Wetlands zone that prohibits most forms of development and only permits designated areas to be used for parks, nature trails, or similar. Areas that are included within the Coastal Wetlands zone were identified using the updated provincial forest inventory. No specific setbacks were outlined within any of Argyle's planning documents for either wetlands or shorelines as the intent of the Coastal Wetlands zone is to encompass most sensitive areas along the coast and prohibit development.

Coastal and Sensitive Coastal Ecosystem Protection Policies

- Establish a Coastal Wetlands (CW) Zone in the Land Use By-law in any Generalized Future Land Use designation for lands corresponding to coastal habitat area classifications under the provincial forest inventory as of February 21, 2020.
- Permit in the areas zoned Coastal Wetlands (CW) public parks and conservation related uses, nature trails, private haul outs, and wharfs. All other development shall be limited.
- Manage municipally owned land in an ecologically sustainable manner.

- Work with other agencies, institutions, organizations, and levels of government to ensure the protection of environmentally sensitive and ecologically significant areas.
- Foster an ethic of environmental stewardship and support and encourage educational initiatives that promote stewardship and conservation of all our natural resources.
- Work co-operatively with Emergency Management Organization and various levels of government to broaden public understanding about climate change issues.
- Undertake a vulnerability assessment of existing municipal infrastructure in relation to sea level rise, storm surge and flood risk.
- Consider climate change's impact in relation to water resources on a watershed-by-watershed basis, where appropriate.
- Provide leadership and advocacy for the stewardship role of Municipal government in relation to the protection of environmental resources.
- in the Coastal Wetlands (CW) Zone, no development permit shall be issued except in conformity with the following requirements, as well as the general requirements of this By-law:

- **Permitted Developments The following uses shall be permitted in the Coastal Wetlands**

	All Other Permitted Uses
Min. Front Yard	7.6 m (25 ft.)
Min. Rear Yard	7.6 m (25 ft.)
Min. Side Yard	4.5 m (10 ft.) on both sides
Min. Lot Area	**Using Central Sewer:** 929 m^2 (10,000 sq. ft.) **Using On-Site Septic:** 3,717 m^2 (40,000 sq. ft.) or as Determined by NS Dept. of Environment
Min. Lot Frontage	6 m (20 ft.)
Min. Flanking Yard	7.6 m (25 ft.)
Parking	See Part 5.1

(CW) Zone:

  - Conservation related projects
  - Private haulouts and wharfs
  - Public parks and nature trails

Municipality of Chester

Key Points

- Lakefront Overlay within the Lakeside Zone covers 20 metres from the ordinary high-water mark of identified watercourses, water bodies, and wetlands:
  - Requires maintenance of vegetative buffer.
  - Limits percentage of impermeable surface on the lot.
- No specific vertical setback.

The Municipality of the District of Chester included an Environmental Safeguards section in its Municipal Planning Strategy to cover topics such as wetland and watercourse setbacks and

buffers, drinking water protection, and sea level rise and erosion control. The municipality suggests several types of protective zoning and overlays as well as the use of natural infrastructure as methods of conservation.

Chester adopted a Lakefront Overlay within its Lakeside Zone that covers 20m of identified water bodies to help prevent local lakes from being negatively affected by development. The Lakefront Overlay limits impermeable surface coverage to 25% of the total area of the lot including buildings and hard-surface landscaping. Chester requires all uses that require a development permit to place all buildings at least 20m from the ordinary high-water mark of any wetland, watercourse, or water body.

To encourage the protection of waterways and other ecologically significant lands, Chester adopted the Environmental Protection Area Designation. Lands within the Environmental Protection Area are subject to strict development regulations and limited approved uses. Within the Environmental Protection Area Designation there are several zones including the Conservation Zone and the Protected Watershed Zone. Chester's Conservation Zone is intended to protect areas of land that are ecologically significant. Uses permitted within the Conservation zone include passive recreation, research, and education. New construction of any kind is prohibited in the Conservation zone unless it is conducted by the District of Chester or is permitted via development permit.

Chester's proximity to the coast increases threats imposed by sea level rise and storm surge. Policies related to sea level rise and the resultant erosion of coastlines include partnering with higher levels of government and community groups to monitor the extent of erosion in the municipality over time, updating infrastructure and maintenance in accordance with continued sea level rise, identifying coastal areas that are at an elevated risk of erosion, and limiting development of any kind in areas that could pose a risk of erosion or flooding in the future.

Coastal Protection Policies

- Implement protective zoning in ecologically significant areas to restrict development and prevent contamination of important natural resources.
- Require vegetative buffers and setbacks for developments near watercourses.
- Require all development requiring a permit to place all buildings at least twenty (20) m from the ordinary high-water mark of any wetland, watercourse, or water bodies.
- Identify areas at higher risk of impact for sea level rise and limit development in coastal areas.
- Adopt a Coastal Hazard Risk Map in the future to identify areas in proximity to low-lying and sensitive areas such as beaches, dune systems, and coastal wetlands to protect development from storm surge and coastal erosion.
- Consider requiring waivers for any development in the coastal hazard area, which states that developers are aware of the risks posed by climate change and release the Municipality from all liability.

Sensitive Coastal Ecosystem Protection Policies

- Maintain natural vegetated buffers, using mostly existing vegetation, 20m in depth from the high-water mark of identified watercourses, water bodies, or wetlands.
    - Implement a suitable alternative identified by an environmental study completed by a qualified professional if an existing vegetated buffer cannot be maintained.
- Explore programs and partnerships that encourage residents and businesses to repair or replant buffers where vegetation has been removed.
- Explore programs and partnerships to monitor and report on freshwater quality, as needed.
- Create a Lakefront Overlay which may be applied to all zones and shall be applied to land surrounding lakes as indicated in the Land Use By-law, with the intent to protect water quality.
    - Specific requirements for the Lakefront Overlay can be found in section 4.28.1 of Chester's Land Use Bylaw.
- Situationally require vegetated buffers, stormwater standards, limited paving surfaces and wastewater management districts depending on the size of development, as specified in the Land Use By-law.

Municipality of Cumberland

Key Points

- 30.05m horizontal setback with a 15m vegetative buffer.
- Vertical setback (elevation) varies from one coastline to another to minimize flooding.
- 30.5m horizontal buffer along all wetlands.

Cumberland County contains 850 kilometres of coastline which includes several coastal communities that are at risk for coastal flooding caused by future sea level rise and storm surge. Objectives of the municipality as it pertains to preserving public safety from natural hazards include safeguarding the natural environment from development and human activity and preserving the existing built environment while avoiding unsuited new development in coastline areas that are prone to flooding and erosion.

In 2017, CBCL Consulting Engineers Ltd. projected that certain areas of Cumberland may experience an increase in sea level rise to 1.1 meters by the year 2100. Given the long-lasting nature of human development and infrastructure, the municipality of Cumberland is preparing for potential coastal flooding not only based on present conditions but also on future conditions that account for the impacts of relative sea level rise. Under an intermediate scenario, extreme water levels in Cumberland could reach 3.5 meters on the Northumberland coast and 14.1 meters (relative to local chart datum) in the Bay of Fundy by 2100. Erosion is also a challenge in Cumberland's coastal areas, particularly along the soft shores of the Northumberland Strait, where many property owners have little room to retreat from the shore due to the development of small lots with sewage holding tanks instead of septic systems. These projections, combined with more intense and frequent storms, will increase the likelihood of coastal flooding damage in Cumberland.

Applying environmental planning principles to coastline and flood-prone areas enables the municipality to adapt to the effects of climate change such as sea level rise and storm surge. Cumberland currently has land use development controls for watercourses and wetlands that help to preserve the quality of watercourses and wildlife habitat by reducing erosion, sedimentation, and contaminated runoff. Maintaining adequate horizontal setbacks between development and water bodies and vertical separations above flood-prone areas is an essential environmental protection technique utilized in Cumberland. The Municipality of Cumberland indicates in its planning documents that shoreline buffers should maximize the preservation of natural landforms and vegetation adjacent to watercourses, coastlines, and wetlands. Hard shoreline stabilization methods (such as riprap) should only be used where necessary in erosion-prone coastal areas since vegetative buffers act as living retaining walls and natural filters, stabilizing banks, controlling runoff, and mitigating flooding while minimizing the impact of erosion, sedimentation, nutrients, and other pollutants on water quality.

Coastal Protection Policies

- All development shall be prohibited within the following areas:
    - 30.5m horizontal setback from the ordinary high-water mark of watercourses identified as “Increased Watercourse Buffer” on Schedule C, Watercourse & Shoreline Buffer Map.
    - Exemptions: Shoreline stabilization works, one accessory building or structure or one attached deck, safety fences, docks, boardwalks, walkways, trails for nonmotorized vehicles, traditional marine uses, marine dependent uses, Parks, conservation, and historic uses, public streets and infrastructure, outdoor storage accessory to a residential use (e.g., firewood storage, wellhouses), A recreational vehicle parking site, **provided watercourse or shoreline buffers are not reduced to less than 15m.**
- Existing dwellings in a watercourse or shoreline buffer can be renovated, reconstructed, or moved if it doesn't decrease the buffer depth and comply with other By-law requirements.
- Development closer to the top of a bank is allowed if:
    - The bank is stabilized by a licensed Nova Scotia engineer.
    - The distance to the top of the bank is not reduced to less than 20m for dwellings or short-term rentals.
    - 15m distance from the ordinary high-water mark is retained.
- Prohibit coastal development within the following vertical elevations relative to the Canadian Geodetic Vertical Datum of 2013 (CGVD2013), except for low-value development and development that is required to be at the water:
    - 2.6 m along the Northumberland coast.
    - 8.7 m along Chignecto Bay.
    - 7.1 m along the Minas Basin.
- Increase the shoreline buffer along shorelines identified as having a fast rate of erosion.

Sensitive Coastal Ecosystem Protection Policies

- Require a 30.5m (100 ft) horizontal buffer along all wetlands.

Municipality of East Hants

Key Points

- Hired a climate change specialist to determine coastal flooding.
- Does not have universal setbacks.

Rising sea levels have had a negative impact on East Hants's shorelines including erosion, flooding, and saltwater intrusion. East Hants's shoreline is currently un-zoned and is only subject to regulations for wind energy and Large-Scale Special Events. The municipality has identified the need to study the impacts of sea level rise on the coast in more detail to create effective regulations as part of its Municipal Projects and Studies. East Hants hired local climate change experts to conduct erosion and flooding studies along the municipality's coastline. The study is intended to help planning staff to draft policies for the municipality's land use by-law.

The preservation of significant features such as wetlands, rare species, and old-growth forests are a priority in East Hants. The municipality recognizes the importance of these areas to maintain the ecological integrity of the region and is committed to finding ways to protect them from development pressures.

Coastal Protection Policies

- Currently East Hants does not have any coastal regulations such as setbacks in place.
- Tim Webster did an erosion and flooding study on the East Hants shoreline which is currently un-zoned to assess flood risk, erosion risk, and saltwater contamination.
    - The study goal was to provide documentation, mapping, and recommendations for land use policies, local improvement charges, and solutions for property owners.
- The study suggested creating different zones such as the Fundy Flood Risk Overlay Zone and A Fundy Erosion (FE) Overlay Zone.
- In the Fundy Erosion (FE) Overlay Zone, only existing main buildings are allowed to have accessory structures per the underlying zone regulations. New accessory structures cannot be closer to the coastline than the existing main building and cannot be used as dwelling units. Replacing destroyed buildings is allowed, but the new building cannot be closer to the coastline than the destroyed one.
- Damaged or destroyed buildings by coastal erosion in the Fundy Coastal Erosion (FE) Overlay Zone can be replaced following underlying zone rules and Development Officer approval of a site plan. The site plan must consider location in relation to coastline and natural features, septic system, driveway, and existing/proposed structures.
- Building on a stabilized coastal bank requires a Development Officer-approved site plan, including a Coastal Erosion Study showing the building is beyond the projected erosion area by 2100.
- Marina and Marine Service Industry uses can be near the shoreline in adherence to the underlying zone, exempt from Fundy Erosion (FE) Overlay Zone requisites.

Sensitive Coastal Ecosystem Protection Policies

- Use the Generalized Future Land Use Map to identify potential wet areas where wetlands have been generally identified by the Provincial Government.

- Regulate development near watercourses and wetlands to reduce pollution entering the Municipality's water systems.

Region of Queen's Municipality

Key Points

- Encourages oceanfront property owners to use natural based solutions infrastructure such as a living shoreline instead of grey infrastructure (e.g., rock armouring).
- 30.5m horizontal setback with a 15.24m vegetative buffer.
- Conservation zone that classifies lands with significant conservation value such as large wetlands and beaches.

The Region of Queen's contains 343 kilometers of coastline that encompasses many sensitive ecosystems while contributing to the area's natural beauty, recreation opportunities, and fishing industry. Development has been a focus in the municipality's coastal areas with a notable increase in homes, seasonal properties, and tourist operations. As is the nature of coastal properties, developing on the coast comes with risks due to rising sea levels which are projected to rise by 1.06 m (+/- 0.48) by 2100 in Queen's.

Queens' new Municipal Planning Strategy and Land Use By-law address the risks associated with climate change through coastal development regulations. Regulations include a vertical setback of 2.8 metres. Existing non-conforming uses located below the required elevation will require adaptation or retreat measures. Some areas within Queen's, such as the community of Liverpool, fall within a low-lying area and are at a higher risk due to sea level rise. Because Liverpool is low lying, Queen's adopted a Liverpool Waterfront Zone to help protect existing structures from sea level rise, while continuing to permit some forms of development that are deemed important to the local economy and community. Mostly non-habitable structures are permitted to be constructed within these types of zones.

Erosion is another issue that communities within Queen's are facing. Man-made erosion control solutions such as armour rock, riprap, or retaining walls fall outside municipal land use controls and are approved by the province. Though man-made erosion infrastructure can help mitigate erosion in some situations, they can also damage the natural environment and are often viewed as a last resort when attempting to reduce coastal erosion. Therefore, Queen's Council supports using natural methods to slow erosion, such as restoring coastal salt marshes and installing "living shorelines". Queen's council encourages residents who own property on the coast to consider natural methods of erosion control.

The Queen's region also encompasses sensitive coastal ecosystems like wetlands, dunes, sensitive coastal habitats that support at-risk species, and riparian areas. These features are highly valued by Queen's residents for their aesthetic appeal and intrinsic environmental value. The municipality considers sustainable protection and enhancement of the natural environment to be a top priority. Although the Province and its departments regulate most environmental matters in Nova Scotia, the municipality still plays a vital role in emphasizing the

significance of environmental protection and assessing the potential impacts on environmental features while evaluating discretionary development proposals.

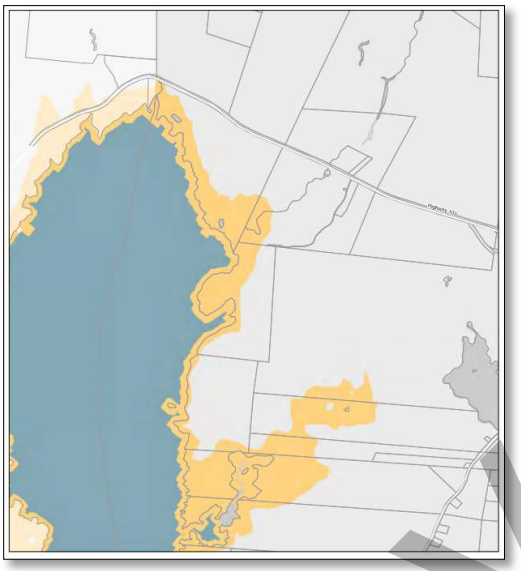

Figure 9: Vertical Elevation Buffer in Yellow

Coastal Protection Policies

- Prohibit development of buildings below a vertical elevation of 2.8m (relative to the Canadian Geodetic Datum of 2013).
    - Exemptions will be made for non-habitable structures in serviced areas such as industrial uses, low-value development (e.g., sheds and boardwalks), and buildings that functionally depend on access to the water.
- Enable existing buildings to be moved within the minimum vertical elevation provided.
- Horizontal setback of 30m of the top bank with a 15.24m vegetative buffer along the marine shoreline.
    - Exemptions will be made for limited vegetation removal, recreational and scientific structures, safety structures, and buildings that functionally depend on access to the water.
- Existing buildings may be reconstructed, renovated, repaired, moved, or replaced provided that the work does not increase the floor area within the minimum coastal elevation or reduce the building's existing elevation.
- Property owners may be able to reduce the buffer size by providing a sufficient study made by a qualified professional to indicate that there will be no risks associated with reducing the buffer size.

Sensitive Coastal Ecosystem Protection Policies

- Assess the environmental impact risk of planning proposals, including flooding, sea level rise, pollution, and habitat degradation for species at-risk, as per Section 6.6 evaluation criteria.

- Classify lands with significant conservation value such as large wetlands, beaches, and protected areas as "Conservation" on Schedule B, the Future Land Use Map.
- Permits only the Conservation Zone within the Conservation Designation on the zoning map of the Land Use Bylaw.
    - The Conservation Zone will allow only low-impact recreational uses and scientific research on conservation lands.

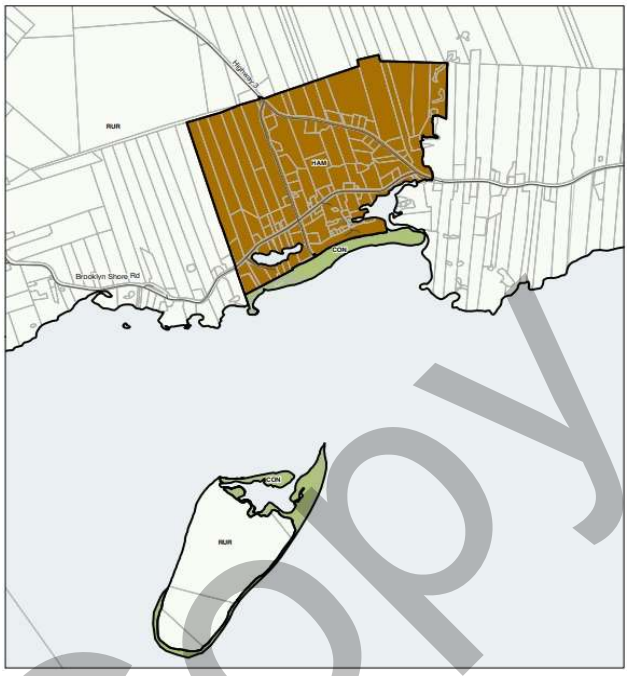

Figure 10: Conservation Zone (Green)- Beach Meadows

Halifax Regional Municipality

Key Points

- Horizontal setback varies from 20m to 61m in areas with higher erosion rate and wave exposure.
- Vertical setback varies from 3.2m to 3.8m to minimize flooding due to sea level rise.

The coastal areas of Halifax are becoming more vulnerable to the effects of climate change, including sea-level rise, storm surge, and coastal erosion, which can harm built infrastructure, natural areas, and private properties. HRM's Regional and Centre Plans currently require a setback from the coast for ground-floor residential properties to ensure the safety of the inhabitants. To manage the coastal environment, reduce exposure to climate risks, and safeguard assets, Halifax will perform a comprehensive risk and vulnerability analysis of coastal, waterfront, and shoreline areas and implement a coastal-specific adaptation strategy.

Furthermore, the municipality has obtained a Digital Elevation Model that enables detailed flood risk modeling and land use vulnerability assessments. Keeping natural vegetation along

watercourses and coastal areas is essential for protecting water quality, wildlife, and property from natural hazards. HRM aims to prohibit wetland development until it meets provincial standards because wetlands are essential for the hydrological cycle, absorb peak stormwater flows, and provide wildlife habitat. Wetland development is not permitted since it poses a threat to structures.

Coastal Protection Policies

- Require a 3.2m to a 3.8m vertical setback above Canadian Geodetic Vertical Datum (CGVD 28)
    - Exemptions: residential accessory structures, marine-dependent uses, open space uses, parking lots and temporary uses.
- Requires a 20-metre riparian (horizontal) buffer and a 61m (in Eastern Passage) buffer from the ordinary highwater mark.
    - Exemptions: Industrial lands within the port of Sheet Harbour, lands in the Waterfront Residential (R-1C) Zone, and those designated as Halifax Harbour on the Generalized Future Land Use Map.
    - Exemptions: Development within the buffer will be generally prohibited, except for certain structures and uses such as water control structures, boardwalks, and marine dependent uses. Alteration of land levels or vegetation removal will not be permitted.
    - In Eastern Passage no structures, excavation, infilling, or grade alteration is allowed within the area. The retention of natural vegetation is required. The land use by-law may reduce the requirement to 30m for existing lots where development would be otherwise prohibited.
- Where a development may be considered by development agreement, HRM shall consider the acquisition of riparian buffers as public open space.
- Will relax the riparian buffer requirement for pre-existing lots under certain conditions, as outlined in the land use by-law. However, no relaxation will be allowed for lots created after August 26, 2006.
- May create a by-law to manage the retention and removal of trees within riparian buffer zones.
- May regulate the development of infilled water lots, including setting building and structure setbacks from the water, through secondary planning strategies and land use by-laws.

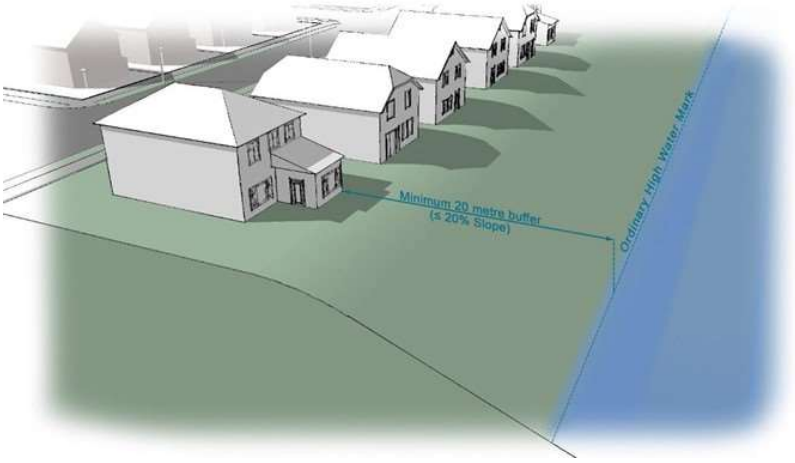

Figure 11: HRM Horizontals Setback/Riparian Buffer

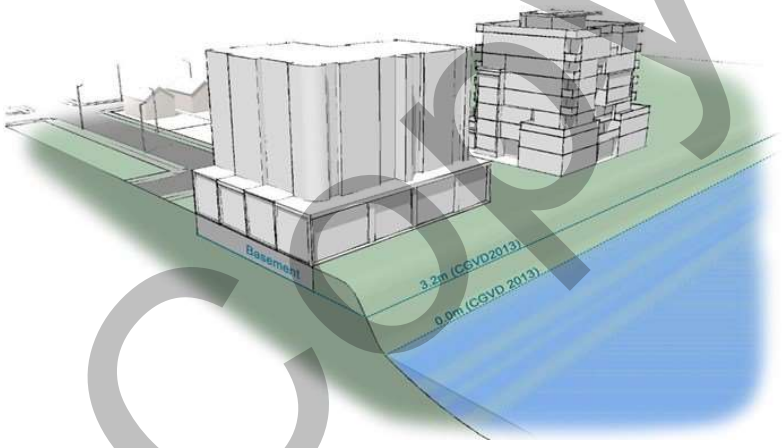

Figure 12: HRM (n.d.) Minimum Vertical Setback

Sensitive Coastal Ecosystem Protection

- HRM will create a Wetlands Schedule to identify wetlands over 2000 m². Development will be prohibited in these wetlands, except for public infrastructure. The land use by-law may be amended to comply with provincial guidelines.

Municipality of the County of Kings

Key Points

- Two coastal zones to regulate residential and commercial development.
- Conservation zone to protect freshwater/saltwater wetlands.

King's County recognizes the importance of maintaining healthy watercourses, protecting ecologically significant areas, and preventing coastal flooding and erosion. King's tidal shoreland areas are attractive for development but pose risks to safety due to sea-level rise and coastal erosion. Coastal erosion is natural and unavoidable along the Fundy and Minas shores. Therefore, avoiding development in at-risk areas is the safest and most effective approach to combatting the effects of climate change.

Kings currently lacks accurate data on its coastal erosion rates, but an analysis of erosion from 1961 to 2009 found an average loss of 15.24m (50feet) of shoreland and up to 68.58m (225feet) in some areas over the course of 50 years. Kings has established conservative setbacks for development on the coast. However, in high erosion areas, the recommended setbacks may not offer long-term protection which is why Kings County encourages property owners to thoroughly assess the risks and hazards on their property before proceeding with development.

Coastal areas are ecologically sensitive and encompass the coastline, dike walls, mudflats, and marshes that provide critical habitats for mammals and winter homes for bald eagles. The Minas Basin mudflats are essential to migrating shorebirds' survival as they host mud shrimp, which provide a consistent food supply. Kings aims to work with the province to limit land uses in sensitive areas to protect human life and minimize damage to structures. This will be achieved by monitoring changes to the coast, educating residents and visitors on the effects of climate change, and creating land use regulations that protect dike walls, mudflats, and marshes as well as the broader coastline.

Nova Scotia policy requires wetland alteration approval with no net loss of wetlands. Kings has additional specific policies for wetland protection, including the Southern Bight wetland complex designated as a Wetland of International Importance and Important Bird Area. Wetland preservation policies are conveyed to developers, and wetland protection is evaluated based on the proposed land use. An Environmental Constraints zone is also applied to significant wetlands in the Growth Centre.

Coastal Protection Policies

- Establish a Tidal Shoreland (T1) Zone for lands along the marine coast intended for a limited amount of residential development.
- Create a Tidal Commercial (T2) Zone for lands along the coastal shoreline that are intended to provide a limited range of services to the surrounding community and visitors.
- Require a large shoreline setback requirement within the Tidal Shoreland (T1) Zone and the Tidal Commercial (T2) Zone to promote safety and protect investments in infrastructure and property, while recognizing the constraints that large setbacks may place on existing properties.
    - Main building setback: 22.86m (75feet)
    - Accessory building: 15.24m (50feet)
    - Boathouse and Fishing uses: 1.2m (4feet)
- Require lot standards, yards and building sizes within the Tidal Commercial (T2) Zone to allow efficient development of private and public roads and reduce land use conflicts.

- Develop and support coastal monitoring program on the conditions of the Grand Pré Area coastline.
- Collaborate with the Grand Pre Marsh-Body, the province, and other organizations to provide educational opportunities and information materials on coastal processes and flood risks.

Sensitive Coastal Ecosystem Protection Policies

- Establish an Environmental Constraints (O1) Zone for freshwater/saltwater wetlands identified by the Provincial Department of Natural Resources.
    - The O1 Zone also protects significant wetlands that are located within the Growth Centre of Kingston.
- Employ processes and procedures intended to inform developers of the province's wetland preservation policies.
- Consider the protection of wetlands when evaluating applications to amend the Land Use By-law or enter into a development agreement.

Town of Lunenburg

Key Points

- Universal 3.2 metre vertical setback on coast.
- No specific horizontal setback because most of the coast is already developed.

The Town of Lunenburg is a historic coastal town on Nova Scotia's south shore. Lunenburg recognizes the impact that the changing climate and sea level rise can have on its Harbour and the surrounding coast. A goal within Lunenburg's Community Plan is to strive toward adapting to climate change and protecting the natural environment.

Objectives include:

- Increasing the town's resilience to the impacts of climate change including sea level rise, drought, and increased storm frequency.
- Implementing strategies to mitigate climate change, through direct and indirect actions.
- Promoting the restoration of the natural environment.

Sea Level Rise has a dedicated section within Lunenburg's MPS which outlines specific goals the municipality hopes to achieve related to the coast. The discussion papers for Lunenburg's MPS also contain some helpful information and imagery around sea level rise. The Environment and Sustainability discussion paper includes several methods for combatting sea level rise which include options to protect, accommodate, or retreat from sea level rise using both built and natural infrastructure. Lunenburg's Community Plan also outlines some additional actions around sea level rise which refer to the provincial Coastal Protection Act (CPA) that has yet to be released. The actions that reference the CPA relate to regulating the construction of buildings near the shoreline.

The Town of Lunenburg acknowledges that wetlands are an important space for recreation but does not discuss wetlands specifically anywhere in policy likely because they have very few or none in their jurisdiction.

Coastal and Sensitive Coastal Ecosystem Protection Policies

- Do not have a Horizontal Setback, but their shoreline is mostly developed, and residential use is prohibited along the harbour.
- Have a 3.2m vertical setback CGVD2013.
- Flood Risk Area Development Standards: New development within the Flood Risk Areas is required to sign a "Flood Risk Area Development Undertaking Form" acknowledging recognition of risks and responsibility for damages in the event of a flood and confirming that the development is not lower than 3.2m vertical setback from CGVD2013.
- Develop an emergency preparedness plan in the event of significant sea level rise damage to infrastructure.
- Work with the Departments of Fisheries and Oceans and Environment and Climate Change Canada to establish methods to measure changes more accurately in sea level over time within Lunenburg Harbour such as the implementation of a tidal gauge.
- Work with the Province and Federal Government to implement living shorelines, living reefs, and wave breaks along the coast to filter bacteria and limit coastal erosion.
- Permit structures and land, through land use regulations, to be raised to accommodate rising sea levels.
- Use conservation land use zoning to protect critical and environmentally sensitive areas along the shoreline.
- Develop land use regulations controlling how close structures may be placed to the coastline.
- Conduct a comprehensive sea level rise analysis, as influenced by tides, wind and rainfall for Lunenburg Harbour and the Back Harbour.
- Ensure new critical infrastructure is placed outside of coastal floodplains and high-risk areas.
- Create an online documentation platform to upload images and stories of significant storms and sea level rise events.
- Consider hosting regular community workshops (e.g., biannual) updating the community of sea level rise and climate change projections.

Town of Mahone Bay

Key Points

- Do not have a horizontal setback because most of their shoreline is developed.
- Vertical setback of 3.5 meters (CGVD2013).
- Promote living shoreline.
- Conservation Zone to safeguard the ecological integrity of land.

Mahone Bay's residential, commercial, and industrial areas are located along the coast. The town implemented policies to create horizontal buffers around its watercourses and wetlands

to act as an extra precaution against inland flooding. Furthermore, Mahone Bay established a vertical setback along the coast to prevent flooding that may occur due to sea level rise.
Due to its coastal location, residents, and community members of Mahone Bay are highly concerned about sea level rise caused by climate change. Mahone Bay prioritizes environmental protection by adopting adaptation and mitigation tools such as horizontal and vertical setbacks designed to combat the effects of climate change on the coast.

Rising sea levels can increase the impact of storm surges caused by strong winds pushing water toward the shore. The Mahone Harbour Flood Prevention and Shoreline Enhancement Plan identified potential sea level rise impacts and recommended minimum elevation for waterfront structures between 2.2-3.0m above sea level. Extreme sea level scenarios were established based on various modelling methods and rising sea level scenarios. The plan suggested an upper limit vertical setback of 3.5m for coastal structures. The upper limit was based on the storm surge produced by Hurricane Juan in 2003 in Halifax. Mahone Bay does not have a horizontal coastal setback since most of its shoreline is already developed.

Coastal Protection Policies

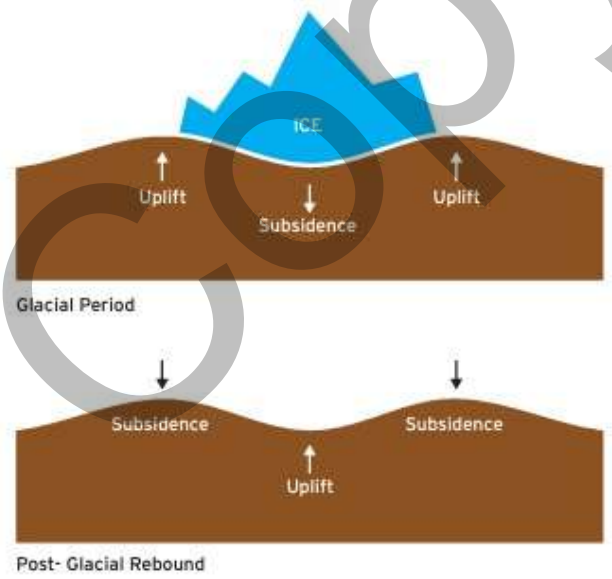

Figure 13: Town of Mahone Bay (n.d.)- Subsidence

- Create an Open Shoreline Zone to safeguard and enhance the open nature of Mahone Bay's waterfront. Limited uses will be allowed that don't compromise the town's scenic nature, like parking lots and parks. Development standards will be strict, including limited structure height to protect views and maintain the area's open character.
- Does not have a horizontal setback because most of the shoreline is developed.

- Create a Coastal Flood Risk Map to identify areas below 3.5m (11.4 feet) elevation relative to CGVD2013 at risk of flooding by sea level rise and storm surge modeled to 2100.
- Prohibit any new habitable development below 3.5 meters (CGVD2013) elevation.
- For development below 3.5 meters (CGVD2013) in areas on the Coastal Flood Risk Map, applicants must:
    - Acknowledge the risks associated with sea level rise and storm surge.
    - Locate central systems above 3.5 meters (CGVD2013).
    - Use flood-resistant measures for hazardous materials and pollutants.
- Consider relocating structures if it will improve the property's elevation.
- Allow flexibility from watercourse and shoreline buffers for existing undersized lots and when moving an existing building to improve its relation to the buffer.
    - Allowance for reduction of watercourse buffer on a lot requires an appropriate study by a qualified professional indicating no hazard to development or environmental risk.

Sensitive Coastal Ecosystem Protection Policies

- Establish a Conservation Zone to safeguard the ecological integrity of land and to limit human development in these areas.

Green Shores for Shoreline Development – British Columbia

Key Points

- Nationally recognized program and regulations.
- Requires horizontal setbacks based on surficial geology of areas – has example table in document.
- Requires 1.5 metre vertical setback for any habitable development near a watercourse e.g., residential.
- New developments must be designed to accommodate a 50-year erosion cycle (e.g., include proper setbacks and buffers into design).
- Encourages preventing a net loss of critical or sensitive habitats and compensating on-site for any loss that may occur.
- Requires a minimum of a 10 metre riparian buffer around wetland areas.
- Encourages reducing the effect construction activity has on coastal and inland water bodies as well as other sensitive habitats like wetlands through the creation of a site-specific environmental plan.

Green Shores is a national, voluntary program originating in British Columbia with the purpose of minimizing human impact on Canada's shorelines by adopting regulations around shoreline development and advocating for the preservation of natural shorelines. The Green Shores guide can be applied to a multitude of shorelines including coastal and lakeshores, and covers a variety of developments, excluding only major industrial developments that require shore infrastructure such as port facilities or industrial plants. Green Shores released an updated

guide for Shoreline Development in 2020 that now includes Atlantic Canada. There are four guiding principles outlined within the guide and they include:

1. Preserve the integrity and connectivity of shoreline processes;
2. Maintain and enhance shoreline habitat diversity and function;
3. Minimize and reduce pollutants to the shoreline environment;
4. Reduce and reverse cumulative impacts to shoreline systems.

Several of our expert consultants encouraged planning staff to review the guide from Green Shores as an evidence-based best practice and to obtain ideas for how shorelines are being protected through the program across Canada. The guide can be applied to permanent structures, defined as,

> "Any building or structure lawfully constructed, placed or erected on a secure and long-lasting foundation on land that cannot practically be elevated or moved in accordance with any local government bylaw or approval condition in effect at the time of construction, placement or erection."

The guide also includes five prerequisites that must be met to achieve a Green Shores for Shoreline Development rating, similar to the LEED standard rating system. The prerequisites include:

1. Siting of permanent Structures;
2. Conservation of Shoreline Sediment Processes;
3. Conservation of Critical or Sensitive Habitats;
4. Riparian Zone Protection;
5. Construction Environmental Management Plan.

Each of the prerequisites include a variety of recommended setbacks, standards, or strategies for maintaining shorelines that will be covered below.

Prerequisite 1: Siting of Permanent Structures

Table 1 under the first prerequisite includes a variety of horizontal setbacks depending on the shore type and geology of the shoreline. The table recommends that the maximum of the measurements be applied to ensure optimal protection of shorelines. A 1.5 metre vertical elevation is also required for permanent structures that include a residential or occupied component.

Table 1. Minimum setback distances for Option A.

Shore Type	Geology	Minimum Horizontal Setback Distance Use the maximum of the following measurements:
Low elevation shore	Beach deposits; gravel and sand	Extreme WL limit 25m from NB/OHWM Annual erosion rate multiplied by lifetime of structure
Low bank (less than 5m in height)	Glacial/unconsolidated	30m from crest Extreme WL limit Annual erosion rate multiplied by lifetime of structure
High bluff (5-60m)	Glacial/unconsolidated	35m from crest Extreme WL limit Annual erosion rate multiplied by lifetime of structure
Very High bluff height (60+ m)	Glacial/unconsolidated	40m from crest Extreme WL limit Annual erosion rate multiplied by lifetime of structure
Low cliff height (less than 5m)	Non erodible Bedrock	20m from crest Extreme WL limit
High cliff height (5-60m)	Non erodible Bedrock	20m from crest Extreme WL limit
Very high cliff height (60+ m)	Non erodible Bedrock	25m from crest Extreme WL limit
Dike or other shore flood protection measure	Variable or Artificial materials	7.5m from landward edge Check local regulations for areas outside of BC

Figure 14: Green Shores for Shoreline Development, 2020

Green Shores provides a different set of regulations for overwater structures such as docks as well as for outdoor lighting along shorelines. The guide also provides the option for property owners to consult with a Qualified Coastal Professional to determine if changes to the recommended setbacks can be accommodated on a site-by-site basis.

Prerequisite 2: Conservation of Shoreline Sediment Processes

The second prerequisite applies to the development of property on shorelines and includes recommendations and strategies for maintaining the natural sediment. Recommendations include designing developments to accommodate a 50-year erosion cycle to reduce the likelihood of requiring man-made shoreline protection interventions or infrastructure. Strategies that are covered include implementing natural infrastructure such as riparian buffers and beach berms, among other things, in areas where elevated erosion is a concern.

Prerequisite 3: Conservation of Critical or Sensitive Habitats

The third prerequisite applies to the development shore zone including the riparian zone, foreshore and subtidal zone, where applicable. Requirements of this prerequisite include preventing a net loss of critical or sensitive habitats and compensating on-site for any loss that may occur. Critical and sensitive habitats include marshes, dunes, estuaries, and any other areas that provide habitat for important animal and plant species. Strategies within this prerequisite include consulting with qualified professionals to identify and delineate areas with critical habitat; avoiding the use of fill in these critical habitats and prioritizing designs that utilize existing natural habitat features; and restoring areas disrupted by development to meet the no net loss requirements.

Prerequisite 4: Riparian Zone Protection

Riparian buffers are meant to protect shorelines from eroding while maintaining habitat for flora and fauna. The Green Shores guide requires a minimum of a 10m riparian buffer around wetland areas; any revegetation of riparian buffer areas must be guided by a professional; riparian buffers located in parks or designated conservation areas must consist of native species; and species of plants included in riparian buffers must fit the natural landscape of the area.

Some strategies included under this prerequisite include:

- Not extending mowed lawn areas to the top of shore embankments or bluffs.
- Using native riparian vegetation as landscape features.
- Incorporating vegetation and natural resources into shore protection works, such as beach nourishment, anchored logs and riparian plantings on relatively protected shorelines, where appropriate.

Prerequisite 5: Construction Environmental Management Plan

The purpose of this prerequisite is to reduce the effect construction activity has on coastal and inland water bodies as well as other sensitive habitats like wetlands through the creation of a site-specific environmental plan. Strategies to create an effective plan include:

- Reducing sedimentation during the construction phase by use of silt curtains and fences, sedimentation ponds, and reduction of soil runoff by riparian plantings and hydro seeding (with native plants), stabilization of steep slopes, promotion of infiltration, and phasing of the project to minimize amount of exposed soil.
- Establishing clearly defined construction boundaries to minimize disturbance and potential sediment run-off; fence critical or sensitive habitat.
- Schedule work at appropriate times of year to lessen disruption to fish and fish habitat (contact local DFO office for information on construction timing windows) and bird or amphibian nesting or migration.

MODL can view the Green Shores document as a starting point for any future policies or regulations around coastal and Sensitive Coastal Ecosystem protection.

Province of New Brunswick

Key Points

- Three zones approach from most restrictive to least restrictive. Most restrictive is zone A, which is a conservation zone that protects wetlands, marshes, dunes and spits.

New Brunswick developed a province-wide coastal protection policy that has been implemented and carried out through the regulation of Watercourse and Wetland Alteration Regulation and overseen by New Brunswick's Source and Surface Water Management Branch of the Department of Environment and Local Government (DELG). The Coastal Areas Protection Policy aims to achieve several objectives:

- Reduce the risk of personal injury caused by storm surges and flooding, and to minimize danger to those involved in emergency and rescue efforts during such events.
- Protect provincially significant wetlands (PSW) and ensure that there is no net loss of wetland function for other wetlands.
- Prevent water and wetland contamination from hazardous materials, heating fuel or septic tanks, and to minimize saltwater intrusion into wells.
- Encourage cooperation among local, municipal, provincial, federal governments, and private sector stakeholders in the stewardship and protection of wetlands.
- Maintain coastal areas' buffering capacity to protect inland areas from storm surges and ensure that watercourse and wetland alterations are appropriately considered during design stages.
- Maintain vegetation and wildlife for their ecological value, as well as their role in traditional fisheries and eco-tourism.
- Reduce public expenditures on repairing storm damage to public property such as roads, bridges, and buildings and controlling erosion to protect human-made structures.

The plan proposes three zones intended to protect the coastline:

Zone A

Zone A is the most sensitive zone, encompasses tidal watercourses, beaches, dunes, rock platforms, coastal marshes, and dike lands found between the Higher High Water Large Tide (HHWLT) and the Lower Low Water Large Tide (LLWLT), as well as dunes extending beyond the HHWLT. Land that falls within Zone A is highly susceptible to storm surges and the potential for danger and damage is significant. Therefore, fewer development activities are allowed in Zone A. Zone A also has fewer permissible development activities due to the high risk of danger and damage from storm surges. However, certain activities may be allowed with the necessary permits, including public projects, wetland restoration, temporary access roads, boardwalks, erosion control structures, and accessory buildings associated with existing dwellings, provided they meet specific requirements and limitations. Surveying, education, research, and habitat management may also be permitted, if they are temporary and do not involve alterations.

Prohibited activities within Zone A

- Infilling and excavation, except for activities allowed as described above.
- Dredging and related activities for disposing of dredged material.
- Quarrying of beaches.
- Construction of causeways, unless building a bridge is not technically feasible.
- Construction of groynes (Rigid structures that extend from a shoreline and are intended to shield the shore from erosion, capture sand, or alter the direction of a current).

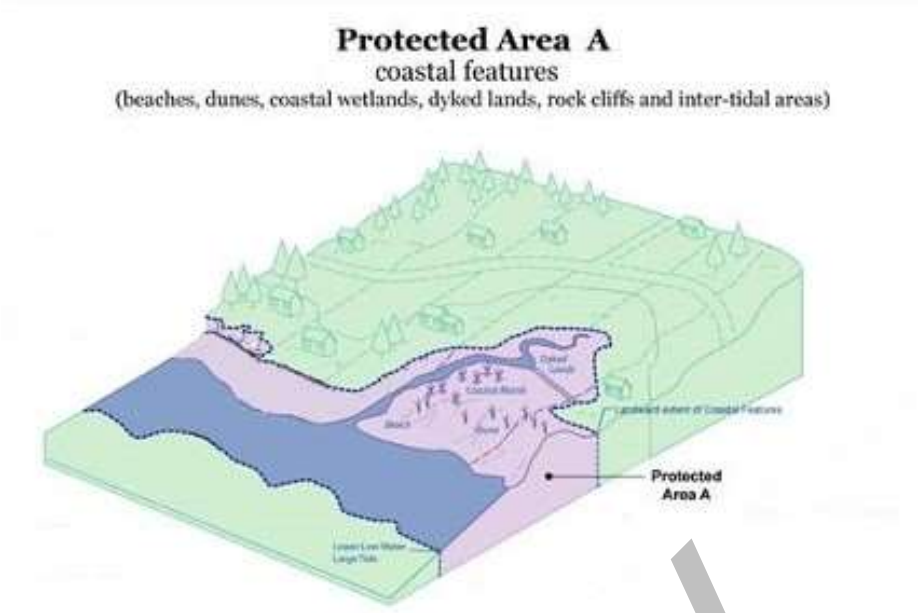

Figure 15: NB, Zone A- Most Restrictive Zone

Zone B

Zone B serves as a buffer for coastal lands, referring to the area that is situated directly next to coastal features including tidal watercourses, rock platforms, dunes, and beaches. Zone B encompasses the land that is located 30 meters from the inland boundary of Zone A. Because Zone B is located inland adjacent to zone A, there are more permitted uses including all the uses permitted in Zone A. However, soil disturbance associated with new development or reconstruction of existing uses with the habitable section of the structure should be at least 2m above the HHWLT. The expansion of an existing structure or a new accessory structure should not be closer to Zone A than the existing structure. Additionally, erosion control activities should be included to reduce the risks of erosion.

Prohibited activities within Zone B

- Infilling and excavation, except for activities allowed as described above.
- Dredging and related activities for disposing of dredged material.
- Quarrying of beaches.
- Construction of causeways, unless building a bridge is not technically feasible.
- Construction of groynes (Rigid structures that extend from a shoreline and are intended to shield the shore from erosion, capture sand, or alter the direction of a current).

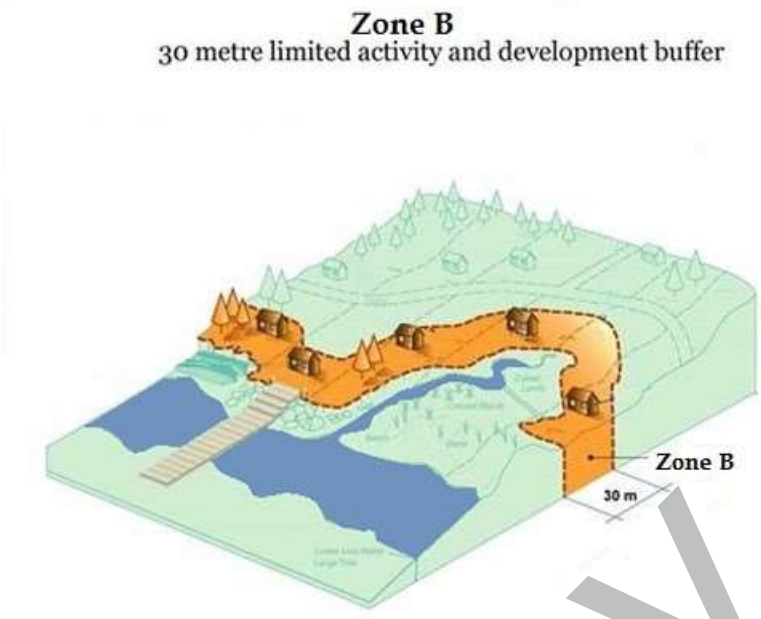

Figure 16: NB, Zone B- 30m Horizontal Setback from Zone A

Zone C

Zone C is an additional protection zone that has been proposed but has not yet been implemented. Zone C extends from the outer limit of Zone B toward inland areas and identifies areas with ecological sensitivity due to geomorphological elements such as topography, elevation, erodibility, and storm damage. Although Zone C lies beyond the 30-meter setback established by the Watercourse and Wetland Alteration Regulation, the development of lands within Zone C should follow best management practices and should consider factors such as susceptibility to storm surges, elevation, topography, and erodibility. Additionally, development within Zone C should consider the biophysical impact of the development on coastal ecosystems, including potential contamination and harmful disruption of habitats. Activities that are permissible in Zones A and B are also allowed in Zone C.

Engagement

Previous Public Engagement

Coastal Action – Coastal Policy (2014)

In 2014, Coastal Action, which is a local NGO collaborated with MODL on coastal protection regulations. Coastal Action did a public consultation regarding development of coastal policy on behalf of MODL. Five public open house sessions were held in Petite Riviere, Riverport, Blue Rocks, Mahone Bay, and Big Tancook Island, with a total of approximately 215 attendees. Residents provided written comments via a feedback form, which was made available at all sessions and online. About 115 people submitted feedback forms, and a written submission

was received from the Kingsburg Coastal Conservancy. Attendees were given a background presentation on the need for a coastal policy and had the opportunity to discuss ideas with MODL and BCAF staff. Feedback forms were analyzed and summarized in the report. The number of attendees and submitted feedback forms are acknowledged as a small sample for a Municipality of 25,000 people. Out of the 115 respondents only 81% of the respondents were coastal property owners.

Coastal Erosion

- Many coastal property owners in the Municipality are affected by erosion. Half of respondents said erosion is affecting their property, while almost all respondents believe it affects other properties. Shoreline type and wave action are factors that determine erosion susceptibility. 54% of respondents are not affected by erosion, possibly due to being located on a naturally erosion-resistant shoreline.
    - Policies like New Brunswick's Coastal Areas Protection Policy and Municipality of Clare Land-Use Bylaw are used to prevent development in erosion-prone areas.

Flooding

Most respondents believe that erosion is more common than coastal flooding in the Municipality, with some reporting flooding affecting their property and most residents believing it affects others. Rising sea levels are expected to increase overland coastal flooding, which is more likely in low-lying areas. Existing homes and infrastructure are at risk, with several respondents reporting damage to structures on their property.

Climate Change

- Most respondents believe that climate change is currently impacting the coast. Looking ahead to the next 50 years, most respondents believe that there will be impacts from climate change on the coast. Most respondents are taking some kind of action to prepare for coastal impacts from climate change, with some (23) using shoreline hardening and others (31) using softer approaches, and some using living shoreline methods.

Municipal Involvement

- Respondents have varying opinions on using current or **predicted impacts to restrict development from climate hazards, with some questioning the certainty of using 50-year predicted impacts and others suggesting considering even 100-year predicted impacts. The precautionary principle is recommended in provincial environmental policy. While some respondents believe it's not the government's responsibility to identify and restrict development, many still believe governments should identify climate hazards.**
- M**ost respondents agree that a municipal coastal policy needs to be developed. Respondents express interest in various provisions for coastal development, including information on hazards, guidelines and best practices, vegetation retention, setback requirements, and building design regulations.**
- Some **respondents have reservations about exemptions from setbacks, cautioning against too many loopholes, while others believe that exemptions should only apply to genuine**

structures like fish sheds. Some respondents in areas without past land use planning see no need for a coastal policy, citing the long-term survival of their communities without such laws.

Cost of Coastal Hazards

Most respondents agree that affected landowners should be responsible for covering the costs resulting from coastal hazards. However, a significant number believe that the government and insurance companies should also be involved. Some respondents suggest that government should only be responsible for costs associated with public lands, while private landowners should be responsible for costs on their own properties. One respondent suggested that adjacent landowners should also be responsible for costs if their actions contribute to erosion or sediment buildup.

What We Heard Report (2021)

The MODL2040 survey gathered public feedback on community priorities for the next 20 years, marking the first public engagement opportunity to obtain quality feedback.

- Respondents suggested that MODL should have coastline guidelines to protect the oceanfront and wetlands associated with it, and address sea level rise. They also emphasized the importance of providing access to the shore from land and upholding prescriptive rights to use old walking trails.
- **The Municipality may be developing policy related to flood risks, both coastal and inland. Do you feel that you or your community is at risk from flood-related events?**
    - The responses indicate that many community members feel at risk from flood-related events, including storm surges, sea level rise, heavy rain events, higher tides, increased storm intensity, inland flooding, and shoreline erosion. Specific examples were given, such as breaches of dunes and shoreline erosion at Kingsburg Beach and Rose Bay, flooding in Petite Riviere watershed, and flooding in yards during high tides and heavy rain events.
    - Residents mentioned their concerns about the vulnerability of the community to flooding and other climate-related hazards. Specific areas that may be at risk include Cherry Hill, Broad Cove, Rose Bay, and the Lunenburg waterfront. The impacts of rising sea levels, king tides, and extreme weather events could lead to flooding and damage to coastal roads, properties, tidal estuaries, and ponds. It is important to take measures to protect vulnerable areas and improve the community's resilience to these hazards.
- “I believe we will see some very dramatic climatic impacts. We must plan for adaptation - things like coastal development must be very carefully considered…”

Collaborator Engagement

ClimAtlantic Coastal Protection Specialist

- Created a Coastal Protection Tool Kit and report in collaboration with Dr. Patricia Manuel. The tool kit report focuses on land use planning tools & adaptation options which will help to establish coastal protection policies and regulations.
- There are four types of tools for coastal protection and adaptation, capacity building tools, planning framework tools, regulatory and land use change tools.
- There are five approaches to managing climate change impacts: avoid, retreat, accommodate, protect, and procedural.
- Vertical Setback considers sea level rise, storm surge, and the level of flood risk tolerance such as 1:20 or 1:100 flood plains. It's essential to consider the longevity of the regulations, for instance, regulations that will persist until 2100, should have a vertical setback greater than 3.8m
- Different factors, such as erosion rates and soil type, determine the appropriate horizontal setback distance for a shoreline. Vegetative buffers may be useful in addressing erosion concerns for sandy shorelines but may not be as effective for rocky shorelines. Wetlands and dunes can provide important buffering effects to protect shorelines from climate change and sea level rise. Regulations and tools, such as CLIMATIC, can help identify appropriate setbacks for different types of shorelines.

Federal Coastal Geo-scientist

- Coastline sedimentation varies and has different erosion processes.
    - Dynamic sand Dunes, spits, exposed beaches, gravel barrier beaches are more vulnerable to erosion.
    - A failure of a gravel barrier beach and more erosion occurs because land s moving landwards is areas where we will see a major coastal change.
        - **These areas should be treated as a special case area such as a conservation zone with development because these areas are prone to catastrophic changes.**
    - Two approaches to setbacks: site specific (preferred but costly) Or a conservation zone for sandy dunes, spits, and gravel beaches (because they are very dynamic with high annual erosion rate) with determined horizontal and vertical setbacks in areas where erosion rate is slower.
- Predictably eroding areas like till cliffs or bedrock areas are more stable. Hence a setback can be applicable to these areas.
- Aerial imaging digitizing analysis is the way to measure erosion. Compare an old aerial image to the current aerial image and it could give you a sense of the annual erosion rate.
    - After the digitization is done, we can calculate the erosion rate via GIS.
- A horizontal setback is determined by calculating the time frame will be applied for e.g., 60 years * the annual erosion rate.
    - For till cliffs and drumlins, it is typical that the annual erosion rate is about 0.4m to 0.5m. Hence, calculating 60 years * 0.5 = 30m OR 100 years * 0.4= 40m

Wetland Specialists/Planners – HRM

- Recommended reviewing the province's wetland database and wetland designations if attempting to map sensitive areas.
- Recommended reviewing the Nova Scotia Wetlands Protection Policy as the policy outlines goals and objectives for preventing the loss of critical wetlands and outlines the types of wetlands that are designated within Nova Scotia.
- Tools for protecting ecologically sensitive or significant areas:
    - Expanding riparian buffers around wetlands;
    - Improving the scale of mapping;
    - Increasing setbacks where possible (for example increasing a 20 metre setback to 30 metres);
    - Adopting a restoration standard both for when a permit is requested and what the land was assumed to be like before;
    - Using compensation money for land acquisition of pristine wetlands or green infrastructure.
- When adopting or increasing setbacks around sensitive lands: the wider the setback or vegetative buffer the better.
- Halifax has the goal to expand setbacks around watercourses from 20m to 30 metres.
- Acquiring more pristine wetlands requires an increased capacity and expertise within municipal units to maintain these areas.
- **Gap in policy:** lack of a formalized system between the province and municipalities to approve developments/protect wetland areas.
- Recommended staff investigate a Municipal Natural Asset Initiative (MNAI) which MODL already has in place.

TransCoastal Adaptations Education & Outreach Coordinator

- Green Shores guide - BC, and Trans Coastal Adaptation are working to fit the adaptation and implementation guide to meet the needs and coastal processes of Atlantic Canada.
- Educating students and residents about coastal protection and wetlands importance.
- Benefits of riparian buffer on coast: vegetation diffuses wave energy, reduces erosion and flooding. Also protects water quality through filtration.
- Armour rock: costly (more than living shorelines), wave energy increase and go underneath the wall or up the wall four times higher. Also affecting the neighbouring properties by diverting wave energy and increasing erosion on nearby properties. Sediment can become unstable.
    - Example: Barrington community (Village Dale) on the coast armoured their shoreline with rock and the beach next to them eroded away because the sediment was prevented from accumulating on the beach.
- Sandy dunes, spits and gravel areas are very dynamic – development in these areas should be avoided. Coastal sandy areas such as sandy dunes and spits are especially important because they are habitats for shorebirds and migratory birds that are protected under the Migratory Birds Act.

Future Public Engagement

Public engagement duration is proposed to be seven weeks from June 12- July 28. The public engagement would consist of a presentation and Q&A and maps and tables residents can review at local community centres. Council can select 5-6 communities to meet with. Marketing of the coastal protection public engagement would include content on MODL's engage site (will consist of an intro, general survey questions, FAQ, and contact information), Article in Municipal Matters, MODL Messenger, news release (in print and radio ads), social media posts via Facebook, and stand-alone signage with QR codes at various coastal locations.

Regulatory Tools

Horizontal Setbacks to Avoid Erosion

1. Example: Site-Specific Horizontal Setbacks

Properties would be evaluated on a case-by-case basis by a designated professional, such as an engineer or a surveyor, to identify the property's level of risk for coastal flooding and erosion and to determine an appropriate setback for new development. This is the same approach being proposed by the Coastal Protection Act.

Advantages

- Every property would be evaluated by a professional for all factors contributing to coastal erosion, resulting in the most accurate and suitable setback requirements possible.
- Each evaluation would be done using a consistent methodology.
    - The province's Coastal Protection Act regulations intended to use sites specific to the 100m and 80m coastal protection zones because the coastline varies from one shoreline to another. This method helps increase accuracy and determine the proper setback for each property. Under the CPA, horizontal setbacks are designed to help avoid future erosion risks. Under the Act, horizontal development setbacks would be determined through a site assessment conducted by a designated professional (e.g., engineering, geoscience, surveying) using methods and tools as laid out in the proposed Coastal Erosion Risk Factor Assessment (CERFA) Standard.
    - The CERFA calculation procedure is based on established methodologies for geological erodibility classification, combined with basic coastal engineering principles. A designated professional must follow the CERFA requirements to establish the proper horizontal setback.

Disadvantages

- Hiring a designated professional adds additional costs to property owners.
- This would increase work for staff to review the relevant documents by the designated professional that indicate the justifications for the horizontal and vertical setbacks.

2. Example: Zoning and Horizontal Setbacks

Setbacks would be determined by using the surficial geology and annual erosion rate for different areas. Areas would be zoned according to the surficial geology to enable municipalities to broadly apply different setbacks. For example, Halifax Regional Municipality has a 20 m watercourse setback throughout most of its coastline and a 61m setback in the Eastern Passage Cow Bay area. The Eastern Passage and Cow Bay Area are most susceptible to erosion due to its geology and the exposure to wave energy and storms.

Advantages

- Erosion rate varies along the coast due to geomorphology. This approach would be less accurate than site-specific, but more accurate than a universal setback.
    - Soil erosion rate and reversibility depend on soil density, with tightly packed soil eroding slower and irreversibly, while loosely packed soil erodes faster and can be

restored naturally or with human intervention. Erosion at the bottom of slopes is caused by wave action, which undermines the cliff's stability and can cause the top portion of the slope to collapse into the water.
    - Sandy and gravel beaches are very dynamic thus the coast changes rapidly, stony till drumlins are prone to erosion and the annual erosion rate ranges from 0.4m to 0.7m. while a rocky coastline such as Blue Rocks is less prone to erosion.
- Unlike site specific it would not take longer time to review development permits.

Disadvantages

- Not as accurate as site specific.
- Would create differences in communities along the coastline.

3. Example: Universal Horizontal Setback

Universal setbacks are predetermined setbacks and are commonly used by municipalities as a tool to protect development from erosion and sea level rise.

- Queens and Cumberland have predetermined horizontal setback of 30.5m with a 15.24 and 15m vegetative buffer respectively.

Advantages

- Simpler to apply and enforce.
- Minimal added workload or cost for municipal staff.

Disadvantages

- Less accurate.
    - Some areas may require a larger or smaller horizontal setback.

Regulations to Avoid Sea Level Rise

1. Example: No Building in Areas Below a Determined Vertical Elevation

At-risk areas would be indicated by any mapped areas affected by a storm that has a 1% chance of occurring each year. New development in these areas would be prevented.

Advantages

- Eliminate the risk of sea level rise and storm surge for built infrastructure and save human lives.

Disadvantages

- Higher impact on development rights, as many properties would be affected.
- Could cause tension with residents

2. Example: Differentiate Between High and Low Risk Areas

Higher risk areas would be indicated by any mapped areas affected by a storm that has a 5% chance of occurring each year. New development in these areas would be prevented.

Lower risk areas would be indicated by any mapped areas affected by a storm that only has a 1% chance of occurring each year. New development in these areas would be allowed, so long as new structures are built to a minimum elevation.

Advantages

- People would still be able to develop many areas, while also limiting development in the riskiest areas.

Disadvantages

- Still affects many properties.
- Could cause tension with residents.

3. Example: Permit Development in All Areas and Meet Determined Vertical Elevation

Development would occur anywhere within the areas at risk of sea level rise and storm surge, though elevation requirements would be required. New buildings would be required to be built high enough to avoid these events.

Advantages

- Most permissive – however, properties will still be affected by any horizontal setbacks that may apply.

Disadvantages

- Though buildings can be built higher, risks related to surrounding areas such as roads and infrastructure would still exist.
    - Higher risk and higher cost to property owners if property is affected by sea level rise/erosion.

Local Government	Horizontal Setback	Vertical Setback
Municipality of the District of Argyle	×	×
Municipality of Chester	✓	×
Municipality of Cumberland	✓	✓
East Hants	×	×
Region of Queen's Municipality	✓	✓
Halifax Regional Municipality	✓	✓
Municipality of the County of Kings	✓	×
Town of Lunenburg	×	✓
Town of Mahone Bay	×	✓

Figure 17: Table Comparing the Types of Coastal Setbacks Local Municipalities Have in Place

Sensitive Coastal Ecosystems

A conservation zone could be established to prevent development on or near significant environmental features that are critical to the coastal ecosystem. This could include provincially identified wetlands, dunes, spits, and gravel beaches. For those wetlands not identified by the province already, NGOs such as Ducks Unlimited could be engaged to assist in evaluating and mapping them.

A horizontal setback and riparian buffer around wetlands could be established to help mitigate potential impact of development on wetlands.

Advantages

- Sandy dunes, spits, and coastal wetlands are significant habitats for a variety of plant and animal species, specifically migratory birds which are protected under the Migratory Birds Act.
    - Sandy dunes, spits, and coastal wetlands are significant habitats for a variety of plant and animal species, specifically migratory birds which are protected under the Migratory Birds Act.
    - These significant coastal areas also serve as a resting space for piping plovers which are considered an endangered species under the Endangered Species Act.
        - Endangered means a species faces imminent extirpation or extinction (Nova Scotia Legislature, 2023).

Disadvantages

- Setbacks from wetlands would limit development opportunities in some cases.

- Protections would only apply to known and recognized significant environmental areas. Due to a lack of provincial data, many areas would require further evaluation or could not be protected.

Local Government	Sensitive Coastal Ecosystems Zones and Regulations
Municipality of the District of Argyle	✓
Municipality of Chester	×
Municipality of Cumberland	✓
East Hants	×
Region of Queen's Municipality	✓
Halifax Regional Municipality	✓
Municipality of the County of Kings	✓
Town of Lunenburg	×
Town of Mahone Bay	✓

Figure 18: Table Identifying Local Municipalities that Have Sensitive Coastal Ecosystem Regulations in Place

Next Steps

1. Complete public engagement plan, including booking in person events, online tools, and print/electronic media.
2. Proposed public engagement period (June/July)
3. What We Heard Report to Council (July/August)
4. Staff Drafting Policies and Regulations (August/September)
5. Draft Policies and Regulations to Council (October)
6. Public Info Meetings and Formal Adoption Process (October – December)

Report Preparation	
Department	Planning and Development
Report Prepared by	Elizabeth Carr & Ella R. Gindi, Planner I
Report Approved by	
Date Reviewed by C.A.O.	

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Appendix III

Municipality of the District of Lunenburg

Request for Decision

Report to: Planning Advisory Committee

Submitted by: Ella R. Gindi, Planner I

Date: October 12, 2023

Re: Coastal Protection – Policy Recommendations

Recommendation

That the Planning Advisory Committee (PAC) respectfully recommend to Council that:

> **Council endorse the recommended coastal protection measures contained in Option 1 below and instruct staff to draft a Municipal Planning Strategy amendment and new Land Use By-law respecting these measures to be brought before Council for First Reading.**

Discussion

The Municipality of the District of Lunenburg's (MODL) Council directed staff to develop coastal development land use regulations after the province indefinitely delayed the implementation of the Coastal Protection Act (CPA) regulations which were initially scheduled to be implemented in spring 2023.

The objective of MODL's new regulations is twofold: first, to prevent the construction of new homes, businesses, and structures in areas vulnerable to coastal flooding or erosion; second, to safeguard sensitive coastal ecosystems from the detrimental effects of human activity and development. The report presents planning staff policy recommendations for coastal protection

in MODL, focusing on protecting residential buildings from severe storms, rising sea levels, and erosion while preserving the natural environment from harmful development.

The proposed policies also aim to conserve coastal access and protect sensitive ecosystems, preserving the region's natural beauty and biodiversity. By adopting these recommended policies, MODL can establish comprehensive and sustainable coastal protection strategies, ensuring the community's well-being and quality of life while effectively mitigating the impacts of climate change and rising sea levels.

What Has Been Done:

Preparation of background report (attached)

Staff compiled a comprehensive coastal protection background report that analyzed legislation from federal, provincial, municipal, and nongovernmental levels. The report focused on climate change's impact, addressing sea level rise projections, subsidence, and storm events causing coastal flooding. It also examined coastal erosion and ecosystem preservation, including wetlands and dunes. The assessment encompassed municipal regulations, a jurisdictional review of othe municipalities, and consultations with experts from government and nonprofits. The report offered illustrative examples of regulatory tools to tackle flooding, erosion, and ecosystem protection, providing valuable insights and solutions.

Workshop with Council and Experts

On May 9th, 2023, a comprehensive Coastal Protection workshop convened council members and experts from various organizations. The event featured professionals from ClimAtlantic, NS Department of Environment and Climate Change, Dalhousie University, Natural Resources Canada, Ducks Unlimited Canada, TransCoastal Adaptations, Environment Canada, and NS Department of Natural Resources and Renewables. They shared insights on Coastal Flooding, Erosion, and Sensitive Coastal Ecosystems. Staff also presented regulatory tools for safeguarding developments and ecosystems. The workshop facilitated a valuable knowledge exchange, fostering effective coastal protection strategies.

Public Engagement Campaign

The Coastal Protection project's public engagement campaign prioritized widespread access to information and community involvement. The campaign aimed to educate the public by employing varied communication methods like postcards, newspaper ads, radio ads, social media (especially Facebook), and newsletters. The central focus was the Engagement Website, launched in late May, offering fact sheets, images, and infographics on Coastal Protection topics. It also featured an FAQ section and an Expert Interview Podcast Series for in-depth insights. Community input was collected through an 18-question survey available online and in paper format at municipal offices and open house events. The survey garnered participation

from 369 individuals. The campaign utilized an Interactive Map to pinpoint erosion and flooding areas and sensitive coastal ecosystems. Open houses, including in-person and virtual formats, drew around 240 attendees each, offering informative presentations, Q&A sessions, and interactive activities.

What We Heard Report

The What We Heard Report (WWHR) provides a summary of the feedback gathered from community members during the first round of public engagement on Coastal Protection. The feedback covers various topics, including coastal erosion, sea level rise, and coastal ecosystems. The survey and open houses were conducted to involve the community in the process of developing coastal regulations, and the feedback received will serve as a valuable starting point for this endeavor. The Coastal Protection project commenced in mid-April 2023, and the Municipality is actively working on formulating the necessary regulations. The aim is to have these regulations in place and implemented by the end of 2023.

Further Consultation with Experts

Following the initial round of public engagement, staff took additional steps to enhance their expertise by consulting with experts to assess coastal flooding and erosion accurately. Collaborating with specialists from the Department of Fisheries and Oceans, Natural Resources Canada, and a Climate Change professor from Dalhousie University School of Planning provided valuable data for calculating the necessary Vertical Elevation and Horizontal Setbacks.

Moreover, staff conducted detailed mapping efforts, carefully identifying, and categorizing protected and unprotected coastal wetlands. By integrating this information with the wetlands and dunes layer from the interactive open house map, they five wetlands were recommended for evaluation by Ducks Unlimited, aiming to determine the significance and value of these wetlands and their potential for preservation and protection.

Coastal Flooding

One of the primary objectives of these land use regulations is to prioritize human safety, protect critical infrastructure, and preserve the natural environment against the potential impacts of coastal flooding. These regulations will aim to ensure that residential structures and other developments can withstand the challenges posed by coastal hazards throughout their lifespan, including up to 2100. To achieve this, commonly employed approaches include implementing vertical elevation setbacks and establishing flood zones where development is restricted. By incorporating data on Sea Level Rise (SLR), tidal patterns, and storm surges, these regulations can safeguard residential buildings and other vulnerable assets from anticipated severe storms and sea level rise.

Possible Regulatory Tools

- **A Vertical Elevation Setback** is a regulatory measure applied in coastal regions to mitigate flood risks and safeguard properties. It entails setting a specific height requirement for constructing buildings. To adhere to this regulation, property owners would elevate new structures (or portions of them) above the prescribed height standard by constructing them to meet the requirement or raising the land beneath them.

- **Coastal Flood Risk Zoning** is a regulatory measure that would designate vulnerable areas along the coastline that are at risk of periodic or permanent inundation during specific weather conditions. New development would be limited or outright prohibited in these areas due to the risks of flooding.

- **Education and Public Awareness Initiatives** are largely in the form of communications tools to foster a proactive and informed approach to coastal development. These efforts would involve informing residents and stakeholders about new regulations that may apply, as well as general risks associated with coastal flooding and the significance of adopting responsible coastal development practices.

Calculating Vertical Elevations

Vertical elevation regulations involve a combination of three specific elements: sea level rise, tides, and storm surge. The following details the information gathered that has informed the recommendations contained further in this report.

Sea Level Rise

Natural Resources Canada (NRCan) has developed a comprehensive dataset for present and future relative sea levels in Canada that consider three Representative Concentration Pathways (RCP) climate scenarios (low, medium, and high emissions) and an enhanced scenario. The scenarios take global emissions data provided by the Intergovernmental Panel on Climate Change (IPCC) into account and project potential sea level rise in Canada for the decades leading up to 2100.

The IPCC uses the 5th percentile and the 95th percentile as statistical measures to represent the range of possible outcomes for future climate scenarios. The 5th percentile is a low estimate, indicating the lower end of projected outcomes, with a 95% probability that the actual outcome will be higher. It is associated with scenarios having lower greenhouse gas emissions or more optimistic assumptions. On the other hand, the 95th percentile represents a more conservative estimate, indicating the upper end of projected outcomes, with only a 5% probability of exceeding this value. It is associated with scenarios having higher greenhouse gas emissions or more pessimistic assumptions. The enhanced scenario introduces an additional 65 cm of global sea-level elevation to the middle forecast of the most extreme (95th percentile)

climate scenario by 2100. This increment of 65 cm accounts for a potential supplementary input arising from the Antarctic Ice Sheet.

Following extensive meetings and discussions with experts from the Federal Government's departments, such as the Department of Fisheries and Oceans, Natural Resources Canada, and Dalhousie University School of Planning, the 95th percentile has been determined to be the most appropriate climate projection for Sea Level Rise (SLR).

Based on this dataset and incorporating the conversion from CGVD28 to CGVD2013, ClimAtlantic provides the following sea level rise projections for MODL:

- 5th Percentile (low emissions): 0.52m
- **95th Percentile (high emissions): 1.57m**
- Enhanced Scenario: 2.39m

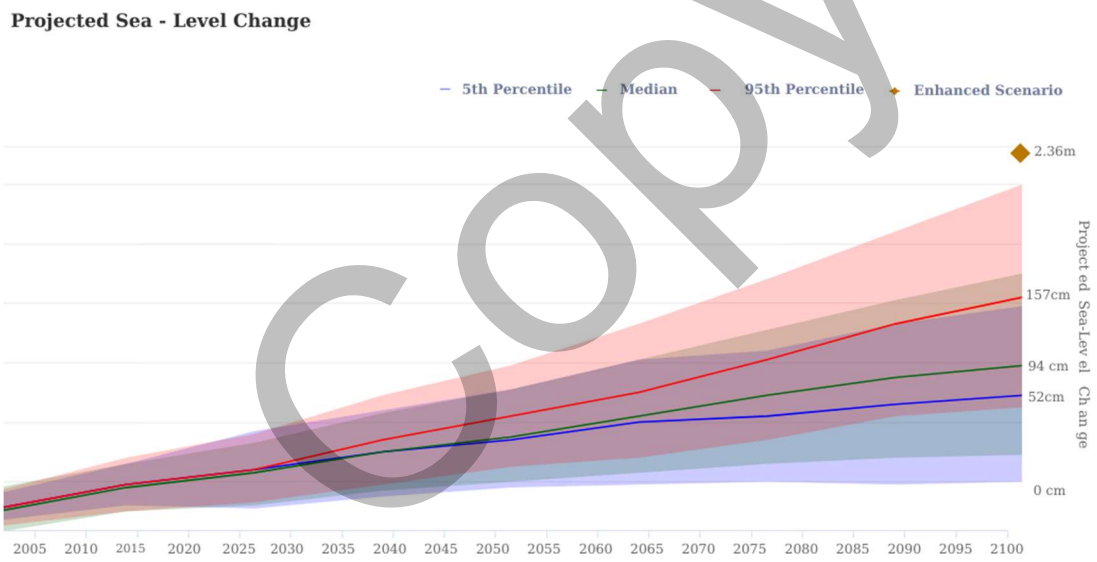

Figure 3: Projected SLR by 2100 using IPCC emission scenarios.

Higher High Water Large Tide (HHWLT)

HHWLT is a high-water level often occurring during 'winter spring tides.' These tides happen several times a month (not just during the winter or spring) and are associated with a full moon or a new moon approximately every two weeks. Based on data provided by Fisheries and Oceans Canada for the small craft harbours located throughout MODL, the projected HHWLT (in CGVD2013) for MODL ranges from 0.68 to 0.77m. By using a conservative approach, a 0.77m tide is the most appropriate to use in this case.

Storm Surges

Storm surges can elevate water levels during extreme weather events. They occur because of strong winds and low air pressure during coastal storms, bringing water above HHWLT or any other simultaneously occurring tide level. The maximum storm surge scenario ever measured in Nova Scotia is based on Hurricane Juan in 2003, which was measured to be 1.63m.

Final Projections for MODL

The total sea level rise in CGVD2013 for MODL is estimated at 2.34m (SLR + HHWLT). When we add the maximum storm surge, the final projection for MODL, including SLR, HHWLT, and storm surge, is 3.97m.

What We Heard Report

Among all respondents, 40% are extremely concerned, and 31% are very concerned about coastal flooding. Similar viewpoints are held by waterfront property owners with existing structures, with 42% concerned and 31% very concerned, making it a combined 73% of them being very concerned about coastal flooding.

For vacant property owners, 24% are extremely concerned, 21% very concerned, and 18% moderately concerned, totaling 63% expressing moderate to extreme concern regarding coastal flooding.

Among coastal property owners, 31% believe their properties are impacted by coastal flooding from storms and hurricanes. While not all respondents own coastal property, 80% acknowledge community-wide effects of coastal flooding. A common community request is for "realistic regulations," as 65% feel current land use rules fall short in addressing coastal flooding.

Regarding the desired level of protection, 54% of all respondents prefer high restrictions, with 77% supporting either moderate or high restrictions against coastal flooding. Comparing responses from coastal property owners with structures to all respondents shows consistent patterns. However, those owning waterfront properties tend to favour higher regulations for coastal flooding. Among these property owners, 46% opt for high protection and 22% for moderate protection. Among property owners with vacant land, 31% seek strong protection, 24% moderate protection, and 27% some protection.

Staff Recommendations

1. Utilize 1.57m Elevation Reference for Sea Level Rise*:*

- Base all calculations on an elevation of 1.57 metres relative to the 2013 CGVD, providing a standardized basis for assessment. This is consistent with recommendations from experts and aligns with the 95th percentile of the IPCC report on sea level rise.

2. Employ a Two-Zone Coastal Flooding Approach:

Area A – Coastal Inundation Area (0 – 2.34 m)

- Includes areas at highest risk of coastal flooding by year 2100.
- Based on a combination of sea level rise and high tides – areas projected to be frequently under water by 2100.
- Prohibit new residential and institutional uses within the inundation area due to their higher risk and higher probability of frequent flooding in these areas.
- Restrict infilling in this area, as raising ground level does not eliminate other risks such as emergency access, well contamination, etc.

Area B – Storm Surge Area (2.34 m – 3.49 m)

- Includes areas at a lower risk of coastal flooding by year 2100, when compared to Area A.
- Based on a combination of sea level rise, high tides, and storm surge – areas projected to be under water only during a storm event.
- Prohibit new institutional uses within the storm surge area due to them being the highest risk and possibility of containing vulnerable populations such as seniors or children.

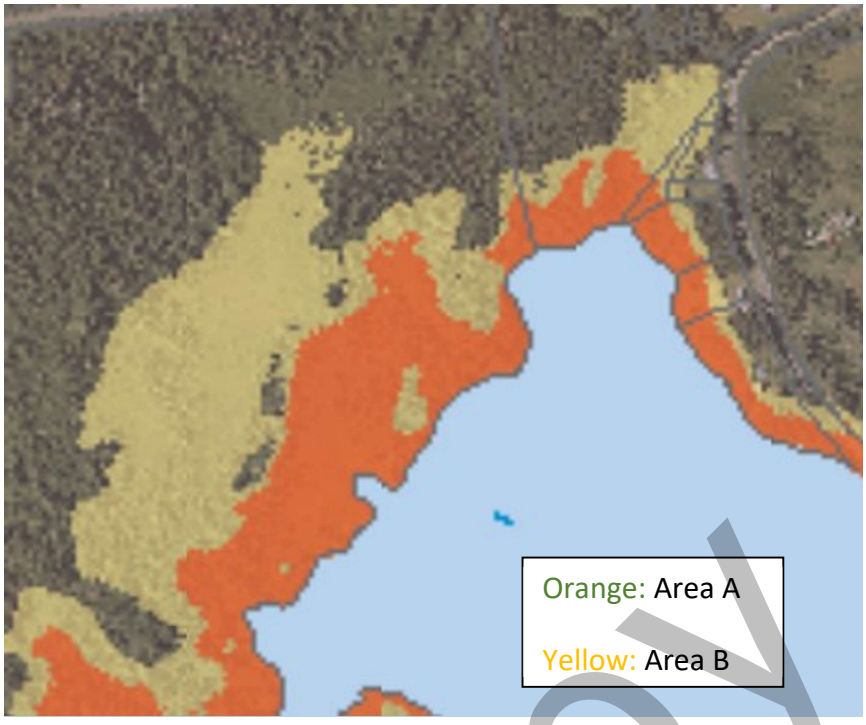

Figure 4: Two Zone Coastal Flooding Approach

3. Exemptions:

- Allow exemptions for low-value accessory structures (sheds, decks, piers, boardwalks, gazebos, etc.).
- Extend exemptions to essential marine-related functions and activities that necessitate a presence within low-lying areas. This includes provisions for boat builders, fish shacks, marinas, wharves, and similar enterprises.

4. Non-Conforming Allowances:

- Permit non-conforming developments to undergo renovations, rebuilding, or relocation, if these actions do not result in increased floor space or further elevation reduction.

5. Flexibility for Existing Developments:

- Allow flexibility for property owners to shift existing developments away from areas prone to coastal flooding risks. Property owners wishing to relocate existing structures from coastal inundation risk areas to higher elevations should be encouraged. However, there might be constraints to such relocations due to existing development criteria, such as property line setbacks or even the minimum vertical setback requirement. In scenarios where these constraints apply, the emphasis should be on mitigating flooding hazards rather than adhering strictly to regulations governing development standards.

6. Public Awareness and Education:

- Introduce initiatives to raise public awareness about the new regulations and promote education about coastal protection and the associated risks of coastal flooding.

7 Conduct a 5-year Policy Review:

- Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.

Coastal Erosion

A variety of factors can influence coastal erosion. Erosion refers to the natural process of rock and sediment breaking down above and below the water surface due to waves, tides, wind, storms, ice, rain, and runoff. Rates of erosion vary across the coast due to factors like

- Exposure to the elements
- Tide
- Sediment type
- Human activities
- Climate change.

Soil density affects erosion rates, with tightly packed soil eroding slowly and irreversibly, while loosely packed soil erodes faster and can be restored naturally or with human help. Erosion occurs at the bottom of slopes due to wave action, leading to slope collapse. MODL's surficial geology varies across the municipality, with areas like Ground Moraine and Streamlined Drift more prone to erosion (annual rates of 0.4m to 0.7m). Some coastal communities with exposed bedrock have lower erosion risk. Development regulations, particularly near watercourses, can help mitigate erosion and sedimentation.

Possible Regulatory Tools

To protect coastal properties, three different approaches for implementing horizontal setbacks have been reviewed:

Approach 1: Site-Specific Setbacks:

Qualified professionals assess individual properties to determine risk levels for coastal flooding and erosion. This approach provides the most accurate and suitable setback requirements but could add the most cost for property owners and would increase work for staff to review the relevant documents by the designated professional that indicate the justifications for the horizontal setbacks.

Approach 2: Zoning and Setbacks:

Setbacks would be determined based on the surficial geology and erosion rates in various areas. This approach considers the differences in erosion rates and soil types, making it significantly more accurate than using universal setbacks. Due to the limited data available on coastal community erosion rates and the varying requirements among different communities, additional work would need to be done to study local erosion rates across the municipality.

Approach 3: Universal Setbacks:

The approach involves using predetermined setbacks that are uniformly applied across the municipality. While this method is easier to enforce, it is less accurate compared to other methods, which may result in setbacks that are either inadequate or excessive in certain areas.

Education and Awareness

Understanding coastal erosion through public education is crucial due to various reasons. Coastal erosion, driven by human activities and environmental influences, requires awareness of its causes and effects to identify risks to communities and properties. This helps residents to adopt resilient building practices, consider relocating structures from vulnerable areas and use natural-based solutions such as a living shoreline instead of hard infrastructure. Raising awareness fosters collective responsibility, promoting conservation efforts and advocacy for coastal resilience. Informed citizens contribute to policy shaping for responsible coastal development.

Calculating Horizontal Setbacks for Erosion

To calculate a horizontal setback, the annual erosion rate is multiplied by the lifespan of a structure which, for the purposes of this work, is approximately until the year 2100. During discussions with experts, one suggested method for assessing the annual erosion rate is examining historical erosion records. However, there is a limitation in our region, as few historical erosion records are available. According to the provincial historical erosion records for Hirtle's Beach, the annual erosion rate ranges from 0.7 metres to 0.9 metres. Based on this data, the potential horizontal setbacks would be as follows:

Erosion rates X life of a structure = ___ m setback

- For an annual erosion rate of 0.7 metres: 0.7 metres * 77 years = 53.9 metres
- For an annual erosion rate of 0.9 metres: 0.9 metres * 77 years = 69 metres

What We Heard Report

In the survey, 38% of respondents are extremely concerned, and 32% are very concerned about coastal erosion. This pattern holds among coastal property owners with structures, where 38%

are extremely concerned, and 33% are very concerned. However, those with vacant properties show moderate (34%) or slight (27%) concern. Coastal erosion affects 42% of property owners with structures and 46% of vacant property owners, while 85% overall note its impact on community properties.

Over 65% believe current regulations inadequately protect coastal properties from erosion. Respondents favor moderate to high regulations against coastal erosion. Owners of properties with existing infrastructure lean towards high protection (46%), followed by moderate (27%), and some protection (18%). For vacant waterfront property owners, preferences vary: 28% high protection, 27% moderate, 24% some protection, and 21% no new regulations.

Responses diversify when asked about regulating hard barriers like rock armouring and sea walls. The Coastal Protection public engagement aimed to educate on erosion combat, specifically living shorelines, partnered with TransCoastal Adaptations for a public training session. Survey results on best erosion-slowing methods reveal 46% favoring a combination of soft and hard barriers, 36% preferring soft barriers, and 11% endorsing hard barriers. 'Other' responses vary, both supporting and opposing hard barriers.

Staff Recommendations:

1. Implement a Universal Setback

Option 1: Establish a universal coastal horizontal setback of 50 metres, measured from the top of the bank adjacent to the water.

- A universal horizontal setback of 50 metres is largely based on a provincial assessment of the annual erosion rate of Hirtle's Beach derived from established erosion rates of 0.7 metres/year and projected across a 77-year timeframe. The setback will help to protect new development from the impacts of coastal erosion and ensure a safe distance from the coastal shoreline.

2. Allow Some Reductions to Setbacks

- Erosion rates can vary between areas, with some experiencing lower rates compared to Hirtle's Beach. To accommodate this, property owners would be permitted to engage a professional to demonstrate that a lower erosion rate exists and could build closer than 50 (option 1) or 30 (option 2) metres. Setback distances could be reduced, but only down to a minimum of 15 metres from the top of bank.

3. Vegetative Buffers:

- Require a 15-metre vegetative buffer from the top of bank to mitigate erosion, minimize the risk of flooding and allow for habitat protection. Natural barriers help stabilize the soil and absorb excess water, strengthening coastal resilience. An allowance for water access and

use calculated as a percentage of the total frontage (to a maximum amount) would be permitted.

4. Flexibility for Existing Developments

- Allow property owners with existing developments to expand beyond existing footprints, provided that the expansion is furthest from the erosion area.
- Property owners interested in relocating existing structures away from eroding banks should be supported. To allow this, obstacles like other development standards, including property line setbacks or even the minimum horizontal setback, might hinder such relocations. In such scenarios, hazard avoidance would be prioritized over regulations relating to community aesthetics.

5. Exemptions for Water-Related Uses and Activities

- Allow exemptions from horizontal setbacks to address specific cases, including minor vegetation clearance, recreational and scientific installations, safety structures, and buildings that rely on water access for their intended functionality. These exemptions would encompass a variety of water-related uses and activities, such as fish plants, boat construction, boat houses, piers, decks, marinas, and slipways.

6. Public Awareness and Education

- Raise public awareness about coastal erosion and the use of soft barriers like living shorelines. Living shorelines, made of natural materials such as plants, sand, or rock, promote ecosystem growth and resilience. Unlike hard structures, i.e., rock armouring, they support the growth of plants and animals, ensuring the long-term health of coastal ecosystems.

7 Conduct a 5-year Policy Review:

- Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.

Sensitive Coastal Ecosystems

Coastal ecosystems, including salt marshes, dunes, and beaches, form an interdependent and intricate system. Their sensitivity to development pressure is notable, as they collectively contribute to a multifaceted ecosystem. These environments provide essential functions such as coastal protection and serve as habitats for diverse plant and animal species. Nevertheless, human actions like development can disrupt wetland habitats and hinder their crucial ecological roles.

Possible Regulatory Tools

- **A Conservation Zone** could be established to prevent development on or near significant environmental features that are critical to the coastal ecosystem. This could include provincially identified wetlands, dunes, spits, and gravel beaches. For those wetlands not identified by the province already, NGOs such as Ducks Unlimited could be engaged to assist in evaluating and mapping them.
    - The Municipality of Argyle implemented a Coastal Wetlands (CW) Zone for specific activities in line with coastal habitat classifications. Additionally, the County of Kings, Region of Queen's Municipality, and Town of Mahone Bay have conservation zones to protect wetlands and preserve their ecological integrity.
- **A Horizontal Setback and Riparian Buffer** around wetlands could mitigate potential development impact on wetlands. Some municipalities have applied setbacks from wetlands instead of a conservation zone. For example, in the Municipality of Chester, setbacks of 20 metres apply to all water bodies, including wetlands. In the Municipality of Cumberland, a horizontal buffer of 30.5 metres is established along all wetlands.

Establishing Setbacks from Wetlands

Many regions provide varying recommendations for minimum vegetated buffer widths in municipal planning documents, ranging from 10 to 30 metres. Identifying the optimal buffer size for retaining runoff pollutants remains a challenge. Buffers within 20 to 30 metres have shown impressive nutrient and pollution reduction rates of around 80% to 90% (Dennison, 2022). Alberta and British Columbia both have a 30m vegetative buffers to protect waterbodies (Hoekstra & Hannam, 2017). Several municipalities in Nova Scotia established regulatory measures such as conservation zones or setbacks to protect wetlands and dunes.

What We Heard Report

The survey results revealed that 57% of all respondents and 56% of coastal property owners with existing infrastructure are extremely concerned about the potential loss of coastal environmental features like wetlands and dunes. Concern levels among vacant coastal property owners varied. Most respondents had a moderate to high understanding of the benefits of sensitive coastal ecosystems. Additionally, 84% expressed a strong value in protecting ecologically sensitive coastal areas (Appendix A, Question 11).

Beyond the survey, residents emphasized the significance of safeguarding coastal ecosystems to preserve natural beauty, essential habitats, erosion prevention, and water contamination filtration. Public engagement feedback outlined observed changes to coastal ecosystems, including sand loss, wetlands flooding, and disturbances from development.

Overall, 84% of survey respondents considered protecting sensitive areas a high priority. While 83% of property owners with existing infrastructure and 67% of vacant property owners shared this priority, opinions on the level of protection varied among vacant property owners.

Likewise, a significant portion of respondents, both overall (66%) and property owners with existing infrastructure (58%), believed a high level of regulation was suitable for coastal ecosystems. Vacant property owners displayed more diverse responses regarding the necessary level of protection.

Staff Recommendations:

1. Establish a 30 m Horizontal Setbacks for Coastal Wetlands

- Establish a 30-meter horizontal setback around protected and identified coastal wetlands.
- Utilizing a constraint overlay approach (vs. a zone approach) allows more flexibility when inaccuracies in mapping are identified. This approach would require property owners to engage a professional to show differences from mapping when they exist but avoids the lengthy process of zoning amendments.

2. Require Vegetative Buffers

- Vegetative buffers act as natural barriers, preserving critical biodiversity and maintaining the ecological balance of the coastal ecosystem.

3. Collaboration

- Continue partnerships with Ducks Unlimited Canada and other groups to scientifically identify and map coastal wetlands that are currently not covered by provincial mapping. This would aim to enhance the comprehensive understanding of coastal wetland ecosystems, facilitating informed decisions for their conservation and effective management.

4. Public Awareness and Education

- Launch public awareness campaigns to highlight the ecological importance of wetlands and dunes. Educating the community about their ecological services will foster appreciation and support for their preservation.

5. Conduct a 5-year Policy Review:

Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.

Options for Consideration:

The following options are for the Planning Advisory Committee to evaluate before providing their recommendations to the council.

Option 1 (Recommended): Proceed with all staff policy recommendations (see appendix I) to mitigate risks associated with coastal protection.

These policies are formulated following scientific data from governmental and non-governmental organizations. They conform with the coastal protection regulations applicable in neighbouring regions and establish a framework for managing coastal flooding, erosion, and the regulation of delicate coastal ecosystems, guided by coastal management best practices, with the primary aim of mitigating the risks associated with flooding and erosion while preserving the integrity of sensitive coastal ecosystems.

Option 2: Proceed with all staff recommendations except for:

Coastal Flooding:

- Apply a vertical elevation setback of 0-3.97m relative to CGVD 2013 in which institutional uses will be prohibited and residential uses will be permitted provided that the habitable space meets the elevation requirement by either building on higher ground elevating the habitable areas.
    - A vertical elevation setback is considered a best practice in coastal management to mitigate the impacts of coastal flooding on development. It is an approach all neighbouring municipalities and many local and provincial jurisdictions across Canada have used. However, the act of elevating residential structures in low-lying areas still needs to be improved. This approach carries inherent risks, including the need for evacuations during flooding events and potential damage to critical infrastructure such as wells and sewage treatment systems. Moreover, it perpetuates the reliance on coastal armouring practices, increases access-related challenges, and can potentially encroach upon vulnerable coastal ecosystems.
- Enable infilling to increase the elevation requirements and have an access route if it does not encroach on ecological sensitive areas.
- Non-conforming allowances: Enable the expansion of the footprint of existing, non-conforming uses, provided the expansion is at or above the elevation of the existing structure.

Coastal Erosion:

- Apply a 30m horizontal setback from top of bank to the main wall of a structure to mitigate coastal erosion. Enable exemptions for marine related uses.

The Region of Queens Municipality employs this approach. Nevertheless, a 30-meter horizontal setback may prove inadequate in specific areas where erosion rates exceed the protection afforded by such a setback. Consequently, Option 1 offers a broader setback to safeguard all coastal areas, including those vulnerable to higher erosion rates. Furthermore, it includes a provision that allows for reducing the setback distance. This reduction can be pursued by a study from a qualified professional justifying a reduced setback in areas with lower erosion rates.

Option 3:

No new regulations to address coastal protection.

- This option is not recommended due to the increasing severity of storms and rising sea levels, leading to heightened coastal flooding and erosion risks. Such conditions pose a significant threat to both development projects and the overall safety and well-being of residents in coastal areas.

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