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## **Special Planning Advisory Committee Meeting Agenda**

**Thursday, October 12, 2023 – 7:00 p.m.**

**MODL Council Chambers, 10 Allée Champlain Drive, Cookville NS**

**In Person and Via Audio and Video Conference**

- 1. Call To Order**
    - 1.1. Mi'kma'ki Territorial Acknowledgement
  - 2. Review of Procedure for Public to Address the Committee – Chairperson (below)**
  - 3. Approval of Agenda** (any other items to be added)
  - 4. Approval of Minutes of Thursday, June 22, 2023**
  - 5. Business Arising from Minutes**
  - 6. Planning Advisory Committee Matters**
    - 6.1. What We Heard Report and Staff Recommendations – Cluster Development..... 1-25
    - 6.2. What We Heard Report and Staff Recommendations – Coastal Protection ..... 26-92
  - 7. Added Items**
  - 8. In Camera**
  - 9. Next Meeting Date: Thursday, October 26, 2023**
  - 10. Adjournment**
- 

### **Procedure for Addressing the Committee**

An opportunity will be provided to all citizens to address the Committee on each agenda item shown on this agenda or added to the agenda by the Committee. Individuals who wish to address the Committee are asked to note the following:

- On each matter on the Committee's agenda, the Chair will seek public comment upon the completion of staff's presentation.
- Each person shall state their name.
- All statements and questions shall be directed to the Chairperson.
- Presentations shall be limited to 10 minutes. Persons wishing to address the Committee a second time will be given opportunity to do so once all others in attendance have had the opportunity to address the Committee. Persons addressing the Committee for a second time shall limit their presentations to 5 minutes.
- For those watching via Facebook Live if you have questions and/or comments please feel free to post those in the chat. Staff are monitoring the chat.

Anyone wishing to address the Committee on a matter not included on this agenda can have the matter added to the next meeting's agenda by contacting Jeff Merrill, Director of Planning, at 902-541-1340 or by email at [planning@modl.ca](mailto:planning@modl.ca)



## **Municipality of the District of Lunenburg Regulatory Report**

**Report to: PAC**

**Prepared by: Jacob Macpherson, Planner I**

**Date: October 12, 2023**

**Re: Cluster Development Regulation Report**

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### **Recommendation**

**That the Planning Advisory Committee respectfully recommend to Council that:**

**Council endorse the recommended cluster development regulation 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. Option 1 makes the following recommendations which are expanded upon in the report:**

- 1. Regulate Using the Site Plan Approval Process**
- 2. Establish Definitions and General Requirements**
- 3. Meet Private Roads Standards**
- 4. Demonstrate Adequate Servicing**
- 5. Demonstrate Environmental Impact**
- 6. Encourage the Development of Conservation Design Cluster Development**

### **Discussion**

The Municipality of the District of Lunenburg (MODL)'s Council directed staff to develop regulations for the construction of Cluster Developments in MODL.

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Cluster developments, sometimes called grouped or cluster dwellings, are a type of residential development where several detached and/or multiple-unit dwellings are located on the same property. The objective of the new regulations is to ensure that new cluster development projects follow standards that are appropriate to the size, configuration, and location of the proposed development. This report presents planning staff policy recommendations for cluster development in MODL, focusing on human safety, service capacity, and the natural environment.

## **Steps Completed**

### **Preparation of Background Report**

Staff compiled a comprehensive cluster development background report that analyzed municipal legislation for cluster development. The report looked at existing regulations for cluster development in Nova Scotian municipalities to explore what regulations in MODL might look like.

### **Public Engagement Campaign**

The Municipality pursued a variety of engagement methods to gather community input on matters related to cluster development while also increasing local awareness of the upcoming regulations. Advertising for the project itself was circulated through Facebook postings and radio ads. Feedback on the project was gathered through a three-question survey that received 137 responses. An open house was hosted in Cookville on July 10, 2023, and had more than 69 attendees.

### **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 cluster development. The feedback covers various aspects of cluster development regulations, including:

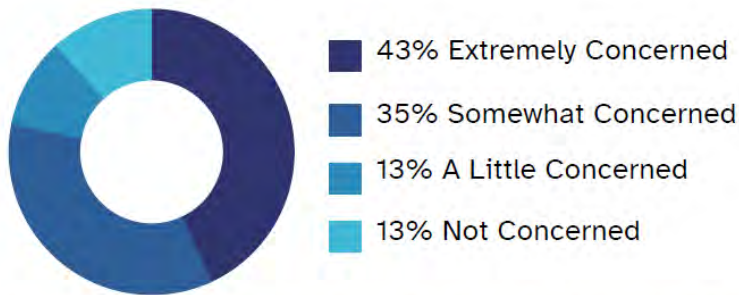
- road standards,
- servicing capacity,
- the environment,
- density, and
- the effect of new regulations on existing cluster developments.

The survey and open house were conducted to involve the community in the process of developing cluster development regulations, and the feedback received will serve as a valuable starting point for this project. The Cluster Development project commenced on June 2, 2023, and the Municipality is actively working on drafting the necessary regulations. The aim is to have these regulations in place and implemented by the end of 2023. The full Cluster Development WWHR can be found in Appendix A.

### **Survey**

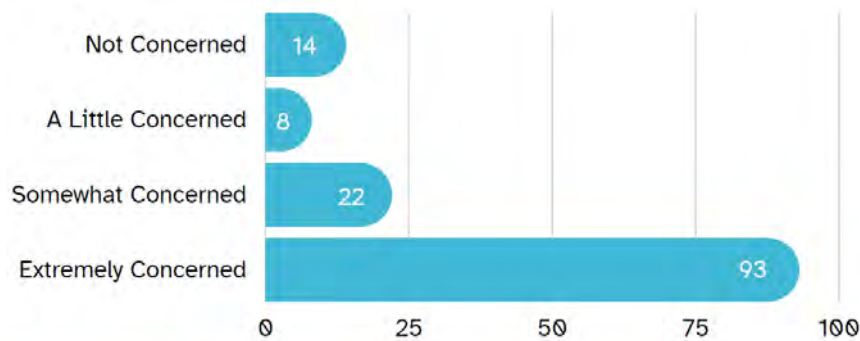
The survey, which received 137 responses, found an overall high level of concern for all listed aspects of cluster development. Of the respondents, 42% lived near a proposed or existing cluster development.

- The survey revealed that 43% of respondents were extremely concerned about **road construction and access** as an aspect of cluster development.



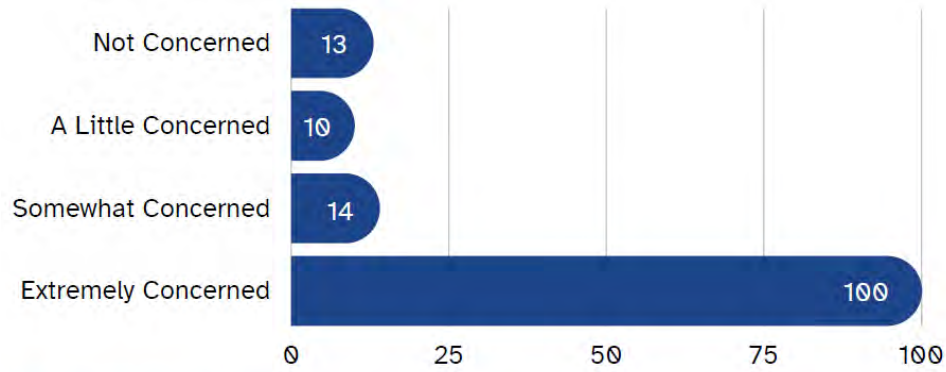
Concern for Road Construction/Access for Cluster Development (All Respondents)

- 68% of respondents were extremely concerned about the effect that cluster developments can have on **water quality and quantity** under MODL’s current regulations.



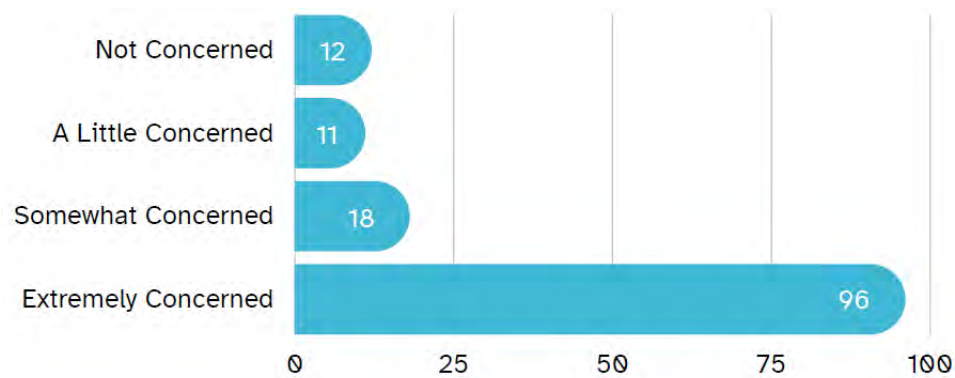
How concerned are you about the following aspects of cluster developments? - Water Quality and Quantity

- 73% of respondents were extremely concerned about **sewage treatment** as an aspect of cluster development.



How concerned are you about the following aspects of cluster developments? - Sewage treatment

- 70% of respondents were extremely concerned about **environmental impacts** from cluster developments in the municipality.



How concerned are you about the environmental impacts of cluster developments?

### Cluster Development Regulations

The primary objectives of these land use regulations are to prioritize human safety, ensure proper infrastructure standards, and preserve the natural environment against the potential impacts of development. The regulations aim to ensure that appropriate standards are applied to cluster developments while avoiding unnecessary requirements.

### Staff Recommendations

#### 1. Regulate Using the Site Plan Approval Process

The site plan approval process is a tool that enables the Municipality to establish additional criteria through the Land Use By-law where there are uses that require additional oversight or where there is a need to provide some flexibility in the ways land use controls are implemented. The approval itself could also deal with aspects such as locations of structures, vegetation, parking, access, lighting, and grading.

## **2. Establish Definitions and General Requirements**

In order to properly regulate cluster developments, a clear definition of what constitutes a cluster development is required. The definition will specify the types of building(s) that constitute a cluster development as well as the criteria that will trigger the need for a site plan approval. Staff are recommending that a Cluster Development be **defined as containing 5 or more units composed of two or more dwellings.**

## **3. Meet Private Roads Standards**

It is recommended that all new cluster developments be required to meet the municipality's private road design and construction standards, found in the existing subdivision by-law. These standards exist to ensure that emergency service vehicles have sufficient space to navigate and that vehicles can safely be driven out of the property in the event of an evacuation. It also helps ensure that the construction of these roads is done properly with the proper site preparation and road base to prolong the life and function of the road.

## **4. Demonstrate Adequate Servicing**

It is recommended that applicants demonstrate that their site can be properly serviced by water and wastewater treatment. For all defined cluster developments, the applicant would provide a servicing plan showing the layout of the site and associated wastewater systems in accordance with Nova Scotia Environment's on-site sewage technical guidelines. For cluster developments with 10 or more units or where known water quality and quantity issues exist, the application would be required to perform a hydrogeological assessment and conform to the guidelines set out in Nova Scotia Environment's groundwater assessment standards.

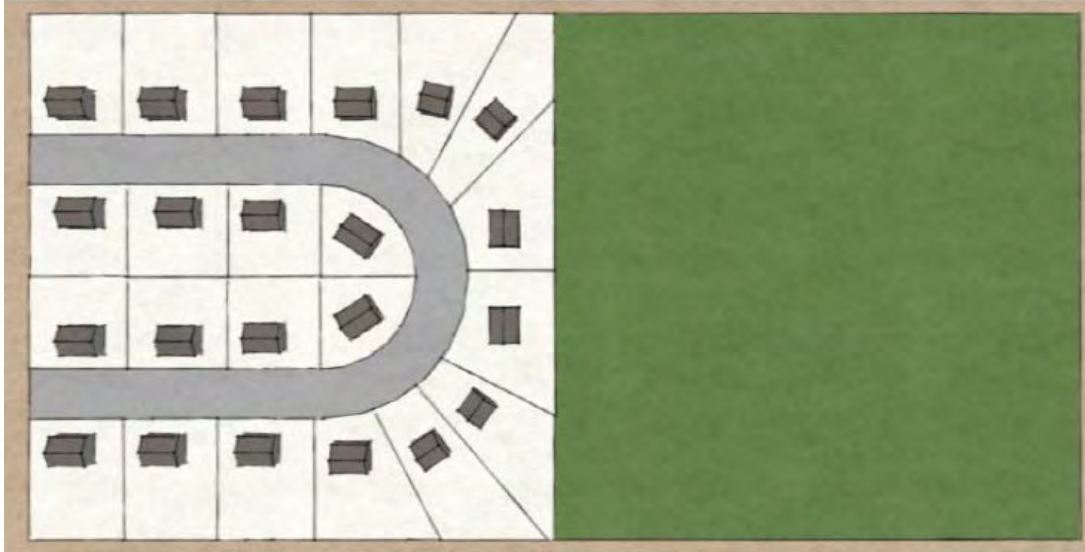
## **5. Demonstrate Environmental Impact**

Staff recommend that for cluster developments that contain 10 or more units, a development officer may require the applicant to demonstrate that the development would not cause unnecessary environmental harm.

## **6. Encourage the Development of Conservation Design Cluster Development**

Conservation Design Development is a form of residential subdivision designed to conserve open space in rural areas and protect environmental features. The basic principle of the design is to locate homes on the portion of the site best suited for development while retaining the remainder of the site as open space.

As part of these regulations, Council should consider the adoption of a policy to promote the goals of conservation design style cluster development as a means of meeting the requirements set out in the site plan approval process.



Example of Conservation Design Layout | Credit – Halifax Regional Municipality

## Options

### Option 1: Staff Recommended Option

This option entails implementing all six of staff’s recommendations. Implementing these recommendations will cause the cluster development model to no longer be a more permissive approach compared to a residential subdivision.

The recommendations require all new cluster developments, defined as five (5) or more dwelling units within two or more dwellings on one lot, to undergo a site plan approval process. This process is designed to ensure that road standards are in place to ensure human safety, that the scale of cluster development does not exceed its potential service capacity for the development and surrounding properties, and that no unnecessary environmental harm is being caused by cluster developments.

### Option 2: Do Not Implement Regulations

This option entails not implementing any of staff’s recommendations, meaning cluster development will continue to lack specific regulations in the Municipality. Substandard roads potentially resulting from a lack of regulation may not be able to accommodate emergency service vehicles or vehicles which must be safely driven out of the property in the event of an evacuation, posing a risk to human life. Additionally, the public engagement process indicated that the lack of regulation around cluster development has caused servicing capacity and environmental considerations to go unaddressed, which would continue if no regulations were implemented.

Report Preparation	
Department	Planning and Development
Report Prepared by	Jacob Macpherson, Planner I

<b>Report Approved by</b>	Reid Shepherd, Manager of Planning
<b>Date Reviewed by C.A.O.</b>	

## **Works Consulted**

Municipality of Chester. (2022). MPS and LUB. Retrieved from <https://chester.ca/government/plans-reports-and-strategies/municipal-planning-strategy>

Municipality of the County of Kings. (2020). MPS and LUB. Retrieved from <https://www.countyofkings.ca/residents/services/planning/>

Municipality of the District of Argyle. (2020). MPS and LUB. Retrieved from <https://www.munargyle.com/land-use-bylaw.html#:~:text=The%20Land%20Use%20Bylaw%20is,in%20making%20land%20use%20decisions>

Municipality of East Hants. (2016). Community Plan and LUB. Retrieved from <https://www.easthants.ca/government/municipal-departments/planning-development/development-control/2016-official-community-plan/>

Region of Queens Municipality (2022). MPS and LUB. Retrieved from <https://www.regionofqueens.com/municipal-services/planning/land-use-planning>



What We Heard Report

# Cluster Development

2023

# What We Heard Report – Cluster Development

Planning & Development Team



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## **01 Report Summary**

A 'What We Heard' Report serves as a critical stopping point to synthesize and reflect on all engagement received up to this point on the topic of Cluster Development. This report breaks down both how we engaged and what we heard from the engagement process, producing three broad themes:

### **Theme 1 – Servicing and Infrastructure**

Respondents to the survey and attendants to the open house both stressed that, regardless of what regulations are set in place, capacity for sewer and water should be front of mind when considering a proposed cluster development.

### **Theme 2 – Imposing Standards**

Attendants to the open house were concerned about the current low level of scrutiny applied to cluster developments, especially for the sake of the natural environment and for road standards intended to support emergency vehicles or allow for swift emergency evacuations. For those reasons, it was expressed that a special approvals process should consider these factors. However, it was also noted that some existing cluster developments are designed to maximize natural space and provide rural housing variety in MODL and that imposing standards should not hinder this kind of development.

### **Theme 3 – Effect on In-Progress Cluster Developments**

Because cluster developments are currently in various stages of completion in MODL, residents expressed interest in how new regulations for cluster developments would affect projects that have yet to be built.

## **02 Project Context**

The Municipality of the District of Lunenburg (MODL) is developing new rules that will guide how certain types of cluster developments occur across the municipality. This report outlines what we heard from community members from the July 10 Open House and survey. This project is an initiative of a larger planning project called MODL 2040, which aims to introduce municipal-wide planning within the Municipality.

Cluster developments, sometimes called grouped or cluster dwellings, are a type of residential development where several detached and/or multiple-unit dwellings are located on the same property. The new regulations are intended to put regulations in place that would apply the same level of scrutiny over cluster developments that already exist for developments that are created through the subdivision process. This could involve a limit to the number of dwellings that could be built on a lot without the need for a special approvals process. If a development involved more than this limit, a special approvals process in the form of a Site Plan Approval or Development Agreement could apply. During this approvals process, studies and plans could be required to demonstrate that certain municipal standards are met.

### **What Regulations Are Being Proposed?**

The Municipality is considering new regulations that would establish a limit to the number of dwellings that could be built on a lot without the need for a special approvals process. If a development involved more than this limit, a special approvals process in the form of a Site Plan Approval or Development Agreement would apply. In this scenario, the Municipality would use this process to evaluate the proposal and ensure that the development meets the same standards (environmental, infrastructure, etc.) that exist under the subdivision process. The proposed regulations would apply everywhere in the municipality. In areas where there are existing land use by-laws already in place, the most stringent of the regulations would apply.

### 03 How We Engaged

The Municipality used a variety of engagement methods to ensure that as many residents were as informed as possible and that everybody was given a chance to have their say. Covered within this section will be the content on the engagement website, the survey design and limitations, and the open house event.

#### Advertisement

The Municipality pursued a variety of engagement methods to gather community opinions on matters related to cluster development while also increasing local awareness of these upcoming regulations. Advertising for the project itself was circulated by social media through Facebook postings and through radio ads.



Snapshot of the Posting Made on the MODL Facebook Page

The purpose of using both forms of advertising was to ensure that the details of the open house were available in both physical and digital form.

## Survey

The purpose of the survey was to gather a broad sense of who in the Municipality is engaging with this topic, what their concerns about cluster development are, and what size of cluster development should occur in the Municipality before a special approvals process is triggered. The survey was posted on June 1 and ran for over three weeks until closing on July 24. The survey had three questions and received 137 total responses.

## Open House

The Open House Session was organized around a discussion period and a paper version of the online survey. The open house was hosted in Cookeville on July 10, opening with a staff presentation that outlined the basics of cluster developments, why regulations are being proposed, and how cluster developments might be regulated. The session ended with questions and comments from the community, synthesized in Section 04: 'What We Heard'.

## Engagement Website

The screenshot shows a webpage titled "Cluster Development Regulations" with a blue header and navigation links. The main content area includes social media icons, a "STAY INFORMED" subscription form, and a "Who's Listening" section featuring Jacob Macpherson and Reid Shepherd. At the bottom, there are two diagrams: "Cluster Development" showing a group of houses on a single lot, and "Subdivision" showing individual lots separated by a road.

Home / Cluster Development Regulations

### Cluster Development Regulations

[f](#) [t](#) [in](#) [e](#)

The Municipality of the District of Lunenburg (MODL) is developing new rules that will impact how certain types of cluster developments occur across the municipality. Cluster developments, which are sometimes called grouped dwellings or cluster dwellings, are a type of residential development where several detached and/or multiple-unit dwellings are located on the [same property](#).

On the ground, these developments can look and feel the same as a traditional subdivision, with individual houses located along an internal road. However, due to the lack of property lines within the development, they can also look different, with clusters of homes or other structures located close together on one portion of the property, while the remainder of the property is left in a natural state.

Ownership structures of cluster developments can vary. Some developments may be owned and maintained by a single individual or entity that rents out the units to tenants. In this case, the units and all associated infrastructure such as roads, parks, and wastewater facilities are maintained by the owner of the property.

Another ownership structure is through a condominium corporation in the form of a bare land condominium. A bare land condominium development typically involves individual dwellings located on individual "units" of land that are owned and maintained by individual owners, in the same manner that a condo unit in a large building is owned. However, associated infrastructure such as roads, parks, or wastewater facilities is typically owned and maintained collectively by all the owners of the units within the development through the condominium corporation. Similarly, these aspects of the development are comparable to the parts of a condominium building that are collectively owned and maintained such as the lobby or hallways.

#### Cluster Development

#### Subdivision

### STAY INFORMED

Subscribe for project updates

**Subscribe**

23 members of your community are following this project

#### Community Events

[Cluster Development Open House](#)  
**July 10 2023**

#### Who's Listening

**Jacob Macpherson**  
Planner  
Municipality of the District of Lunenburg  
Phone 902-530-2802  
Email [planning@modl.ca](mailto:planning@modl.ca)

**Reid Shepherd**  
Manager of Planning  
Municipality of the District of Lunenburg

Snapshot of the engagement website on engage.modl.ca

A webpage hosted on the [engage.modl.ca](http://engage.modl.ca) page was posted on June 5 to provide an easily accessible source of information about cluster developments, why regulations for these developments are being proposed, what regulations are being considered, where, and when these regulations would apply. Updates about the project, information on the open house event, and a link to the survey are also hosted on the website.

## 04 What We Heard

The feedback collected through the various forms of engagement for the Cluster Development project was analyzed and synthesized into this report by MODL planning staff. All feedback was considered, and a variety of perspectives are depicted throughout the report.

### Who we Heard From

Over 69 residents attended the open house event and were actively engaged in discussions related to cluster development. A total of 137 surveys were completed by community members, 58 of which identified themselves as living near an existing or proposed cluster development. Residents from more than 17 communities attended the open house. Among them, the largest number of attendants were identified as coming from the communities of Second Peninsula (36 people), LaHave (9 people), and Blockhouse (4 people).

137

Survey Respondents

69

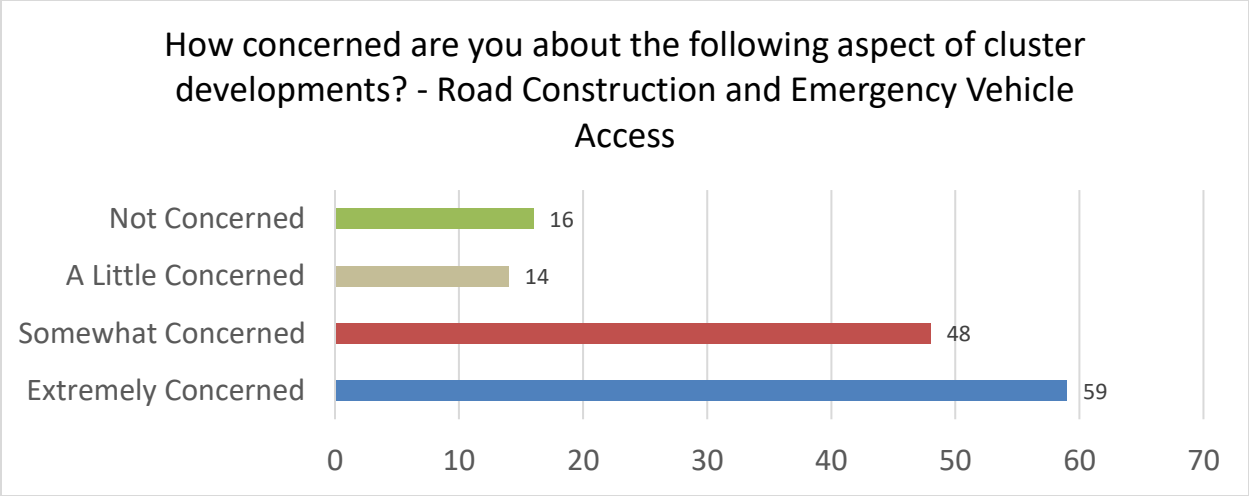
Open House Attendees

### Topics

#### Road Construction and Access

Attendants to the open house made a distinction that, while issues do exist in MODL surrounding cluster development standards, there are existing examples of developments that are well designed to make use of the cluster development model to provide housing and minimize environmental impacts. However, due to the lack of regulations currently in place for cluster developments in MODL, we heard that it is also possible for developers to design cluster developments with inadequate standards for roads and shared driveways. Concerns included the navigation of emergency vehicles along substandard roads and the quick evacuation of community members in the case of an emergency event.

Question 2 of the survey asked respondents how concerned they were about road construction and emergency vehicle access as an aspect of cluster developments. Out of 137 respondents, 107 selected either extremely or somewhat concerned.



**Response to Survey Question 2, Part 1 – Road Standards**

**Approvals Process**

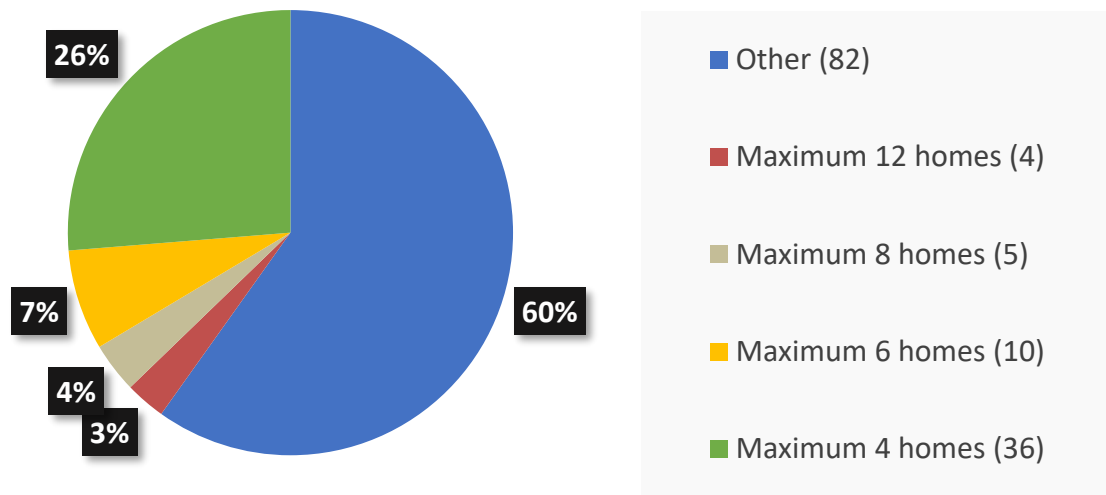
**Importance of Context**

To strike a balance between applying proper oversight on cluster development proposals while avoiding unnecessary steps in the development approval process, many municipalities regulate cluster developments by specifying a number of homes that can be built on one lot without going through an approvals process. This process could take the form of a development agreement between the Municipality and the developer, or a site-plan approval process. In both cases, the purpose of this approvals process is to ensure that the level of scrutiny that is applied to cluster development matches that of a traditional subdivision.

Many residents expressed that the trigger for an approvals process should be context dependent, as should the process itself. Different aspects of a land lot which could determine the approvals process were shared including the amount of available land to develop, the capacity of the land to provide adequate onsite water and wastewater treatment, and existing levels of housing density in the area.

The third survey question asked respondents to weigh in on what number of units could be proposed for a cluster development before an approvals process is triggered.

Many municipalities regulate cluster developments by limiting the number of homes (dwellings) that can be built on one lot without going through a special approvals process such as Site Plan Approval or a Development Agreement. In your view, what should be the maximum number of homes allowed on one lot without any special approvals?



### Response to Survey Question 3

The majority of responses to this question (82 out of 137) were 'Other'. Within those custom responses, twenty respondents expressed that the number of allowable units before an approvals process should depend on the size of the lot. Eleven responses suggested that the trigger for an approvals process be set between two and four units. In contrast to these lower suggested limits, others in this survey question and open house expressed that a low maximum of proposed homes could serve as a roadblock to the progress of important housing projects.

### Lack of Existing Regulations

During the open house, residents expressed concern that the current lack of regulations around cluster developments does not impose the same development standards that are normally imposed through the subdivision process. While the goal of this project is to implement regulations that apply the same level of scrutiny to subdivided units and cluster developments, residents were concerned that a new set of regulations could also potentially be bypassed in some cases. For instance, one resident raised that flag lots, which feature a long strip of land to act as a driveway, could be used to bypass road design standards set out in an approvals

process. Another concern shared was if the special approvals trigger could be ignored by continuously subdividing a lot such that each subdivision falls just under the requirement for a special approvals process.

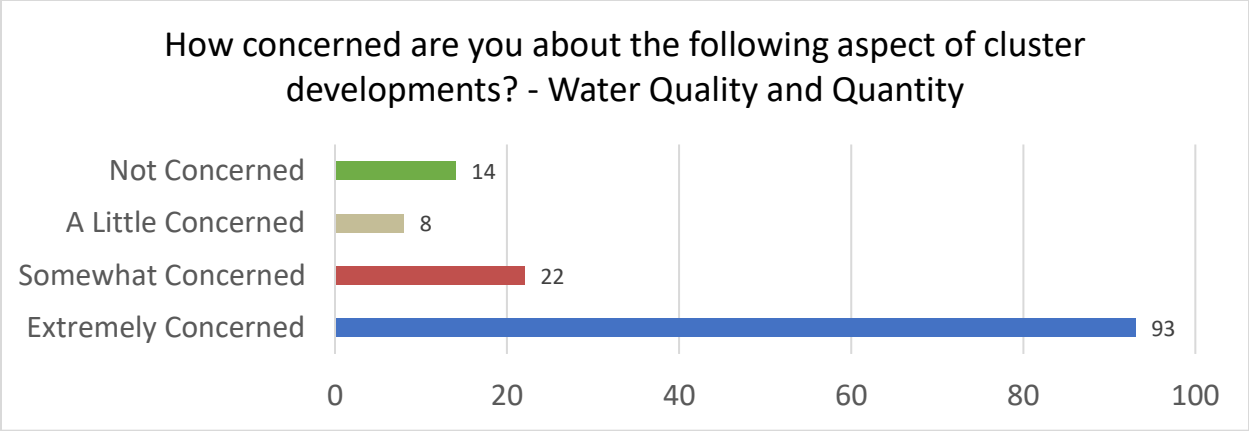
## **Density**

Attendants of the open house provided a mixed response regarding the ability of cluster developments to achieve higher levels of density compared to traditional subdivisions. A frequently raised concern gathered during the engagement process was that having too many buildings on one shared cluster development lot would result in a level of density too far beyond that which would be seen from a typical subdivision. This sentiment was heard during the open house in which residents raised that the increase in density for a cluster development compared to a traditional subdivision negatively affects the character of rural communities. However, some attendants added that the cluster development model could provide a greater variety of housing density in MODL. Residents commented on the potential of cluster developments designed to conserve existing natural space and provide additional housing options while doing so. In cases where developments are grouped together to make use of collective waste and water systems, the density of units found within the cluster developments are not necessarily tied to the size of the lot itself but instead to the amount of conserved natural space desired.

## **Servicing and Infrastructure**

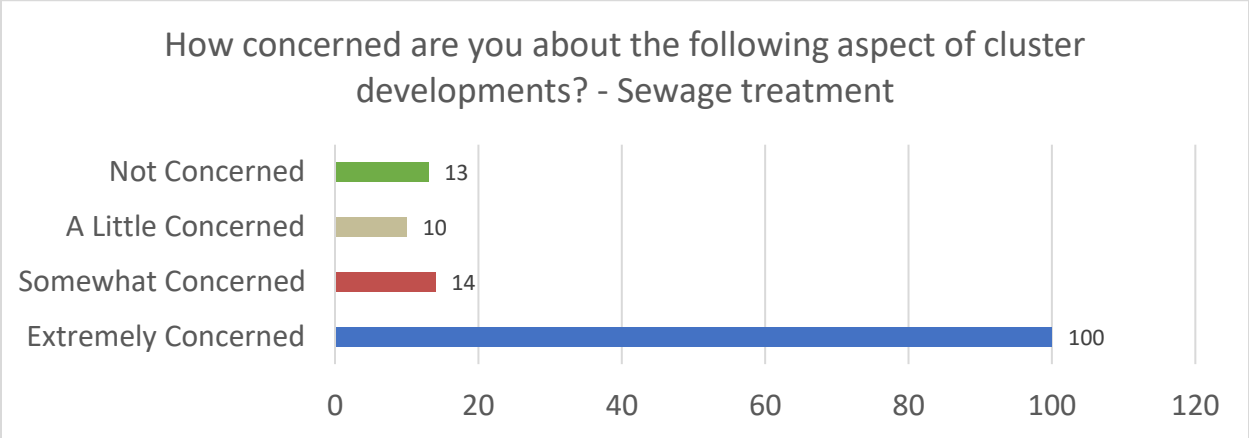
A specific concern expressed about the density enabled by cluster developments was that a high limit to the number of dwellings that can be built without special approvals should be contingent on the sewer and water capacity of the site. In other words, any cluster development must have the necessary capacity for sewer and water available regardless of what approval processes are set in place.

The second survey question asked respondents how concerned they were about water quality and quality as an aspect of cluster developments. Out of 137 responses, 115 chose somewhat or extremely concerned.



**Response to Survey Question 2, Part 2 – Water Quality and Quantity**

Similarly, 114 out of 137 responses answered that they were somewhat or extremely concerned about sewage treatment as an aspect of cluster development.



**Response to Survey Question 2, Part 3 – Sewage Treatment**

**Applying new cluster development standards to existing developments**

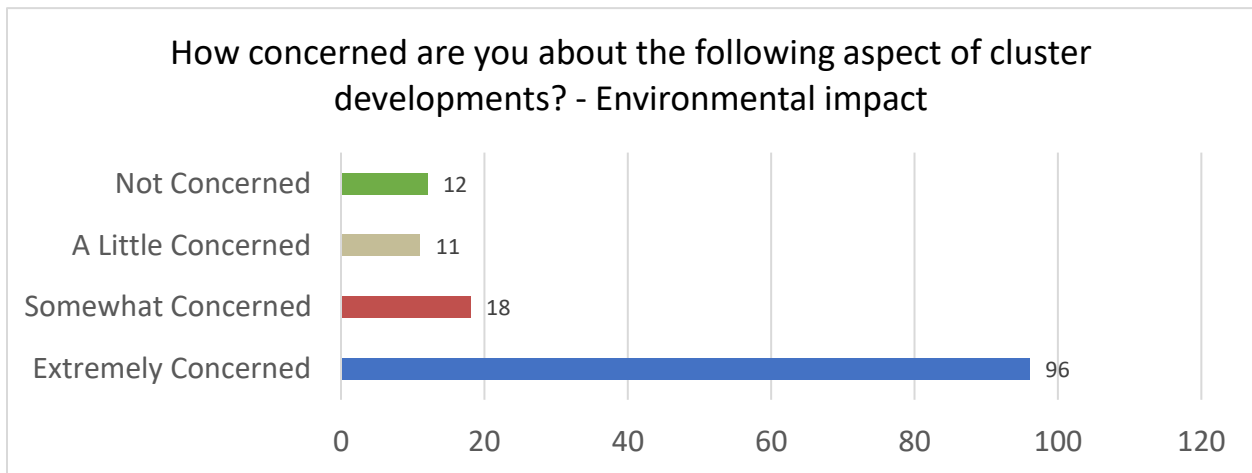
Due to cluster development projects in the Municipality that are in-progress, many residents expressed interest in how newly implemented regulations for cluster developments could affect the approvals process for developments that are already in progress.

Some residents expressed that, for some cluster developments in MODL, developers appear to be bypassing the standards set out in the subdivision by-law rather than make meaningful use of the cluster development model. Residents were interested to know if a condominium

corporation that had yet to submit building permits would be subject to a new special approvals process. It was also suggested to MODL Council members to request a moratorium be placed on new cluster developments until the regulations have been put in place, which is slated to occur at the end of 2023.

### **Environmental concerns and opportunities**

Some residents expressed concern about the potential environmental impact posed by cluster developments when proper regulations are not in effect. Out of 137 respondents, 114 stated that they were extremely concerned about the environmental impacts posed by cluster developments.



### **Response to Survey Question 2, Part 4 – Environmental Impact**

During the open house, residents noted that environmental impact served as the most significant differentiator between a well designed and poorly designed cluster development. On the side of caution, concerns over development in watershed areas led some to suggest that source water protection should feature as part of the special approvals process. On the positive side, some residents made note of the potential to use cluster development standards to conserve natural space by grouping buildings together and conserving the remaining natural space.

### **Next Steps**

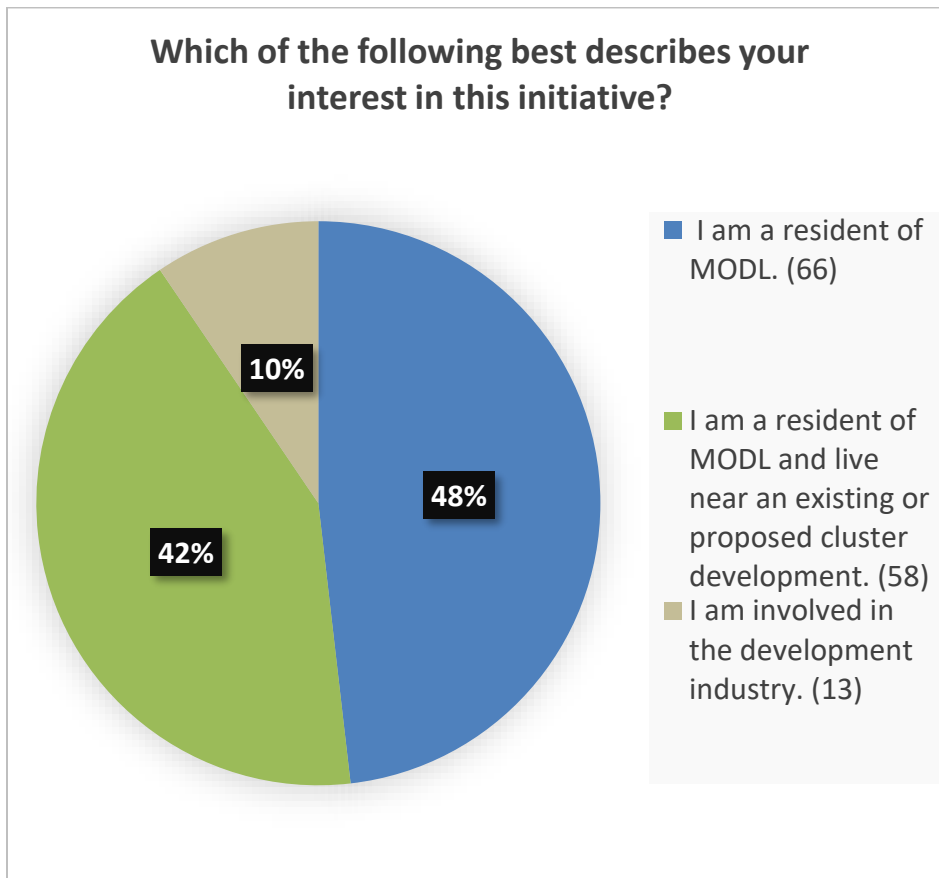
When the Cluster Development project What we Heard Report has been completed, staff will begin drafting recommendations on regulations that will go to Council for consideration and discussion in September 2023. Draft regulations will then be drafted for further public engagement in the Fall and adoption by Council by the end of 2023.

## Appendix

### Survey

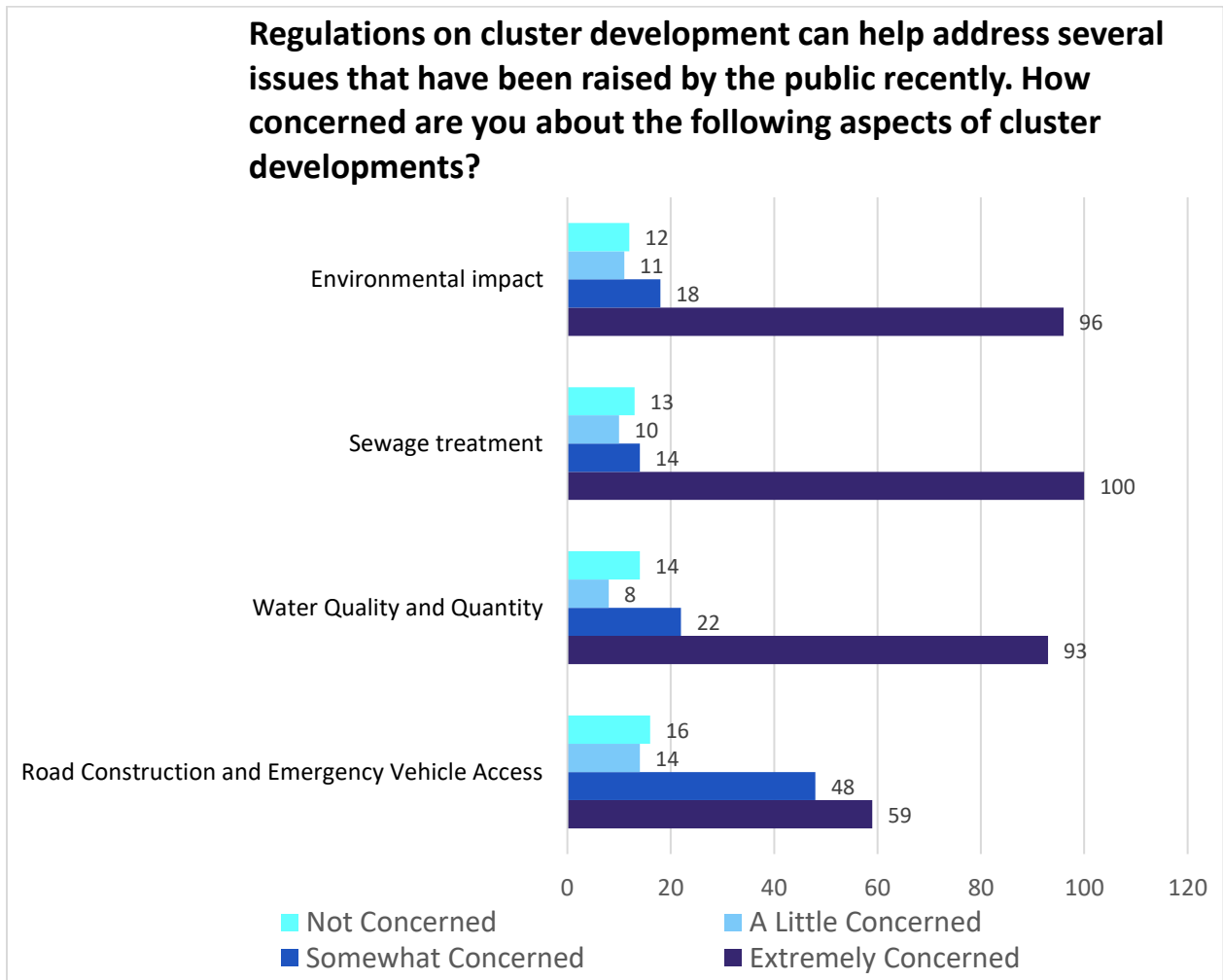
The following results are from a survey that was provided to residents both online and in person. In total, there were 137 respondents. The following section breaks down the results for each question and used in section 04: 'What we Heard.

#### Question 1



Question 1 gathers background information about the respondents to get a sense of the level of personal connection the respondents have to the way cluster development is treated in MODL.

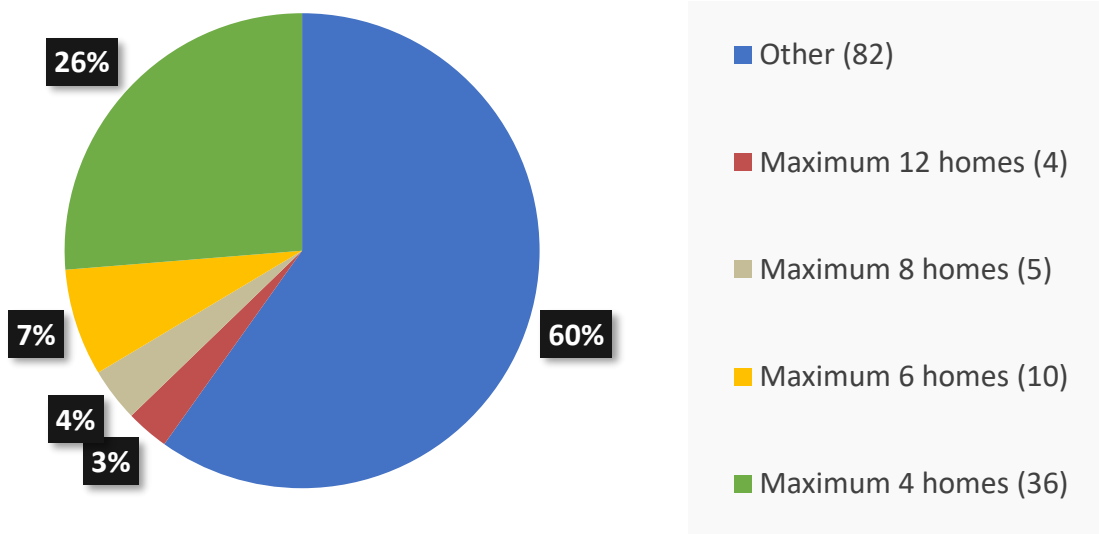
## Question 2



Question 2 considers the overall level of concern that respondents felt regarding different types of impacts that cluster developments can produce when proper standards have not been set.

### Question 3

Many municipalities regulate cluster developments by limiting the number of homes (dwellings) that can be built on one lot without going through a special approvals process such as Site Plan Approval or a Development Agreement. In your view, what should be the maximum number of homes allowed on one lot without any special approvals?



Question 3 asks the respondent to identify a limit to the number of dwellings that can be built on a lot before special oversight is applied.



## **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**

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### **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 (MODL)'s Council directed staff to develop coastal development land use regulations after the province indefinitely delayed the implementation of the Coastal Protection Act (CPA) regulations, initially scheduled for spring 2023.

The objective of the 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 other 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

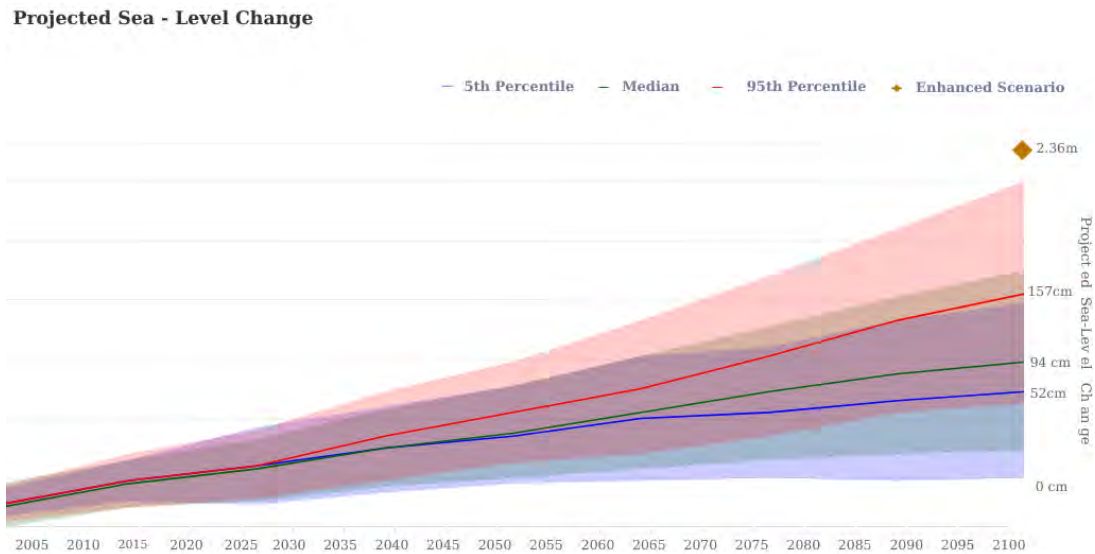


Figure 1: Projected SLR by 2100 using IPCC emission scenarios.

### 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 95<sup>th</sup> 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.
- Limit 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.
- Limit 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.

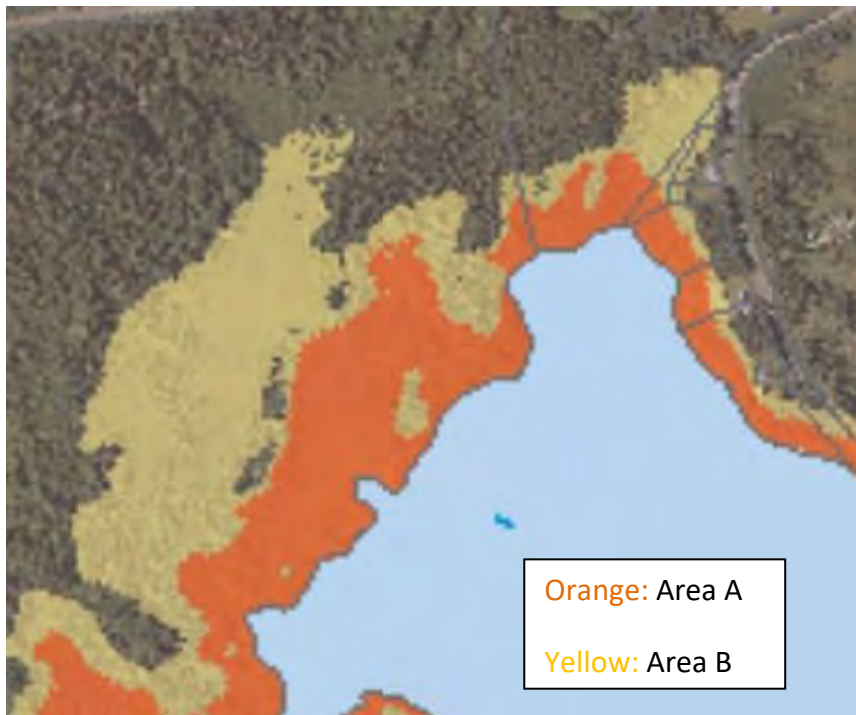


Figure 2: Two Zone Coastal Flooding Approach

### 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 armoring 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.

<b>Report Preparation</b>	
<b>Department</b>	Planning and Development Services
<b>Report Prepared by</b>	Ella R. Gindi, Planner I
<b>Report Approved by</b>	
<b>Date Reviewed by C.A.O.</b>	

## Appendix I

<b>Coastal Protection Policy Recommendations</b>	
<b>Coastal Flooding</b>	
1	<p>Utilize 1.57m Elevation Reference for Sea Level Rise:</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
2	<p>Employ a Two-Zone Coastal Flooding Approach</p> <p><b>Area A (Orange):</b> Coastal Inundation (0-2.34m)</p> <ul style="list-style-type: none"> <li>○ Limit Residential and Institutional Uses</li> <li>○ Limit Infilling</li> </ul> <p><b>Area B (Yellow):</b> Storm Surge (2.34m-3.97m)</p> <ul style="list-style-type: none"> <li>○ Limit Institutional Uses</li> </ul> <p style="text-align: center;">(Note: it was clarified that ‘limit’ indicates prohibit instead)</p>
3	<p>Specific Exemptions from vertical setback for:</p> <ul style="list-style-type: none"> <li>• Low-value accessory structures (i.e., sheds, decks, piers, boardwalks, gazebos, etc.).</li> <li>• Marine related activities</li> </ul>
4	<p>Non-conforming allowances</p> <ul style="list-style-type: none"> <li>• Permit non-conforming developments to undergo renovations, rebuilding, or relocation, as long as these actions do not result in increased floor space or further elevation reduction.</li> </ul>
5	<p>Flexibility for Existing Development</p> <ul style="list-style-type: none"> <li>• Encouraging the relocation of existing structures in coastal inundation risk areas.</li> </ul>
6	<p>Public Awareness &amp; Education</p> <ul style="list-style-type: none"> <li>• Introduce initiatives to raise public awareness about the new regulations and promote</li> </ul>

	education about coastal protection and the associated risks of coastal flooding.
7	<p>Conduct a 5-year Policy Review</p> <ul style="list-style-type: none"> <li>• Update in accordance with the latest climate change models and projections.</li> </ul>
<b>Coastal Erosion</b>	
8	<p>Implement a Universal Setback of 50m</p> <ul style="list-style-type: none"> <li>• A universal horizontal setback of 50 metres, measured from the top of the bank adjacent to the water.</li> </ul>
9	<p>Allow Setback Reduction</p> <ul style="list-style-type: none"> <li>• Engage a professional to demonstrate that a lower erosion rate exists and could build closer than 50 meters down to a minimum of 15m.</li> </ul>
10	<p>Vegetative Buffer Requirement</p> <ul style="list-style-type: none"> <li>• Enforce a 15m buffer from top bank.</li> </ul>
11	<p>Flexibility for Existing Developments</p> <ul style="list-style-type: none"> <li>• Allow property owners with existing developments to expand beyond existing footprints, provided that the expansion is furthest from the erosion area.</li> <li>• 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.</li> </ul>
12	<p>Exemptions for Water-Related Uses &amp; Activities</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>

13	<p>Public Awareness and Education</p> <ul style="list-style-type: none"> <li>● Raise public awareness about coastal erosion and the use of soft barriers like living shorelines.</li> </ul>
14	<p>Conduct a 5-year Policy Review</p> <ul style="list-style-type: none"> <li>● Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.</li> </ul>
<b>Sensitive Coastal Ecosystems</b>	
15	<p>Establish a 30m Horizontal Setback for Coastal Wetlands</p> <ul style="list-style-type: none"> <li>● Wetland Constraint Overlay Mapping <ul style="list-style-type: none"> <li>○ To manage ecologically sensitive areas by limiting development in these zones</li> </ul> </li> </ul>
16	<p>Require a Vegetative buffer.</p> <ul style="list-style-type: none"> <li>● Vegetative buffers act as natural barriers, preserving critical biodiversity and maintaining the ecological balance of the coastal ecosystem.</li> </ul>
17	<p>Collaboration with Environmental non-governmental organizations</p> <ul style="list-style-type: none"> <li>● Continue partnerships with Ducks Unlimited Canada and other groups to scientifically identify and map coastal wetlands that are currently not covered by provincial mapping.</li> </ul>
18	<p>Public Awareness &amp; Education</p> <ul style="list-style-type: none"> <li>● Launch public awareness campaigns to highlight the ecological importance of wetlands and dunes.</li> </ul>
19	<p>Conduct a 5-year Policy Review</p> <ul style="list-style-type: none"> <li>● Review the coastal protection regulations regularly and update them in accordance with the latest climate change models and projections.</li> </ul>



What We Heard Report

# Coastal Protection

2023

## **Coastal Protection What We Heard Report**

August, 2023

This What We Heard Report was completed by the Municipality of the District of Lunenburg's Planning & Development Services Department.



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# 01 Report Summary

In response to the indefinite delay of the province's Coastal Protection Act regulations, the Municipality of the District of Lunenburg (MODL) is developing new rules that will regulate how development occurs along our coast. The new regulations aim to prevent construction on the coast in areas that are vulnerable to coastal flooding and erosion, while also safeguarding coastal ecosystems, such as wetlands, from harm caused by development.

The Coastal Protection project is part of the broader MODL2040 project, a land use planning project with the end goal of establishing comprehensive municipal zoning and planning regulations throughout MODL. While the Coastal Protection regulations will be implemented separately, coastal development will ultimately be integrated into the final Municipal Planning Strategy and Land Use Bylaw under the MODL2040 project.

The Coastal Protection "What We Heard Report" summarizes the feedback that was collected from community members during the initial round of public engagement for the Coastal Protection project. The public was provided with extensive informational materials on Coastal Protection and was engaged through surveys, open houses, and various mapping activities. The data collected through public engagement will

help inform the creation of the coastal development regulations.

Information about the various engagement materials and events were distributed through newspaper and radio ads, social media posts, municipal newsletters, and the Coastal Protection project page on MODL's engage website. Fact sheets, FAQs, expert interviews, surveys, and an interactive map were made available on the website, with the option to receive project updates via email.

Seven open houses, both in-person and virtual, were conducted across MODL's communities. Residents engaged in discussions, contributed to maps, and completed surveys.

The online survey contained eighteen questions covering coastal erosion, sea level rise, and sensitive coastal ecosystems. A total of 369 individuals completed the survey between May and July 2023. The interactive map allowed residents to pinpoint areas prone to coastal flooding and erosion and to identify areas that have coastal ecosystems such as wetlands, beaches, and dunes.

Initial public engagement for the Coastal Protection project revealed concerns about coastal flooding, erosion, and the protection of coastal ecosystems. Many

respondents acknowledged the need for regulations on coastal development. Others voiced the desire for more public education materials and programming to help further the public's understanding of climate change, and the ways they can combat coastal flooding and erosion on their properties.

The public feedback also highlighted the importance of inter-governmental collaboration, public access to the coast, and the impacts of Recreational Vehicle (RV) parks and campgrounds on the coastline.

The next steps of the Coastal Protection project include:

- creating recommendations for future coastal development regulations (to be presented to Council in September 2023)
- drafting regulations;
- conducting further public engagement on the draft regulations in Fall 2023 and;
- obtaining Council's approval on the final regulations by the end of 2023.

The Coastal Protection regulations represent a step toward safeguarding MODL's coastal areas, ensuring community resilience, and preserving invaluable coastal ecosystems.



# 02 Introduction and Background

## Introduction

The Municipality of the District of Lunenburg (MODL) is developing new rules that will impact how development occurs along our coast. MODL's new regulations are intended to meet two primary objectives:

- **Protecting our communities from our coast: Keeping human activity away from the risks posed by coastal erosion and flooding.**
- **Protecting our coastline from us: Protecting our sensitive coastal ecosystems from the impacts of human activity and development.**

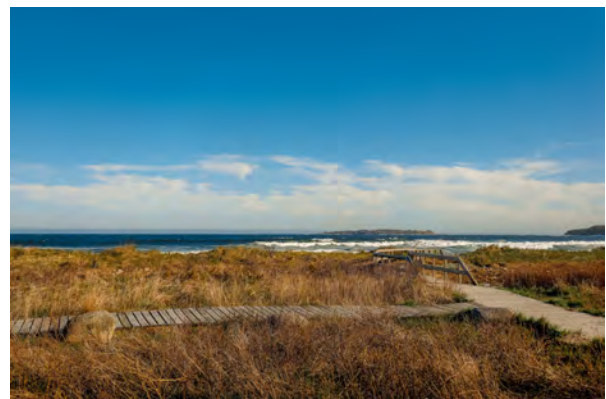
MODL's Council made the decision to take on the task of creating coastal development regulations after the province announced at the end of March 2023 that the implementation of the Coastal Protection Act (CPA) regulations would be delayed indefinitely.

The CPA regulations were originally intended to come into effect in the spring of 2023, but, as of the writing of this report, the regulations have not yet been implemented.

The Coastal Protection What We Heard Report (WWHR) outlines the feedback planning staff received from MODL community members on various topics related to coastal protection including coastal erosion, sea level rise, and coastal ecosystems.

Several methods of engagement including open houses, a survey, an interactive map, and informational materials were used throughout the first round of public engagement to inform the public on the key issues and to collect feedback. The feedback gathered will serve as a starting point as MODL begins making steps toward developing coastal regulations.

Work on the Coastal Protection project began in mid-April 2023, and municipal regulations are expected to be implemented by the end of 2023.



# Background

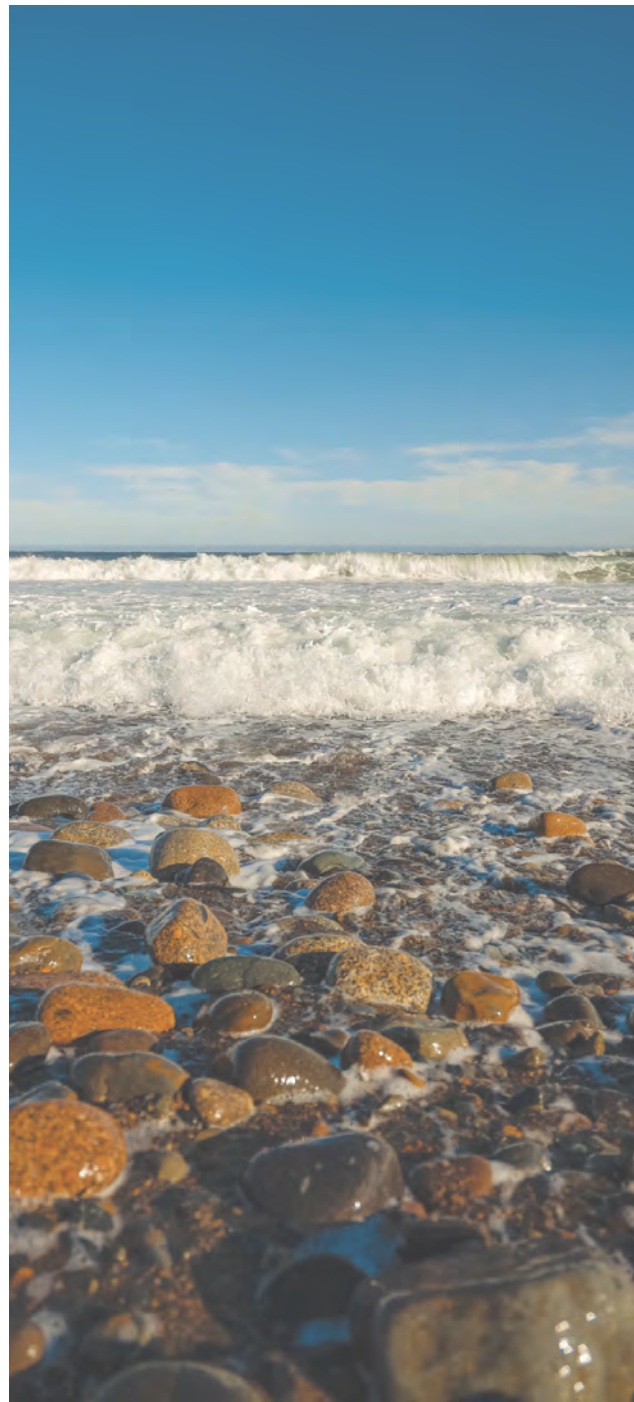
The Coastal Protection project is a part of the larger MODL2040 project which will introduce comprehensive zoning and planning regulations throughout MODL within the next couple years.

In 2018, the government of Nova Scotia mandated that all municipalities create and adopt comprehensive planning regulations that cover the entirety of the municipality.

Currently, MODL only has zoning and planning regulations in the form of Secondary Planning Strategies for the communities of Blockhouse, Hebbville, Hemford Forest, Oakland, Osprey Village, Princes Inlet, and Riverport.

The MODL2040 project will produce a Municipal Planning Strategy and Land Use Bylaw that addresses a variety of topics including the Statements of Provincial Interest which are Drinking Water, Flood Risk, Agricultural Land, Infrastructure, and Housing.

The Coastal Protection regulations will be implemented before the MODL2040 project is complete, but will ultimately be included within MODL's final Municipal Planning Strategy and Land Use Bylaw.



# 03 How We Engaged

## Purpose

A variety of engagement methods were used to try to ensure that as many people as possible had access to information about the Coastal Protection project, and that everyone was given a chance to provide input. The following section includes details about the content from the engagement website, the design and limitations of the survey, and the open house events.

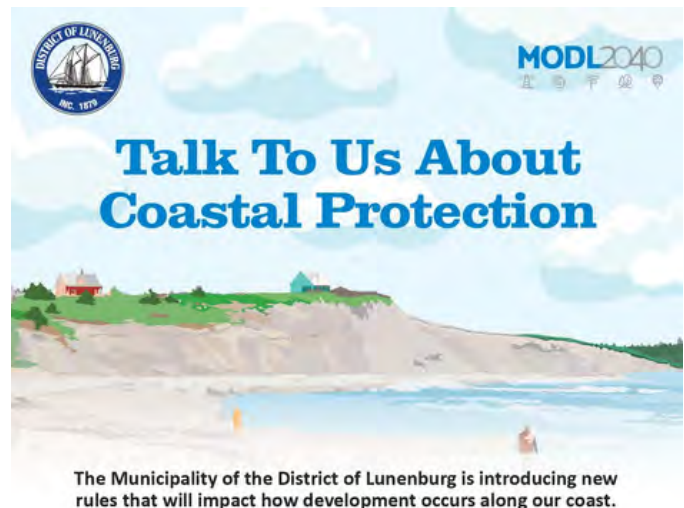
## Advertising

A combination of methods and materials were used to advertise the various events and informational materials related to the Coastal Protection project including:

- Postcards
- Newspaper ads
- Radio ads
- Social media
  - Facebook postings
- Engagement Website
- Newsletters
  - Municipal Matters

## Postcard

A postcard was sent to every household at the beginning of June to notify residents that public engagement on the topic of Coastal Protection was starting. The postcard included a link to the engagement website that contained informational materials for residents. Newspaper and radio ads were used to advertise the dates and times of the open house events. The Municipality's Facebook page was also used to advertise open house and workshop events as well as to share educational content created by staff for the public such as the fact sheets and expert interview series which are discussed in detail below.



Screenshot of postcard sent to all MODL residents.

# Engagement Website

The Coastal Protection project page, located on the engage MODL website, was launched at the end of May to provide residents with easily accessible information on Coastal Protection. Visitors to the page also had the option to enter their email to receive updates on the project as it progressed.

There were 2060 engage website visits between June and August 2023. The project page contained fact sheets, frequently asked questions (FAQ), dates for open houses and public workshops, an interactive map, and a survey.




Scan the QR code to visit the Coastal Protection page on the engage MODL website.



The Municipality of the District of Lunenburg (MODL) is developing new rules that will impact how development occurs along our coast. MODL has a responsibility to its residents and our environment to ensure that new homes, businesses, and other structures are not placed in areas that could be at risk of coastal flooding or erosion, while protecting our natural assets from potential harms caused by development. The new regulations are intended to meet two primary objectives:

1. **Protecting our communities from our coast:** Keeping human activity away from the risks posed by coastal erosion and flooding.
2. **Protecting our coastline from** [Continue reading](#)

NEWS FEED SURVEY MAP



**STAY INFORMED**  
Subscribe for project updates

[Subscribe](#)

129 members of your community are following this project

#### Community Events

Open House - Dayspring  
June 13 2023

Virtual Open House  
June 14 2023

Open House - LaHave  
June 14 2023

Open House - Blockhouse  
June 19 2023

Open House - Big Tancook Island  
June 20 2023

Open House - Cherry Hill  
June 21 2023

Open House - Riverport  
July 12 2023

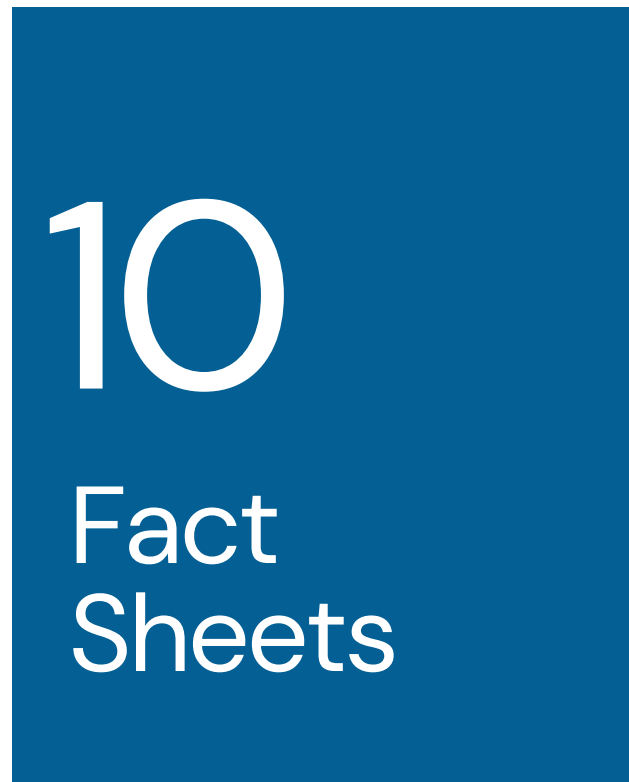
Free Public Workshop - Green Shores Level 1  
Training  
July 15 2023

Screenshot of Coastal Protection project page on MODL's engage website.

# Fact Sheets

Staff created ten fact sheets with Coastal Protection terminology that are helpful for understanding the topic of Coastal Protection. The information was paired with relevant pictures of locations in MODL or infographics. Terms that were covered by the fact sheets included:

- Coastal Erosion
- Sea Level Rise
- Horizontal Setbacks
- Vertical Elevation Setbacks
- Storm Surge
- Sensitive Coastal Ecosystems
- Living Shorelines
- Social Coastal Assets
- Land Subsidence
- Saltwater Intrusion



# Frequently Asked Questions

A FAQ section was created based on questions staff expected to receive from residents as well as comments gathered from members of the MODL community. The purpose of the FAQ section was to provide as much information to residents as possible so that they would feel informed before attending an open house, contributing to the interactive map, or filling out the survey.



# Expert Interview Series

On June 12, 2023, a two-part expert interview series was launched, focusing on coastal wetlands and flooding.

A Ducks Unlimited Conservation Program Specialist talked about the utilization of wetlands for long-term coastal protection, while a Dalhousie University School of Planning Professor discussed MODL's readiness for heightened coastal flooding and inundation.

The purpose of the interview series was to offer residents in-depth insights beyond municipal staff's capabilities, with the goal of increasing the public's understanding on the importance of coastal protection.



# Survey

The purpose of the survey was to gather public input on coastal erosion, sea level rise, and sensitive coastal ecosystems. It contained eighteen questions, with sixteen question being multiple-choice or Likert scale options and two questions being open-ended.

The survey was accessible online through MODL's engagement website, and paper copies were offered at the municipal office and open house events. Staff manually inputted any paper survey submissions that were received.

The survey ran for eight weeks, spanning from May 29 to July 23, 2023. In total, 369 individuals completed the survey. The results of both online and paper submissions are reflected in the content of this report.

Total  
Respondents

369

## Survey Limitations

The survey's limitations are acknowledged to address issues in design, distribution, and analysis.

### Time Limit

The survey was open for just eight weeks due to the expedited nature of the Coastal Protection project. Staff had a limited amount of time to both collect survey responses and to summarize the feedback into the What We Heard Report.

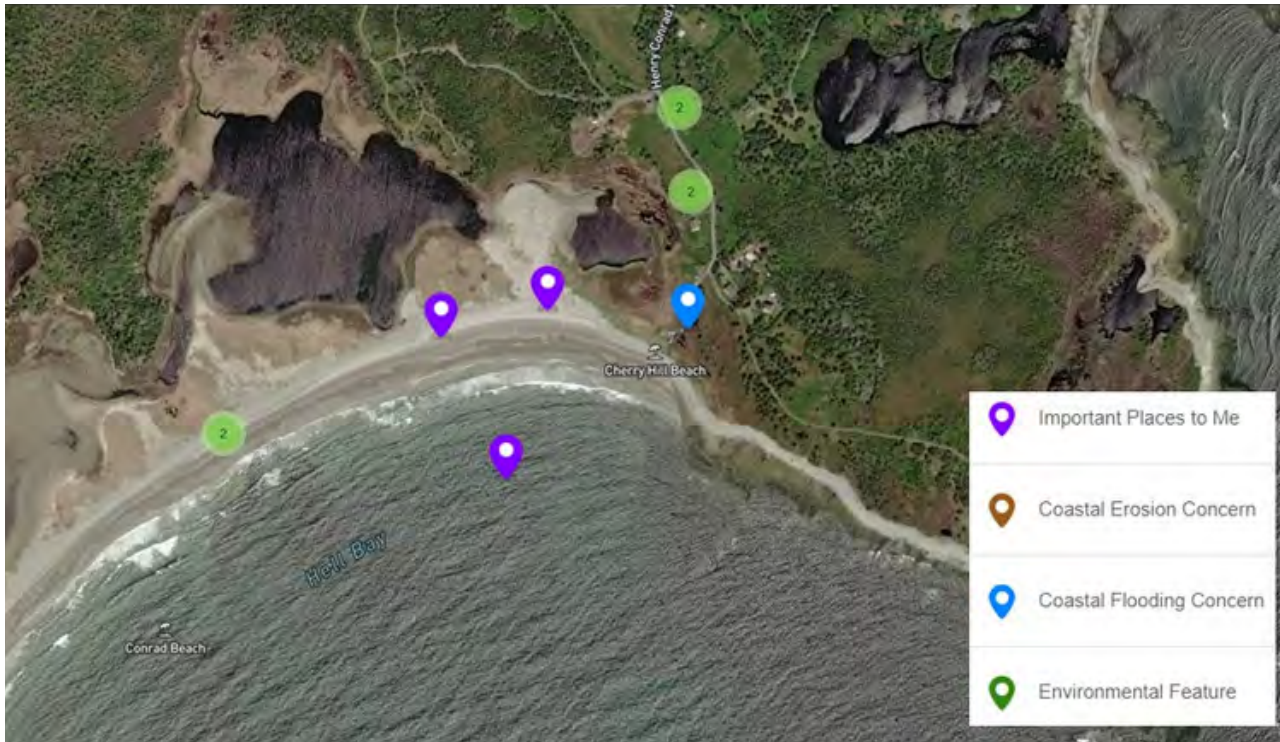
### Duplicate Survey Responses

Respondents were not required to register or create an account to take the Coastal Protection survey, which means there is a possibility that individuals could have submitted multiple surveys. Though the potential for repeated responses was possible, the ultimate goal of the survey was to reach as many people as possible and to avoid any barriers that might prevent people from participating.

### Data Analysis and Subjectivity Bias

Qualitative data analysis utilizes the best judgement of individuals to determine key themes. Subjectivity bias is noted as a potential limitation in this report because a single individual was tasked with creating themes from the data that was collected through the various methods of public engagement.

# Interactive Map



Screenshot of interactive online map from MODL's engage website.

The purpose of the interactive map was to provide an online option for residents to identify areas throughout MODL that experience coastal erosion and flooding as well as to indicate the location of beaches, dunes, wetlands, and other sensitive coastal ecosystems. Paper maps of MODL's coastal communities were also provided at the open house events for the same purposes.



# Open Houses

A total of seven open houses (six in-person, one virtual) were held throughout the months of June and July 2023. The in-person open houses were held in the communities of Dayspring, LaHave, Blockhouse, Big Tancook Island, Cherry Hill, and Riverport. The table below indicates the community and date where each open house took place as well as the number of recorded attendees. Staff had a sign-in sheet at the door of each of the in-person open houses and at least 240 people

signed in to the open house events.

Each open house began with an informational presentation from staff and concluded with a question and discussion period, and, for the in-person sessions, an interactive period that included a mapping activity, question board exercise, and the opportunity to fill out a paper version of the online survey.

	Community Name	Open House Date	# of Recorded Attendees
1.	Dayspring	June 13, 2023	29
2.	LaHave	June 14, 2023	28
3.	Virtual Open House	June 14, 2023	7
4.	Blockhouse	June 19, 2023	30
5.	Big Tancook Island	June 20, 2023	25
6.	Cherry Hill	June 21, 2023	57
7.	Riverport	July 12, 2023	64

Staff's presentation was intended to provide information on the basics of coastal protection and to outline the Municipality's objectives for the Coastal Protection project.

The question and discussion period provided residents with the opportunity to comment on the presentation, ask questions, and express any concerns that had not already been addressed.

The purpose of the mapping activity was to identify areas throughout MODL that experience coastal erosion and flooding as well as to indicate the location of beaches, dunes, wetlands, and other sensitive coastal ecosystems.

The question boards were used to gather information from residents about the coastal changes they are experiencing in their communities. Some residents also submitted general comments into a comment box.

**The following questions were included on the question boards:**

1. What changes are you seeing in your community related to coastal erosion, sea level rise, or coastal ecosystem?
2. What impact do you think these changes will have on your community in the future?
3. What do you think are some of the solutions to these changes?
4. Why do you think it is important to address these changes?



# 04 What We Heard

The feedback collected through the various forms of public engagement for the Coastal Protection project were thoroughly analyzed and synthesized into this report by MODL planning staff. All feedback was considered, and a variety of perspectives are depicted throughout the report. Any survey results including a percentage that are discussed within the report have been rounded up or down to the nearest digit. For exact survey results, please see the Appendix located at the end of the report. Graphs, maps, quotes, and pictures were used in the report to visually represent the public input that was received and to emphasize the different perspectives that exist on the topic of Coastal Protection.



## Who We Heard From

Over 240 residents attended the seven open house events held throughout June and July 2023. Many individuals also interacted with MODL's engagement website, including the online mapping tool which resulted in 42 points being added that identified areas throughout MODL that have been affected by either coastal flooding or erosion, or that contain sensitive coastal ecosystems.

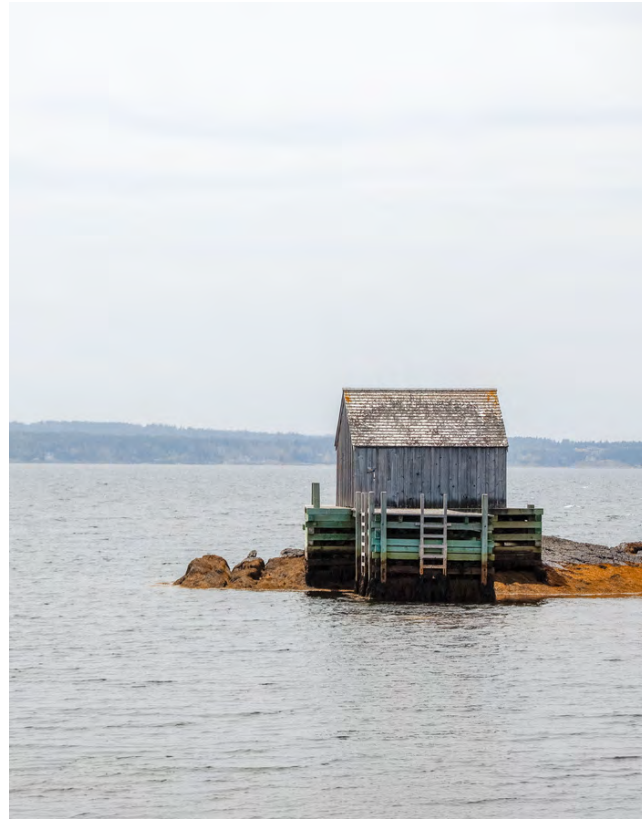
Furthermore, a total of 369 people completed the Coastal Protection survey. Of the 369 survey respondents, 206 (56%) indicated that they own coastal property. Out of those 206 coastal property owners, 173 (84%) stated that their property currently has a structure (house or other) on it while 33 (16%) indicated that their property is currently vacant.

There were some differences in the responses from coastal property owners that have structures on their properties and those with vacant properties. Notably, there was more variety in the responses from property owners with vacant properties which resulted in an overall lower level of concern and the desire for less strict regulations when compared to property owners with existing structures. The differentiation in results will be discussed throughout the following section.

# Within the Project Scope

The scope of the Coastal Protection project includes the topics of coastal flooding and sea level rise, coastal erosion, and coastal ecosystems, as well as the project objectives of protecting communities and protecting sensitive coastal areas.

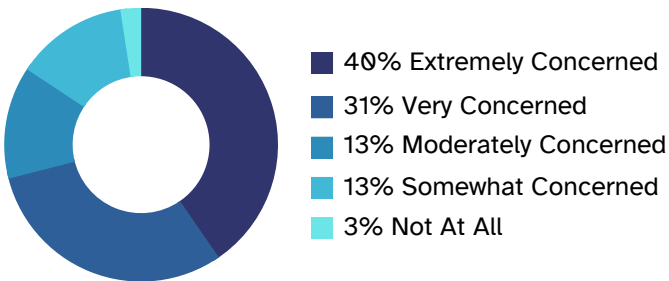
When asked if there is a need to regulate coastal development within MODL, 82% of survey respondents said yes. Please see the Appendix for a breakdown of the quantitative data collected through the Coastal Protection survey.



# Coastal Flooding

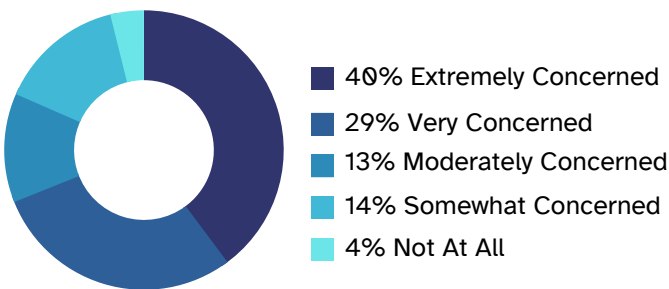
## Concern for Coastal Flooding

Out of all survey respondents, most indicated a high level of concern related to coastal flooding caused by sea level rise with 31% selecting very concerned and 40% selecting extremely concerned.



Concern for Coastal Flooding (All Respondents)

Responses from coastal property owners (both with structures and vacant) were similar when compared to the collective response for level of concern about coastal flooding.

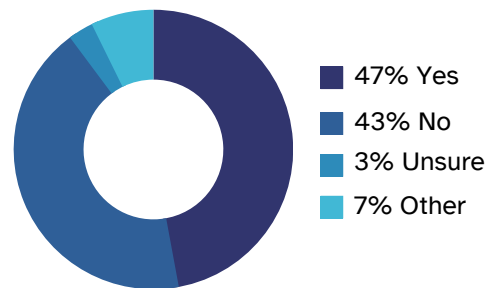


Concern for Coastal Flooding (All Waterfront Property Owners)

The level of concern indicated by coastal property owners with vacant properties appeared to be more varied, with 24% selecting extremely concerned, 21% selecting very concerned, 18% selecting moderately concerned, 31% selecting

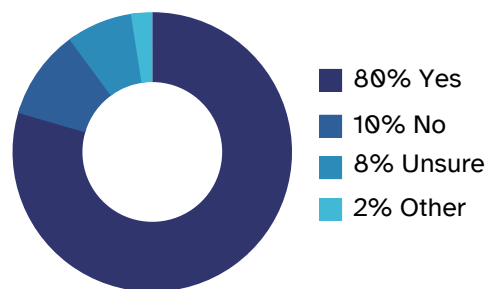
somewhat concerned, and 6% selecting not at all concerned.

When considering the responses from coastal property owners (both with structures and vacant), 47% felt that their property is currently being impacted by coastal flooding caused by storms, hurricanes, and other extreme weather events while 43% indicated that their property is not affected by coastal flooding.



Is your property currently being impacted by coastal flooding caused by storms, hurricanes, etc? (All Waterfront Property Owners)

However, 80% of all survey respondents indicated that coastal flooding affects other properties within their community.



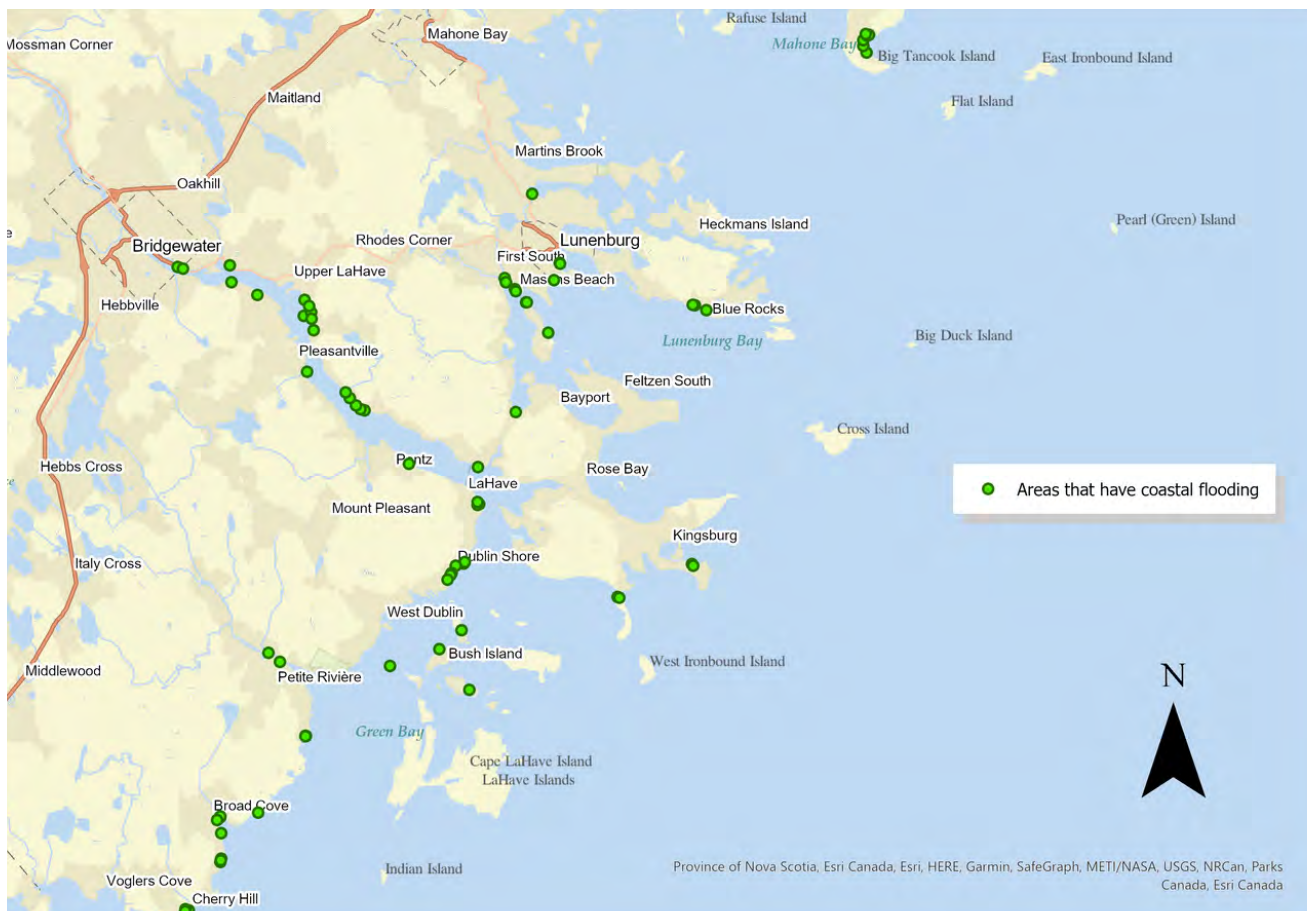
Do you believe coastal flooding impacts other properties in your community? (All Respondents)

**Feedback collected from public engagement indicated that residents are noticing the effects of coastal flooding in their communities including:**

- Roads flooding more regularly (especially after big storms).
- Development encroaching on the coast, reducing natural buffers to sea level rise and storm surge.
- Boardwalks being damaged more frequently.
- Sea level rise will change the current landscape of coastal communities.

## Interactive Map

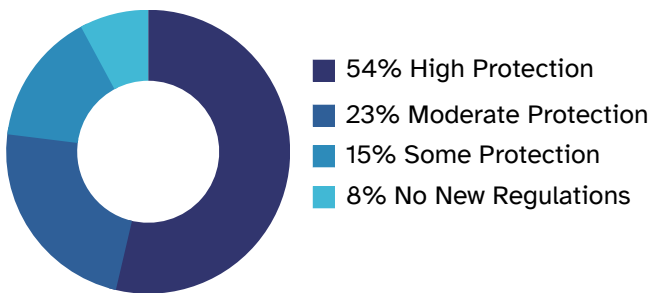
During the open house events, staff provided residents with large, printed maps to indicate areas at risk of coastal flooding using green stickers. Residents appeared to be most concerned about flooding along the LaHave River. The communities of Blue Rocks, Broad Cove, Cherry Hill, Corkums Island, Dublin Shore, and Petite Rivière were also identified by residents as areas that may experience some form of coastal flooding.



Map showing areas that experience coastal flooding in MODL identified by residents.

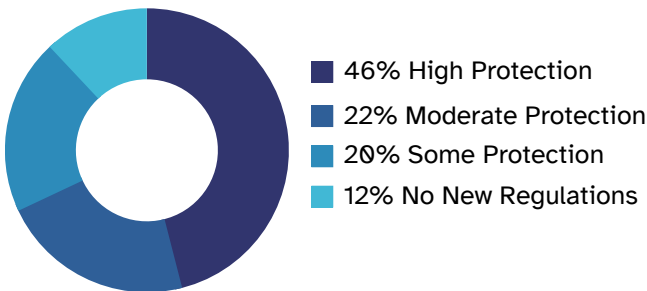
## Level of Protection

A common request within the community feedback was to implement “realistic regulations” for coastal development. The survey responses showed that 65% of all respondents believe that existing land use regulations do not provide adequate protection from coastal flooding (See Appendix, Question 8). When asked about the level of protection that would be appropriate, 54% selected a high level of protection, with a total of 77% indicating a preference for moderate to high level protection related to coastal flooding.



Level of Protection Against Coastal Flooding (All Respondents)

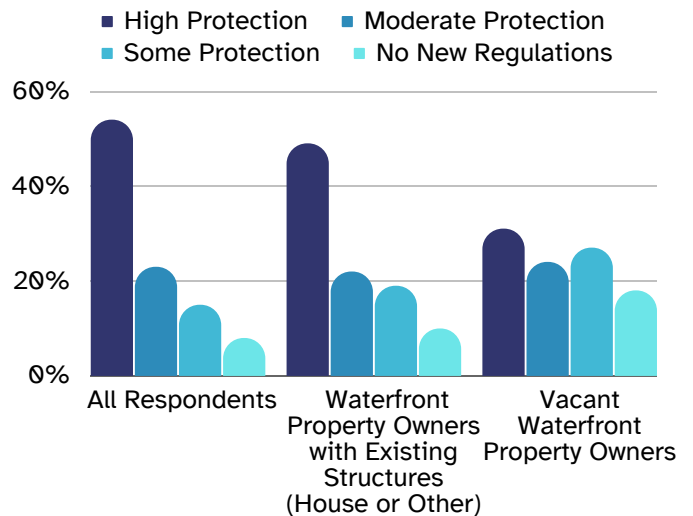
When responses from all coastal property owners (both with structures and vacant) were examined, the feedback was similar to the collective response.



Level of Protection Against Coastal Flooding (All Waterfront Property Owners)

Responses from coastal property owners with existing structures were similar to the collective of responses with 49% selecting high protection, 22% selecting moderate protection, 19% selecting some protection, and 10% selecting no new regulations.

Responses from coastal property owners with vacant properties were more varied with 31% selecting high protection, 24% selecting moderate protection, 27% selecting some protection, and 18% selecting no new regulations. The graph below compares responses from all respondents, coastal property owners with structures (house or other), and coastal property owners with vacant properties.



Level of Protection Against Coastal Flooding (Respondent Comparison)

Vertical elevation and horizontal setbacks were discussed as methods for combatting both sea level rise and coastal erosion. If setbacks were included as part of MODL's coastal development regulations, the setback distances would be based on both projected sea level rise and the lifespan of a typical structure, which is usually about 100 years. Many survey respondents indicated support for development-related setbacks and other alternatives within their feedback.

**“Definitive setbacks and clear acceptance of known and unknown risks and costs by developers.”**

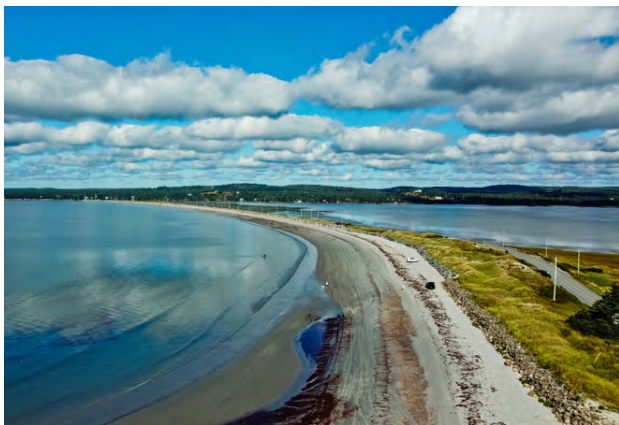
(Anonymous Respondent)

**“Make substantial vertical and horizontal setbacks mandatory.”**

(Anonymous Respondent)

**“I heard about setbacks and elevation for addressing this, are there any other ways of building on the coast like stilts? There are some properties that won't be able to be built upon if the setbacks are too wide.”**

(Anonymous Respondent)



However, some survey respondents, and residents who spoke directly with staff, were concerned about the effect that vertical and horizontal setbacks would have on property value and insurance coverage/rates.

A common anecdote heard throughout the public engagement period was that people had purchased coastal property as a retirement investment or for their family to build on in the future.

Many worried that large setbacks would make their property undevelopable, or, that if their property was shown to be susceptible to coastal flooding, that they would be denied insurance coverage, or their insurance rate would increase. Some indicated that education on climate change is needed for people to better understand the risks.

**“We have worked hard to own our property and wish for it to remain in our family for many generations moving forward. Strict and restrictive rules will affect our property value and possibly increase insurance rates and insurability.”**

(Anonymous Respondent)

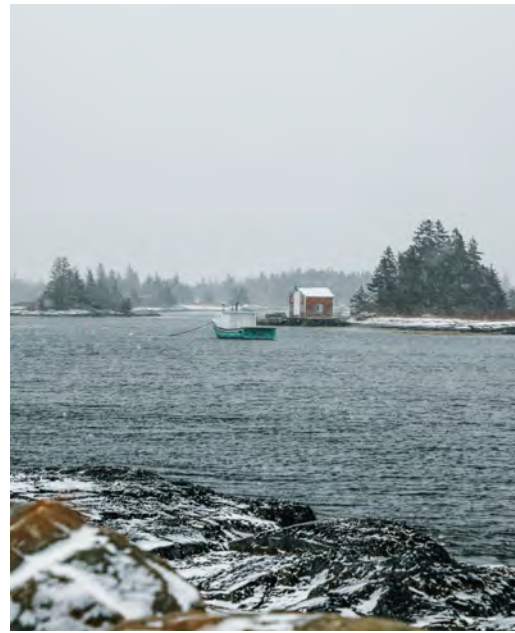
**“Impacts on property values may be significant for some, however the potential longer-term costs may be higher. Finding that right balance is difficult - but education is a must to allow everyone to make better informed decisions.”**

(Anonymous Respondent)

Others stated that current regulations were sufficient and that no more regulations were needed, or that there are already too many rules for coastal property owners.

**"Instead of regulations limiting development, let people use their property. Make it clear that people have to pay insurance and cover own risks if they are impacted rather than making government rules."**

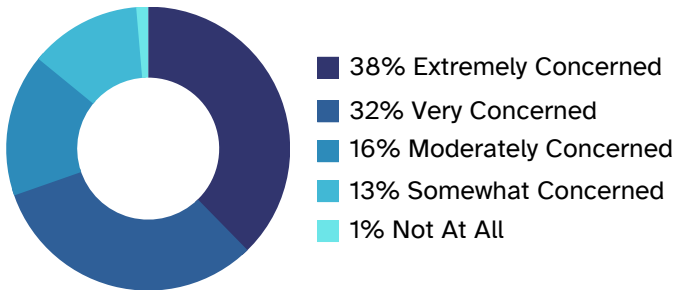
(Anonymous Respondent)



# Coastal Erosion

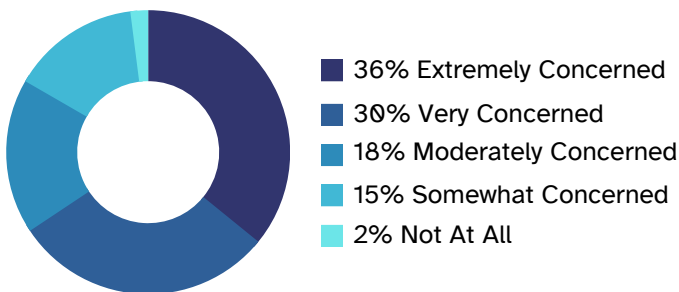
## Concern for Coastal Erosion

Out of all survey respondents, 32% indicated they are very concerned about coastal erosion and 38% indicated that they are extremely concerned about coastal erosion.



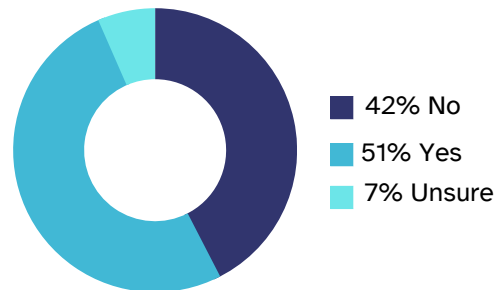
Concern for Coastal Erosion (All Respondents)

Like coastal flooding, when responses from coastal property owners (both with structures and vacant) were compared to all survey responses, the percentages were similar with 30% indicating that they are very concerned and 36% indicating that they are extremely concerned about coastal erosion.



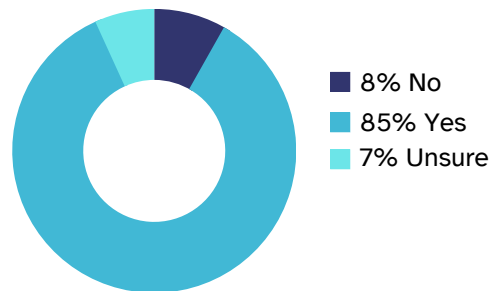
Concern for Coastal Erosion (All Waterfront Property Owners)

When asked about their personal experience with coastal erosion, 51% of coastal property owners indicated that their property has been affected while 42% indicated that their property has not been affected and 7% indicated they were unsure.



Is your property currently experiencing the effects of Coastal Erosion (All Waterfront Property Owners)

However, out of all survey respondents, 85% indicated that they have noticed coastal erosion affecting other properties within their communities.



Do you believe that erosion impacts other properties within your community? (All Respondents)

**Feedback collected from public engagement indicated that residents are noticing the effects of coastal erosion in their communities including:**

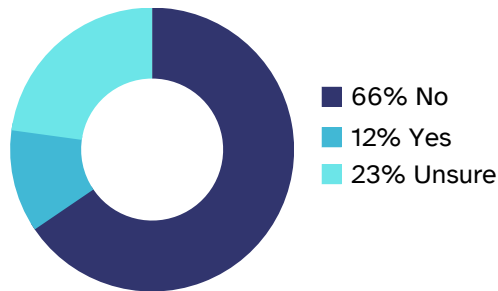
- Eroded vegetation along shorelines and changing landscapes.
- Erosion near shoreline development.
- Rocks being pushed back on beaches.
- Damage to roads.
- More rock wall installations.





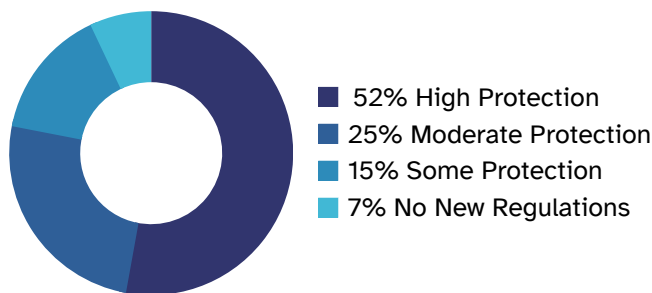
## Level of Protection

Approximately 66% of all survey respondents indicated that current regulations are insufficient for protecting coastal properties from erosion.



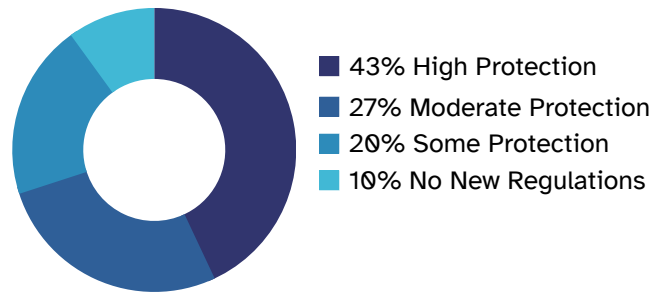
Do existing land use regulations provide appropriate protection from Coastal Erosion? (All Respondents)

When asked about the level of regulations that would be appropriate, most respondents indicated a need for moderate to high regulations to combat coastal erosion.



Level of protection against Coastal Erosion (All Respondents)

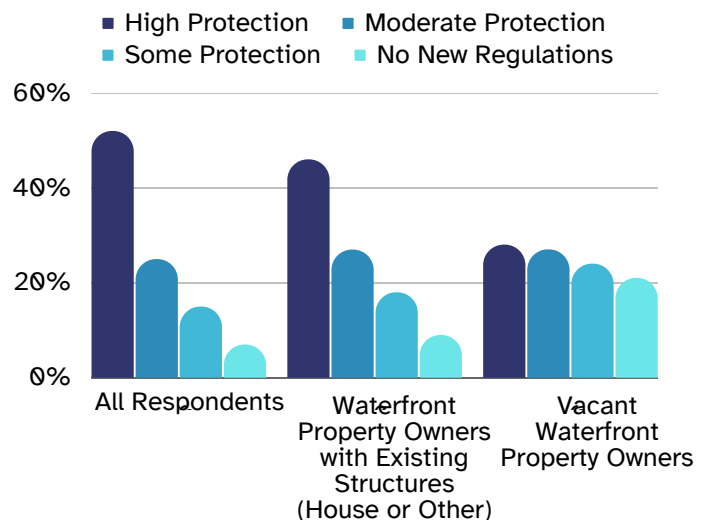
When responses from all coastal property owners (both with structures and vacant) were examined, the feedback collected was similar to the collective of responses.



Level of Protection Against Coastal Erosion (All Waterfront Property Owners)

Coastal property owners with existing infrastructure more often indicated the desire for a high level of protection. When asked about coastal erosion, with 46% selecting high protection, 27% selecting moderate protection, 18% selecting some protection, and 9% selecting no new regulations.

The preferences of vacant waterfront property owners were more varied with 28% selecting high protection, 27% selecting moderate protection, 24% selecting some protection, and 21% selecting no new regulations. The graph below compares feedback from the different types of respondents.



Level of Protection Against Coastal Erosion (Respondent Comparison)

The variation in responses to the survey questions emphasized how nuanced coastal protection is as an issue.

The responses were again varied when respondents were asked about the possibility of regulating hard barriers such as rock armouring and sea walls.

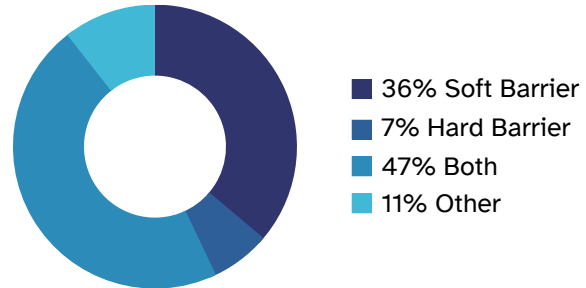
Going into the Coastal Protection public engagement, the Municipality aimed to spread information about the different types of barriers that can help property owners combat erosion, specifically living shorelines.

Materials about living shorelines were provided on the engagement website and MODL also partnered with a local organization, TransCoastal Adaptations, to deliver a free, public training session on living shorelines and the benefits they can provide coastal property owners.

One survey question asked respondents to select the option that they perceived as being the best for slowing down erosion from a variety of options including hard barriers (rock armouring or sea walls), soft barriers (vegetative buffers, living shorelines), a combination of both types, or an 'Other' option where respondents could provide insight into their selection or offer alternatives to the provided options.

Most respondents, 46%, selected the combination of soft and hard barriers option.

The soft barriers option was selected by 36% of respondents, and 7% indicated that they perceived hard barriers to be the most effective option.



What option would best protect the coast? (All Respondents)

From the 'Other' category, respondents shared a variety of responses both in support and in opposition to hard barriers.

Some commented on the need for more information to be able to decide, or suggested the need for experts to determine what the best option is on a case-by-case basis. Other respondents indicated that hard barriers are sometimes the only option or are appropriate in certain scenarios.

Many survey respondents understood the negative effects sea walls can have and indicated that the reason they believe a property owner may choose a hard barrier, such as a sea wall, over a soft barrier, such as a living shoreline, is due to a lack of education and awareness on the types of shoreline barriers. Several people echoed the need for more public education and

awareness on both sea walls and living shorelines.

**"Knowing what we know about sea level rise, it is important that significant setbacks be put in place as soon as possible. Hard armoring our beaches is a practice that is not beneficial - we now know better - now is the time to do better."**

(Anonymous Respondent)

**"Need for better visual resources to help property owners understand importance of natural processes for the health of coastal ecosystems and costs and benefits to different approaches for mitigating coastal erosion and flooding."**

(Anonymous Respondent)

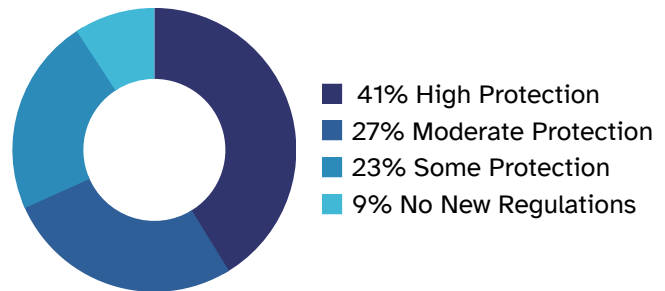
**"Provide ideas to help homeowners prevent erosion - what materials, plants are best. Also what kind of hard landscaping is allowed?"**

(Anonymous Respondent)

Other popular responses for why someone might choose a sea wall included the perceived high relative cost of implementing living shorelines, the lack of funding opportunities for living shorelines, and the perceived lack of effectiveness for living shorelines to prevent erosion (See Appendix, Question 13).

Out of all respondents, responses were varied when it came to the level of protection appropriate for regulating shoreline armoring with 41% selecting

high protection, 27% selecting moderate protection, 23% selecting some protection, and 9% selecting no new regulations.



Level of protection for Shoreline Armoring and Protection

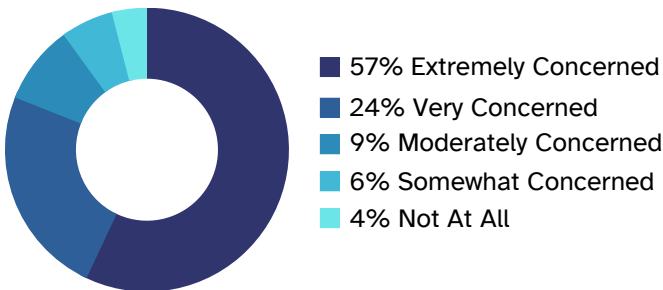
Like the coastal flooding responses, most people were in favour of realistic regulations to combat coastal erosion. Horizontal setbacks for coastal development were discussed as one method that could be used to combat erosion along the coast.

As mentioned previously, there was support for setbacks to protect both people and the coast. The suggestion of horizontal setbacks raised similar concerns around property values and insurance coverage as the vertical elevation setbacks for sea level rise.

# Sensitive Coastal Ecosystems

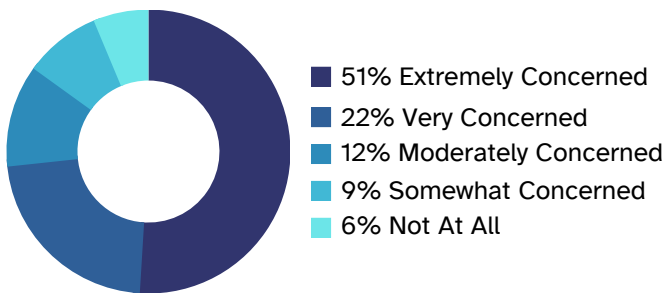
## Concern for Coastal Ecosystems

Out of all survey respondents, 24% are very concerned and 57% are extremely concerned about losing coastal environmental features such as wetlands, dunes, and beaches.



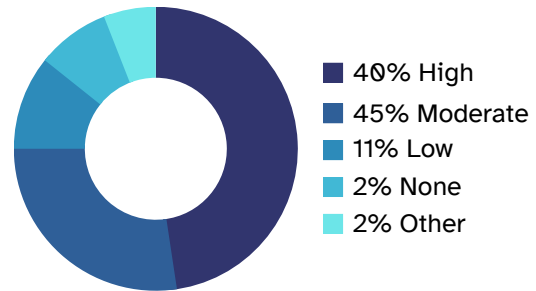
Concern for Loss of Sensitive Coastal Ecosystems (All Respondents)

When comparing responses from coastal property owners to the collective of responses, the numbers are similar with 22% indicating they are very concerned and 51% indicating extreme concern.



Concern for Loss of Sensitive Coastal Ecosystems (All Waterfront Property Owners)

Out of all survey respondents, most ranked their understanding of the benefits associated with sensitive coastal ecosystems as moderate to high.



What is your understanding of the benefits associated with Sensitive Coastal Ecosystems? (All Respondents)

Outside of the survey, many residents expressed the importance of protecting coastal ecosystems, not only to maintain the beauty of MODL’s natural landscape, but also to preserve important habitats, prevent erosion, and filter contaminants from water bodies.

### Feedback collected from public engagement indicated that residents are noticing changes to coastal ecosystems including:

- Sand loss and erosion.
- Wetlands flooding.
- Development disturbing sand dunes and wetlands.

A few communities were repeatedly mentioned by residents as areas with coastal ecosystems that are already being affected by coastal development including Broad Cove, Cherry Hill, Crescent Beach, and Green Bay.

The combined results of the online interactive map and the mapping activities from the open house events echoed the statements about the above communities and highlighted other areas that have sensitive coastal ecosystems or are generally important to community members.



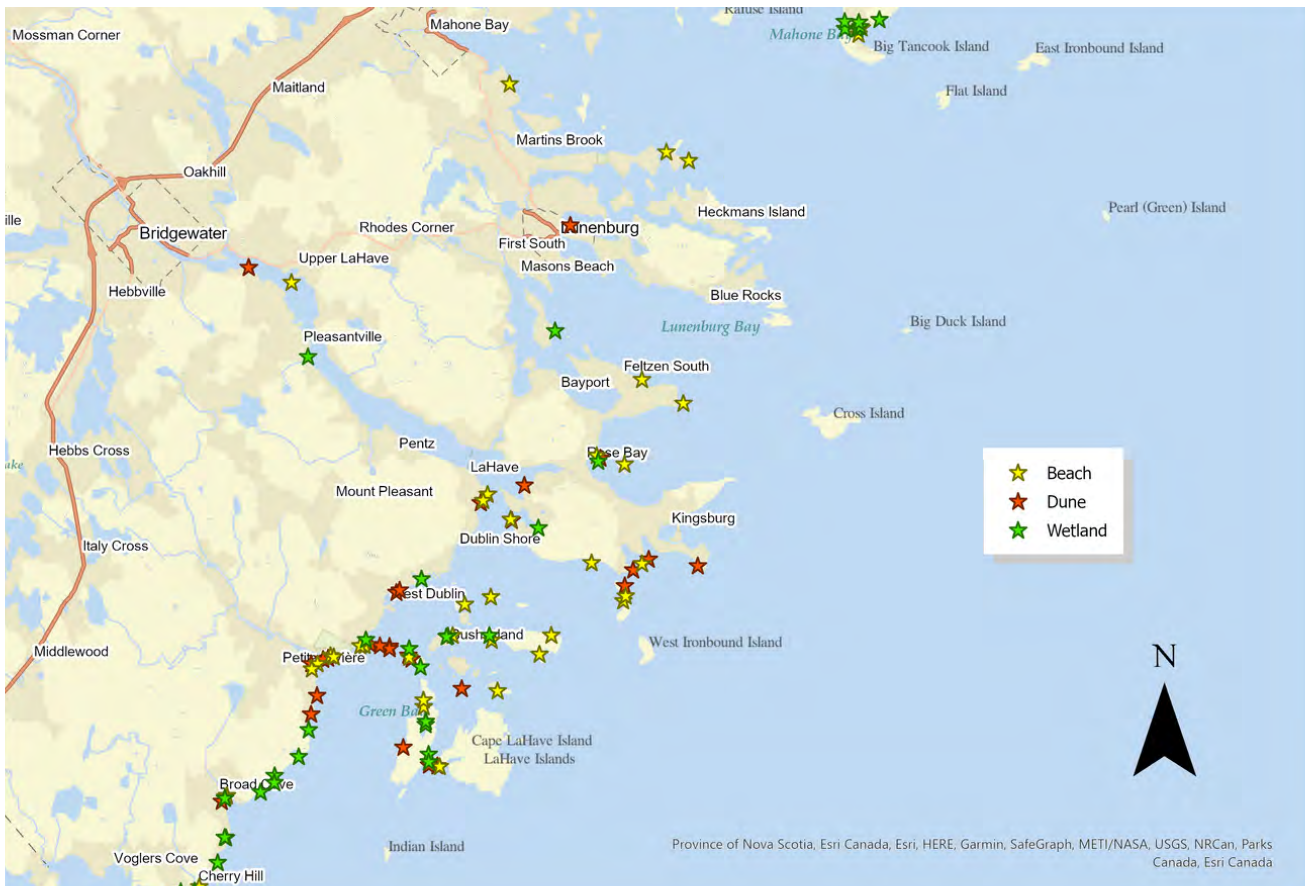
## Interactive Map

During the open house events, residents mapped places they knew had sensitive coastal ecosystems like wetlands, dunes, and beaches. Different coloured stars were used: yellow for beaches, green for wetlands, and orange for dunes.

People put a lot of wetland stickers on the map along the coastline. They used the most stickers for wetlands between Crescent Beach, Green Bay, Broad Cove, Cherry Hill, and Cape Bay Beach. Another community with many green stickers was Big Tancook Island.

Dunes appeared to be clustered in the communities of Green Bay, Crescent Beach, and Hirtle's Beach. Other places like Cherry Hill, Currie Cove, First Peninsula, Cape Bay Beach, and Sand Dollar Beach also had stickers identifying areas with dunes.

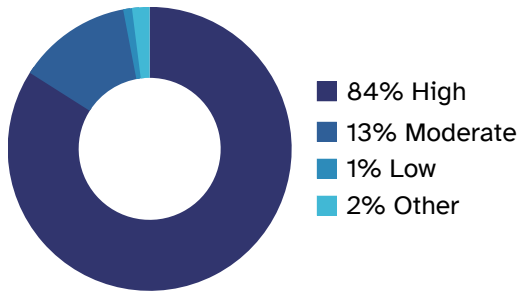
Stickers for beaches were spread out along the whole coastline. Most stickers were placed around Cherry Hill, Green Bay, and Hirtle's Beach.



Map showing areas with sensitive coastal ecosystems and areas of importance identified by MODL residents.

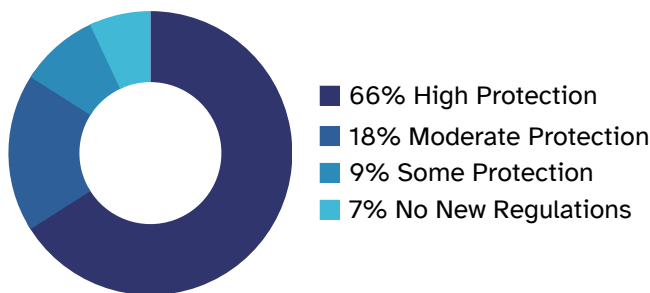
## Level of Protection

Out of all survey respondents, 84% indicated that protecting areas that are considered to be ecologically sensitive such as beaches, dunes, and wetlands is a high priority.



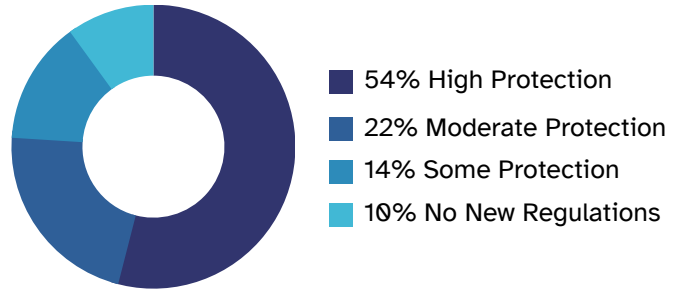
How much do you value protecting areas that are deemed ecologically sensitive along the coast? (All Respondents)

When asked about the appropriate level of regulations to protect coastal ecosystems, 66% of all respondents indicated the need for high protection.



Level of Protection to protect Sensitive Coastal Ecosystems (All Respondents)

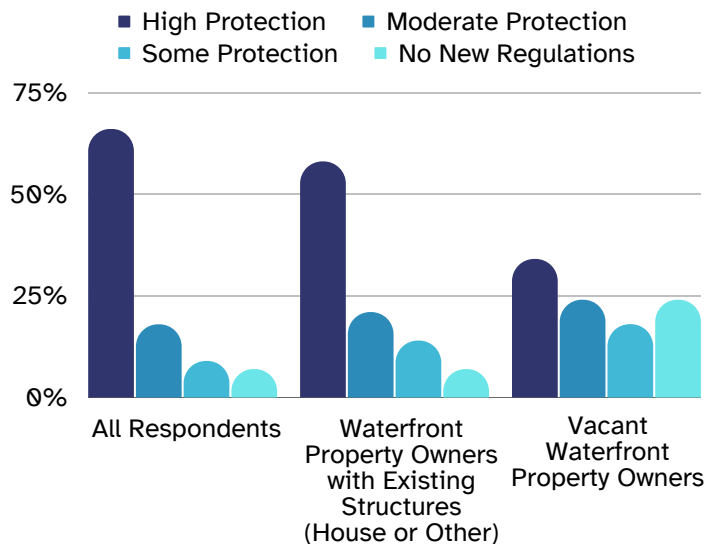
When responses from all coastal property owners (both with structures and vacant) were examined, the feedback collected was similar to the collective of responses.



Level of Protection to protect Sensitive Coastal Ecosystems (All Waterfront Property Owners)

Most coastal property owners with existing structures indicated the desire for high protection of coastal ecosystems with 54% selecting high protection, 22% selecting moderate protection, 14% selecting some protection, and 10% selecting no new regulations.

The responses from vacant waterfront property owners were more varied with 34% selecting high protection, 24% selecting moderate protection, 18% selecting some protection, and 24% selecting no new regulations. The graph below compares feedback from the different types of respondents.



Level of Protection for Sensitive Coastal Ecosystems (Respondents Comparison)

Staff also collected feedback from residents on the types of regulations that they believe would protect coastal ecosystems which included limiting development close to sensitive ecosystems through setbacks; encouraging the use of living shorelines; discouraging infilling of wetlands; and requesting a moratorium on development until regulations are adopted.



# Topics Emerging from Engagement

Some of the feedback received during the initial Coastal Protection public engagement fell outside the original scope of the project.

Though the following topics may not be directly addressed through the Coastal Protection project, the wider MODL2040 project will cover more topics as MODL works toward implementing comprehensive zoning and planning regulations.

The following section covers topics that fall outside the scope of the Coastal Protection project but arose during public engagement.

## Collaboration Between Levels of Government

Several community members expressed the need for inter-governmental collaboration when regulating development on the coast to encourage accountability between levels of government. Some people mentioned that higher levels of government often have access to experts in more fields than local government. It was suggested that creating evidence-based regulations with the help of experts would result in rules that are reliable, consistent, and free of loopholes.



**“The debacles at Crescent Beach, Cherry Hill, and Eagle’s Head demonstrate we need to have a much more integrated approach to managing coastline development. Specifically, we need greater collaboration amongst all levels of government to ensure appropriate enforcement of whatever by-laws are put in place.”**

(Anonymous Respondent)

Other residents indicated that the task of protecting our coastlines should be the responsibility of the province. Many people called for MODL to demand a moratorium on coastal development, until the regulations could be implemented or for the Provincial Government to implement the CPA regulations.

**“It is terrific that MODL is taking action on this subject. However this really should be a provincial matter with provincial regulations dictating the fundamentals of a coastal protection strategy.”**

(Anonymous Respondent)



## **Public Access to the Coast**

A recurring theme from the feedback was public access to the coast. Many community members voiced concern about how new coastal developments are blocking off previously accessible beaches and coastal areas from the public.

Another related theme was the public’s perception that private property owners are restricting or completely cutting off access to the shoreline, which raised questions about both the municipal and provincial role in facilitating public access to the coast.

**“...is part of this plan to include permission for public access to the beaches? Aren’t beaches here crown land?”**

(Anonymous Respondent)

## **RV Parks and Campgrounds**

Another concern heard from many residents was related to recreational vehicle (RV) parks and campgrounds being developed along the coast, with references being made to developments in the communities of Green Bay and Cherry Hill.

When concerns about RV parks were raised during the open house events, residents were advised that the topic fell outside the scope of the Coastal Protection project and that RV parks would be discussed in more detail within the larger, MODL2040 project.

# 05 Next Steps

Now that the Coastal Protection project WWHR has been completed, staff will begin drafting recommendations for the new Coastal Development regulations. Recommendations will be discussed with Council in September and then released to the public for further discussion and engagement in Fall 2023. Final regulations will be approved by Council by the end of 2023.



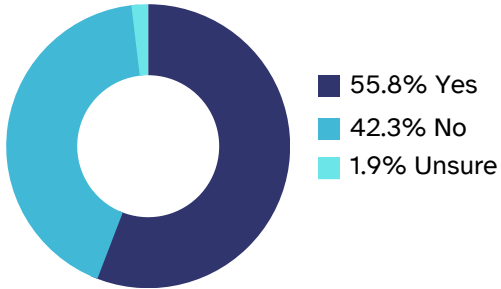
The Municipality of the District of Lunenburg extends our gratitude to all residents who participated in the initial phase of public engagement for the Coastal Protection project. Whether you dedicated your time to completing the survey, attended an open house, or shared your insights through email, your contributions are valuable to this project.

Thank you.

# 06 Appendix

## Question 1

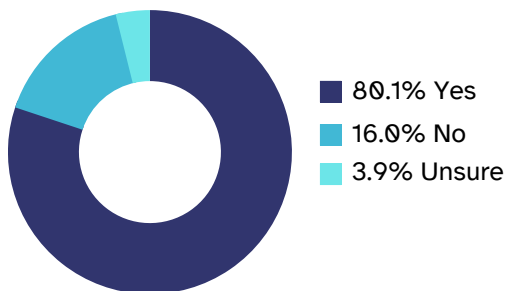
Do you own property directly on the coast?



Question 1 gathered background information about respondents to get a sense of the level of personal connection the respondents have to the way coastal properties are treated in MODL.

## Question 2

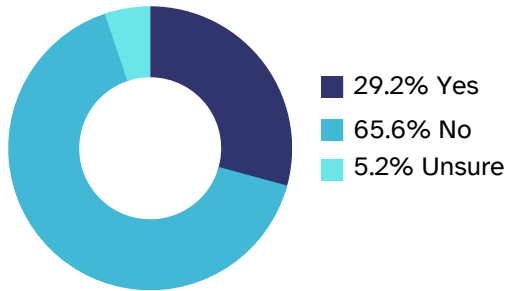
Does the property have a house or other significant structure on it currently?



Question 2 gathered additional background to see if the respondent's coastal properties have existing structures that might be at risk of environmental change or if that property might still have development potential.

### Question 3

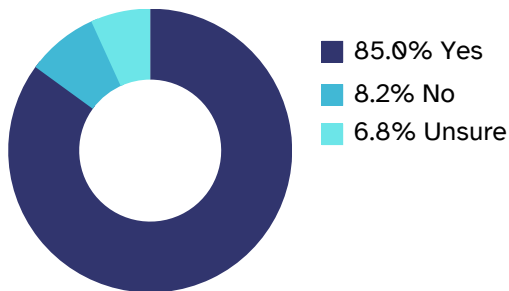
Is your property currently experiencing the effects of coastal erosion?



Question 3 draws on the experience and conceptions of respondents with coastal structures to see the current effects of erosion (Some properties are built on solid ground that will not see any additional erosion).

### Question 4

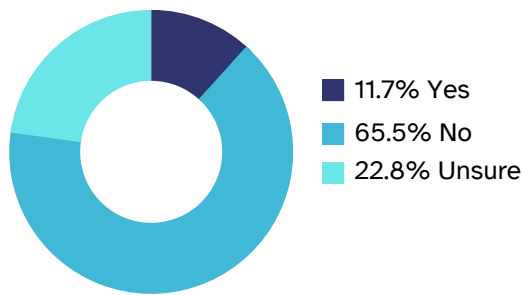
In your opinion, do you believe that erosion impacts other properties within your community?



Moving to a community-wide scale, Question 4 gathers further local information about the impacts of coastal erosion. It also allows those without coastal properties to share what they have observed.

### Question 5

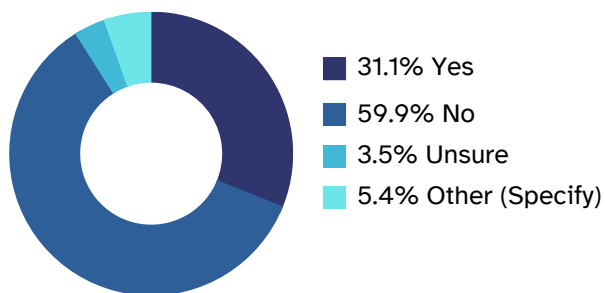
In your opinion, do existing land use regulations provide appropriate protection from coastal erosion?



Question 5 considers the level of satisfaction with the current state of land use regulation along the coast for erosion protection.

### Question 6

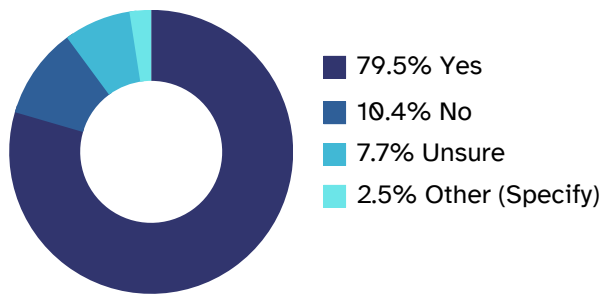
Is your property currently being impacted by coastal flooding caused by storms, hurricanes, etc.?



Question 6 considers flooding both through rising sea level and storms, both of which are linked to climate change.

### Question 7

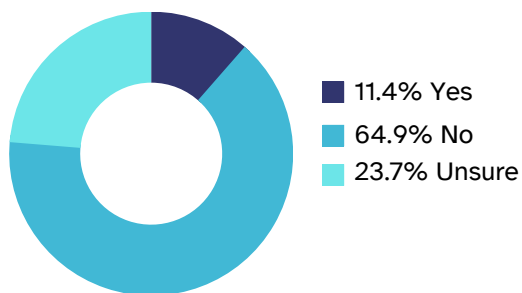
In your opinion, do you believe coastal flooding impacts other properties in your community?



Question 7 mimics Question 6 but allows those without coastal properties to share their observation as well.

### Question 8

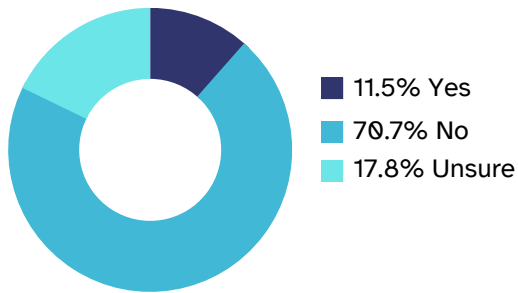
In your opinion, do existing land use regulations provide appropriate protection from coastal flooding?



Question 8 considers the level of satisfaction with current regulations along the coast for protecting from coastal flooding.

### Question 9

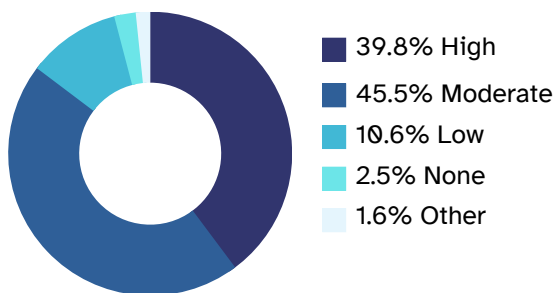
In your opinion, do existing land use regulations provide appropriate protection for sensitive coastal ecosystems?



Question 9 similarly considers current regulations along the coast for protecting coastal ecosystems.

### Question 10

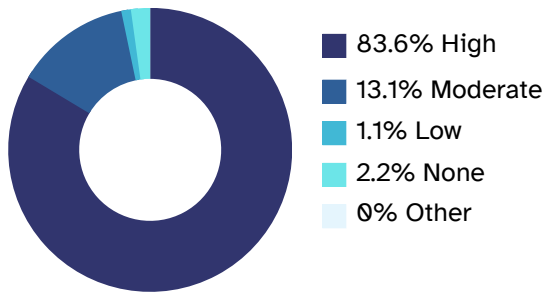
What is your understanding of the benefits associated with sensitive coastal ecosystems



Sensitive coastal ecosystems provide important services including promoting biodiversity, but also act as a soft barrier to flooding that can move upwards with rising sea levels. Question 10 begins by establishing the general level of public understanding of this matter.

### Question 11

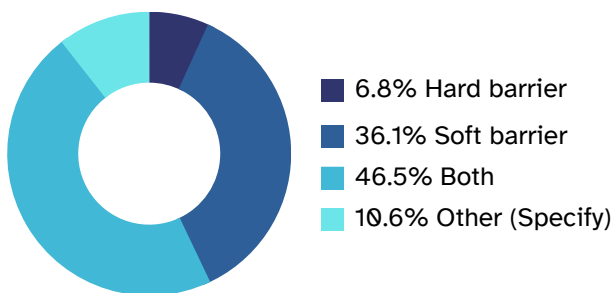
How much do you value protecting areas that are deemed ecologically sensitive along the coast such as wetlands, dunes, and spits?



Building on the previous question, Question 11 asks respondents to indicate how valuable those protected areas are to protect.

### Question 12

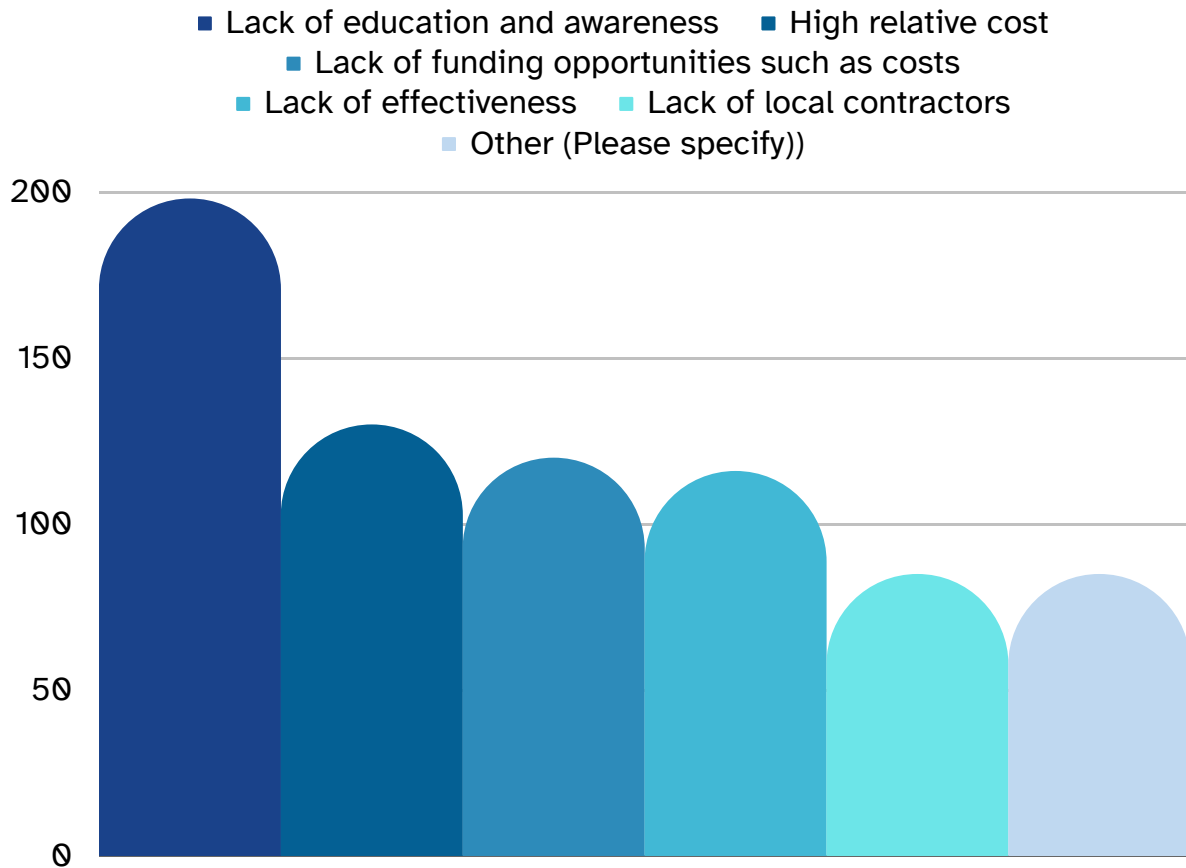
What kind of protection do you feel would best protect the coast?



Question 12 asks respondents what form of coastal protection would be the most ideal to protect MODL's coastline.

### Question 13

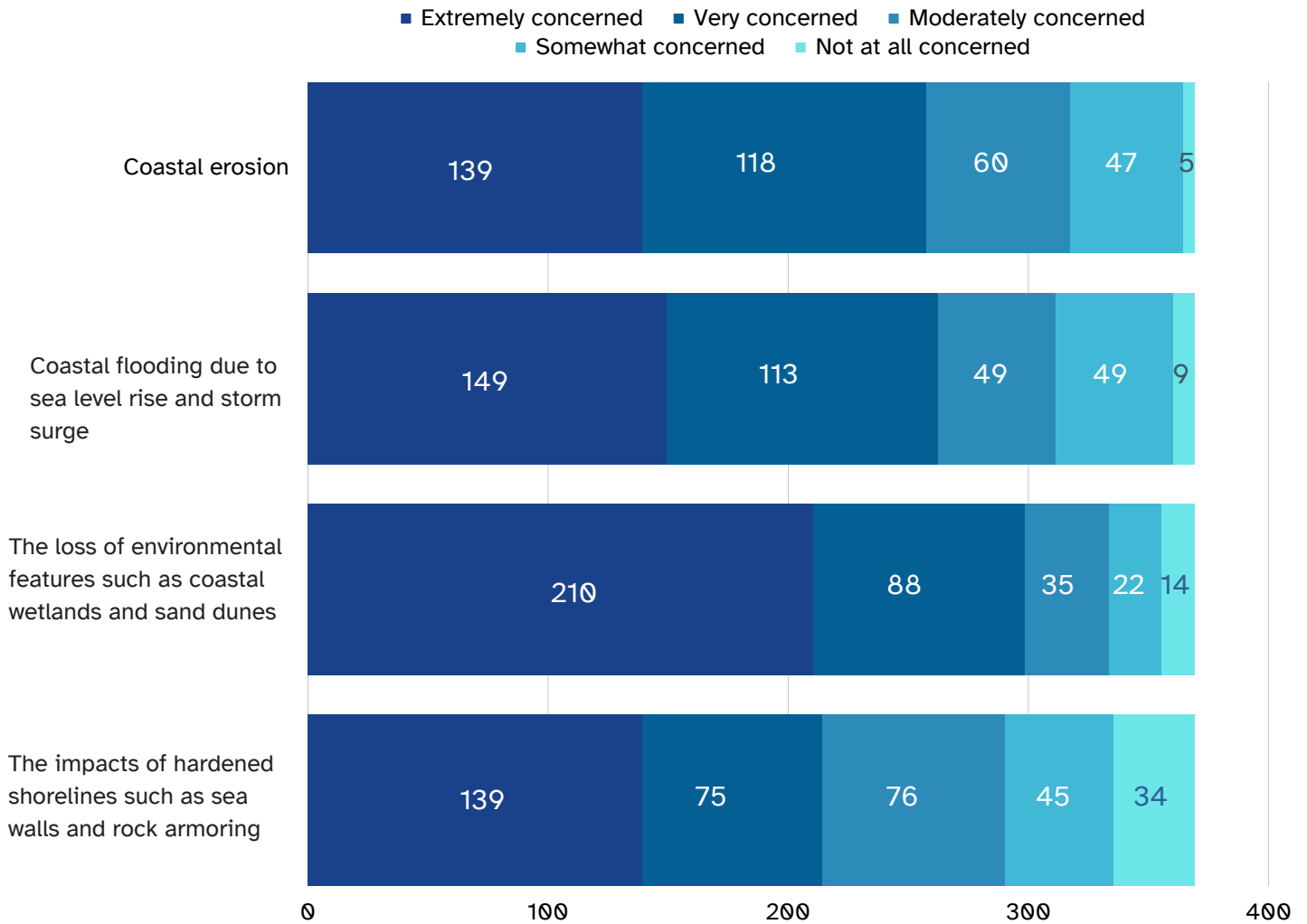
What factors do you believe would influence a decision to choose soft barriers like living shorelines over hard barriers like rock armoring for coastal protection?



Question 13 considers barriers, both felt and perceived, to the use of natural features like living shorelines or other forms of coastal restoration for the purpose of coastal protection.

### Question 14

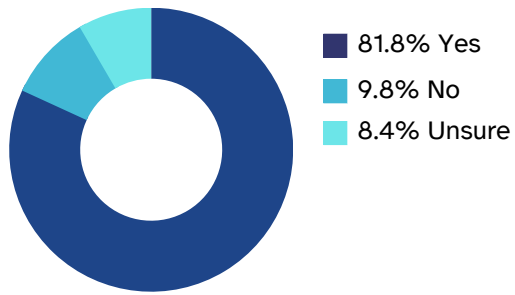
How concerned are you about the following issues?



Question 14 broadly gathers the level of concern over topics related to coastal protection. Erosion, flooding, the loss of environmental features, and the impact of concrete and rock armoring are all concerns that have been raised by residents. As seen in the survey results, (a majority of respondents ranged from very to extremely concerned about each issue.)

### Question 15

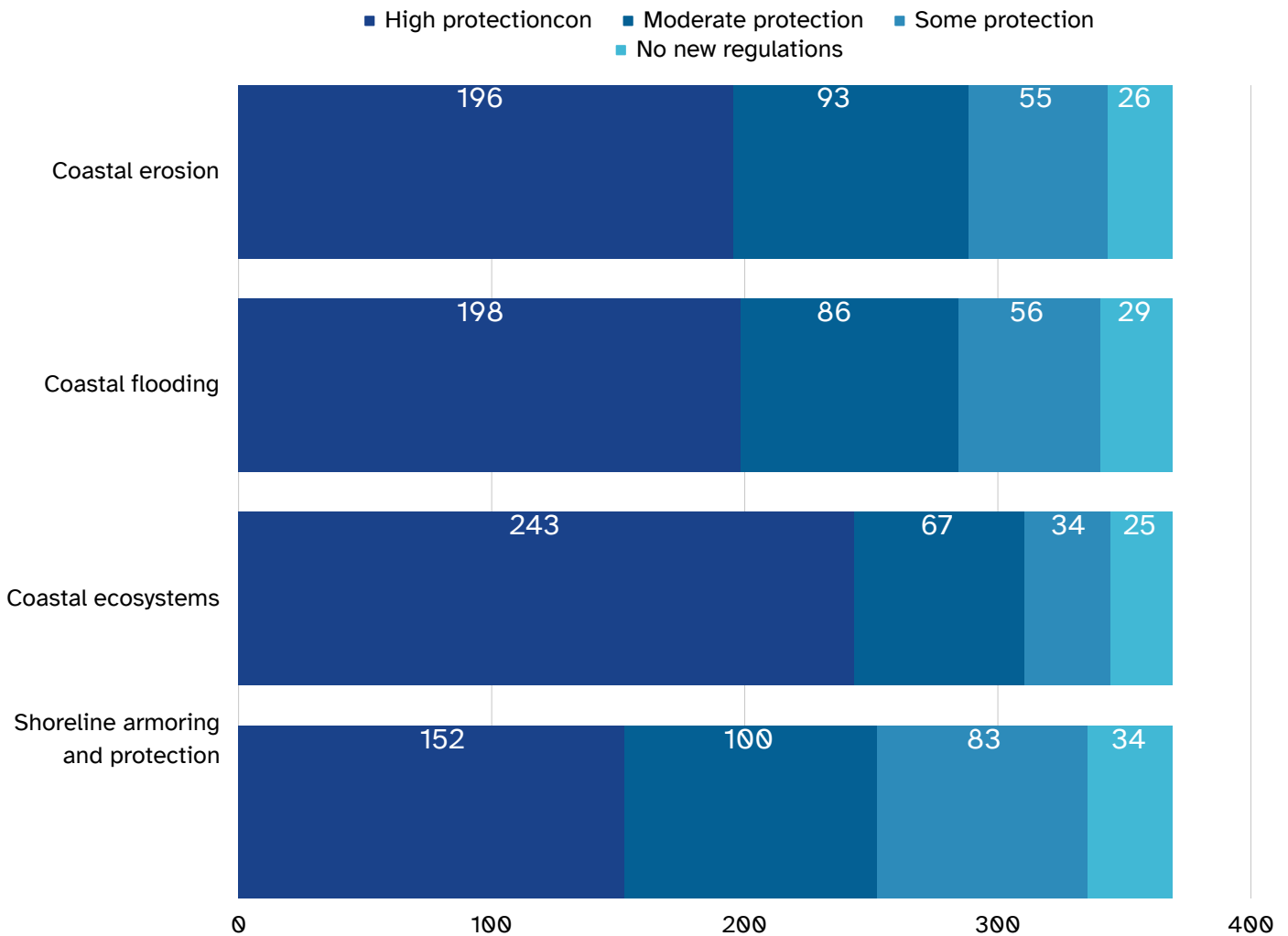
Do you believe that there is a need to regulate coastal development within the municipality?



Question 15 plainly asks if respondents feel that regulation for coastal development is needed.

### Question 16

Stricter regulations would result in better protection for coastal development from the risks posed by coastal erosion and flooding, as well as better protection for coastal ecosystems from the impacts of development. However, stricter regulations typically come at a higher initial impact or cost for affected property owners. What level of regulation would you support to deal with the following issues:



Question 16 generally considers how restrictive new regulations should be by asking respondents to weigh the value of protecting the coast against the impact placed on property owners.



**Coastal Protection What We Heard Report  
2023**