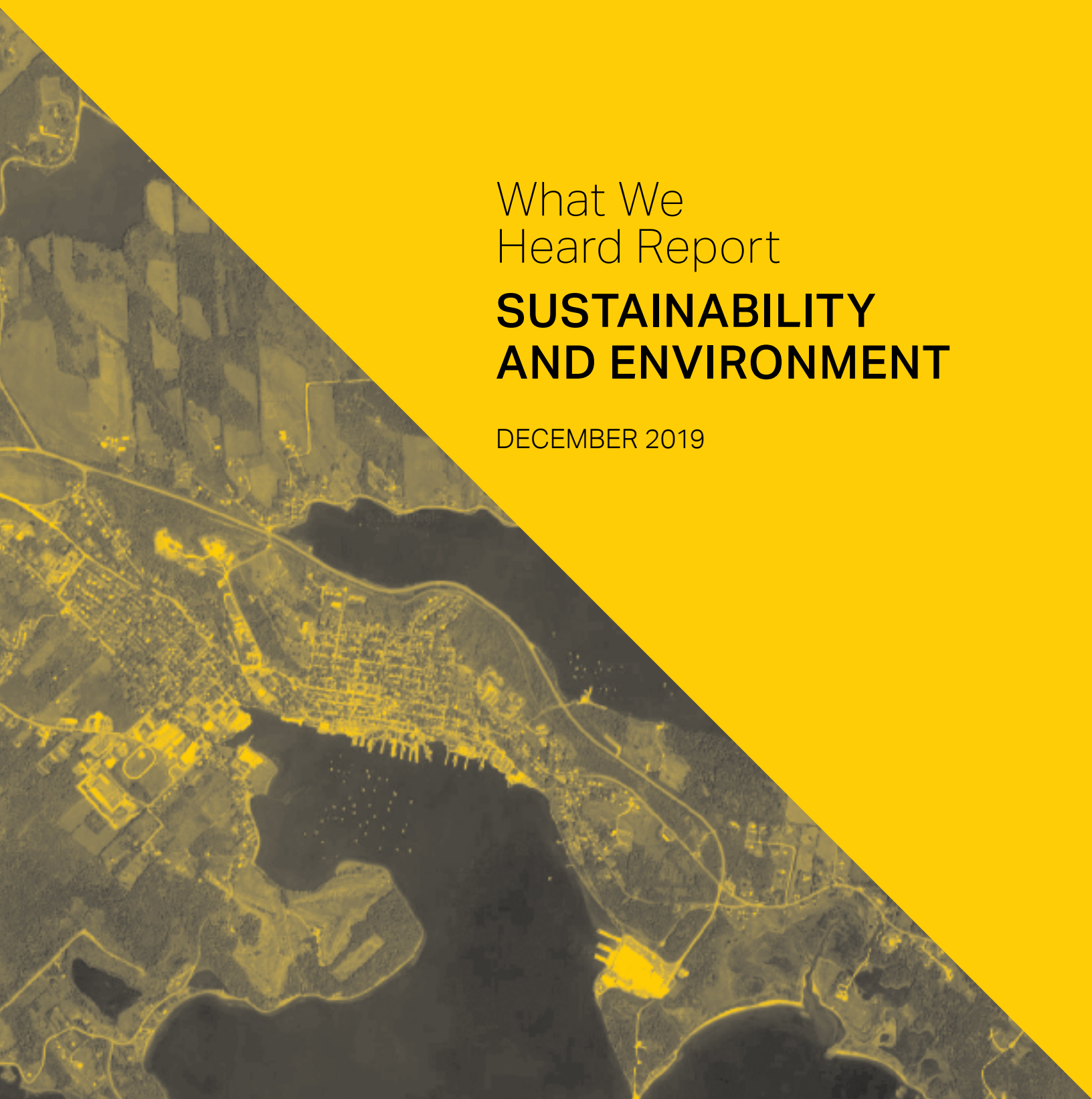
PROJECT LUNENBURG

What We Heard Report

SUSTAINABILITY AND ENVIRONMENT

DECEMBER 2019



What We Heard Report
Sustainability and Environment
December 2019

Project Lunenburg
Town of Lunenburg Comprehensive Plan

This report was prepared by Upland Planning and Design.

UPLAND

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LUNENBURG

What We Did

As a coastal, rural town, Lunenburg is situated within a natural environment. The landscape is sculpted by drumlin hills and bound by the Atlantic Ocean. However, as global and local environmental changes continue to occur, Lunenburg will be forced to adapt to new conditions. Through public engagement, the Project Team sought to understand the primary environmental concerns for community members, how phenomena such as climate change and sea level rise have impacted the lives within the community, and how the town should adapt to and mitigate the risks of climate change. Information and feedback was collected by the Project Team through three primary methods:

- The Lunenburg Individual Survey;
- The Social Pinpoint Interactive Map; and,
- The Sustainability and Environment Community Workshop.

The Lunenburg Individual Survey, which asked respondents open- and closed-ended questions, was released to the public through a variety of methods including a mail-out invitation enclosed in Lunenburg residents' electricity bills. Survey responses were collected between February 27 and April 7, 2019. Also opened to the public at this time was Social Pinpoint – a web-based engagement platform that allows community members to leave location-specific comments by clicking on a map of Lunenburg. For the purpose of this report, the comments received on Social Pinpoint between February and December, 2019 were analyzed. The Sustainability and Environment Community Workshop was held on October 24, 2019 between 6:00 p.m. and 8:00 p.m.

This What We Heard Report is the sixth in a series of ten summarizing input from the community regarding the environment and sustainability. The input that forms the foundation of this report and its discussion will be used to guide recommendations of the Comprehensive Community Plan.

Who Was Involved

Between February and December 2019 there were approximately 800 engagement interactions that contributed to this report. This included:

- Over 50 participants at the Sustainability and Environment Community Workshop;
- 487 Social Pinpoint submissions; and,
- 262 respondents to the Lunenburg Individual Survey.

At the community workshop, Dr. Eric Rapaport from Dalhousie University gave a presentation regarding sea level rise adaptation and vulnerability. Dr Rapaport specializes in climate change and sea level rise adaptation and vulnerability assessments.

Figure 1: Dr. Eric Rapaport presenting at the Sustainability and Environment Community Workshop (October 24, 2019)

Engagement Results

Throughout Project Lunenburg, the Project Team received a variety of comments on numerous topics as they relate to sustainability and the environment. Comments that were received were analyzed and categorized into themes. Based on the results of the engagement, two primary themes emerged with several secondary themes also emerging. The two primary themes were:

- Climate Change, and
- Sea Level Rise.

Although comments were analyzed and categorized into one of the two primary themes or one of the secondary themes, many comments resonate with several themes .

Primary Themes

Climate Change

The first primary theme to emerge from the engagement dealt with Climate Change, and was discussed and explored on different scales through the engagement. Broad discussions were held regarding climate change as a worldwide issue, but it was also discussed for its potential impacts at the local level in Lunenburg and along the South Shore.

There was a strong response throughout the engagement that the town and its residents needed to be proactive in taking actions to reduce the impacts and causes of climate change; however, many felt that apathetic attitudes towards climate change within the community represented a barrier to meaningful change.

Much of the conversation throughout the engagement focused on the future impacts of climate change. Respondents commented on how changing weather patterns will impact the natural environment and the future of Lunenburg. As summers become warmer and dryer, respondents spoke to the need to prepare for water shortages, while wetter winters and larger storms will put a greater strain on infrastructure and could threaten properties. There was overwhelming sentiment throughout the engagement that robust, regenerative

infrastructure would be needed in the future to prepare the town for its ability to withstand future climactic conditions. This could also involve education around water conservation for residents.

Finally, respondents indicated concern with how the impacts of climate change are distributed among members of the community. Although respondents agreed that climate change will impact everyone, respondents indicated some individuals are more vulnerable than others. Seniors, low-income individuals and families, and mobility challenged people are some of the most vulnerable. Additionally, respondents mentioned how the burden of climate change and other issues is placed on individuals through environmental racism and marginalization.

In addition to the impacts of climate change, respondents discussed strategies to mitigate the impacts of climate change.

Climate Change Mitigation

One of the primary ways respondents wished to see climate change mitigated in Lunenburg was to adopt more widespread use of renewable energy while also improving energy efficiency of existing buildings and structures. Renewable energy sources including wind, solar, and tidal were all mentioned throughout the engagement as ways that individual households and the community could reduce the amount of greenhouse gases emitted into the atmosphere. Respondents indicated that more needed to be done to enable individuals to implement these renewable sources, such as funding and other incentives.

When considering energy efficiency, respondents wished to see greater emphasis on building materials and methods that would not only reduce the energy required to heat/cool homes, but also materials that could better equip these structures to withstand a changing climate. Respondents mentioned the need to design homes to take the greatest advantage of environmental conditions, such as orienting buildings to maximize solar energy and reduce heating costs.

Respondents felt there needed to be greater activism on part of the Municipality to pursue climate change mitigation, and there also needed to be greater targets set by the Municipality regarding greenhouse gas emission targets.

Many comments were submitted regarding improvements to the urban forest, noting that trees capture carbon from the atmosphere. Respondents suggested replacing dead/dying trees in the town while others proposed an 'adopt-a-tree' program that could be used to fund a tree planting program. Other climate change mitigation strategies proposed through the engagement included developing an efficient transportation system that emphasizes walking, cycling, and other human-powered transportation.

Sea Level Rise

The second primary theme to emerge from the engagement dealt with Sea Level Rise. As a coastal town, Lunenburg is positioned to be severely impacted by sea level rise as climate change impacts continue to intensify. Comments related to this theme expressed how residents have observed the sea levels rise during their time in Lunenburg, especially in recent times. Respondents spoke to how storm damaging is increasing - including flooding and damage to property. Primarily however, comments related to sea level rise discussed strategies for adapting to sea level rise.

Sea Level Rise Adaptation

The community workshop displayed a physical model of the town indicating the projected sea level rise for the year 2100. Community members were asked to place pins on the model to show which specific coastal adaptation strategy they felt would be the most effective in each location. More than half of the suggestions indicated conservation zoning along the coast as a preferred approach, while others suggested using seawalls, living shorelines and raised structures, especially along the Old Town waterfront. Conservation zoning changes land use restrictions so that little to no development can occur along the waterfront.

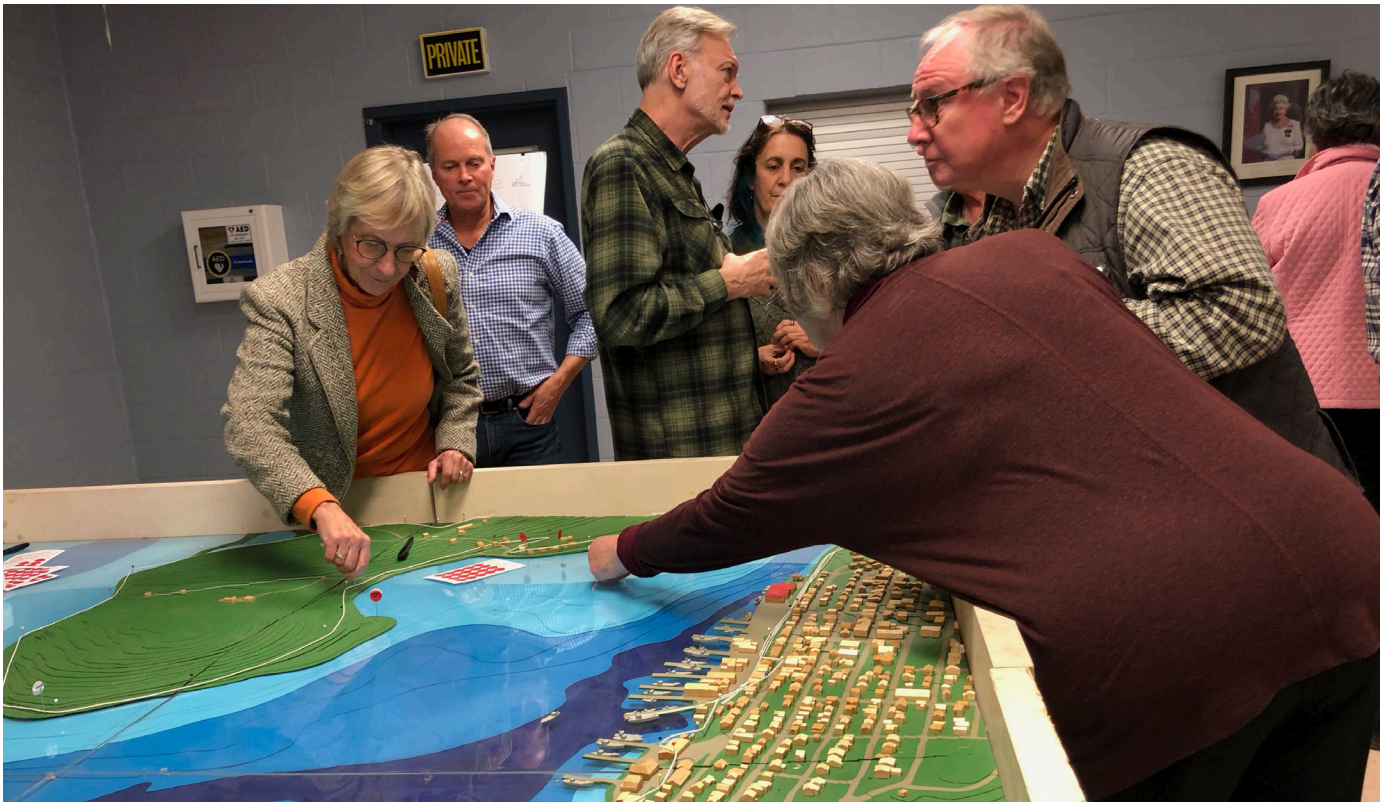

Figure 2: Community members placing pins on a physical model at the Sustainability and Environment Community Workshop (October 24, 2019)

Primary Themes
(Continued)

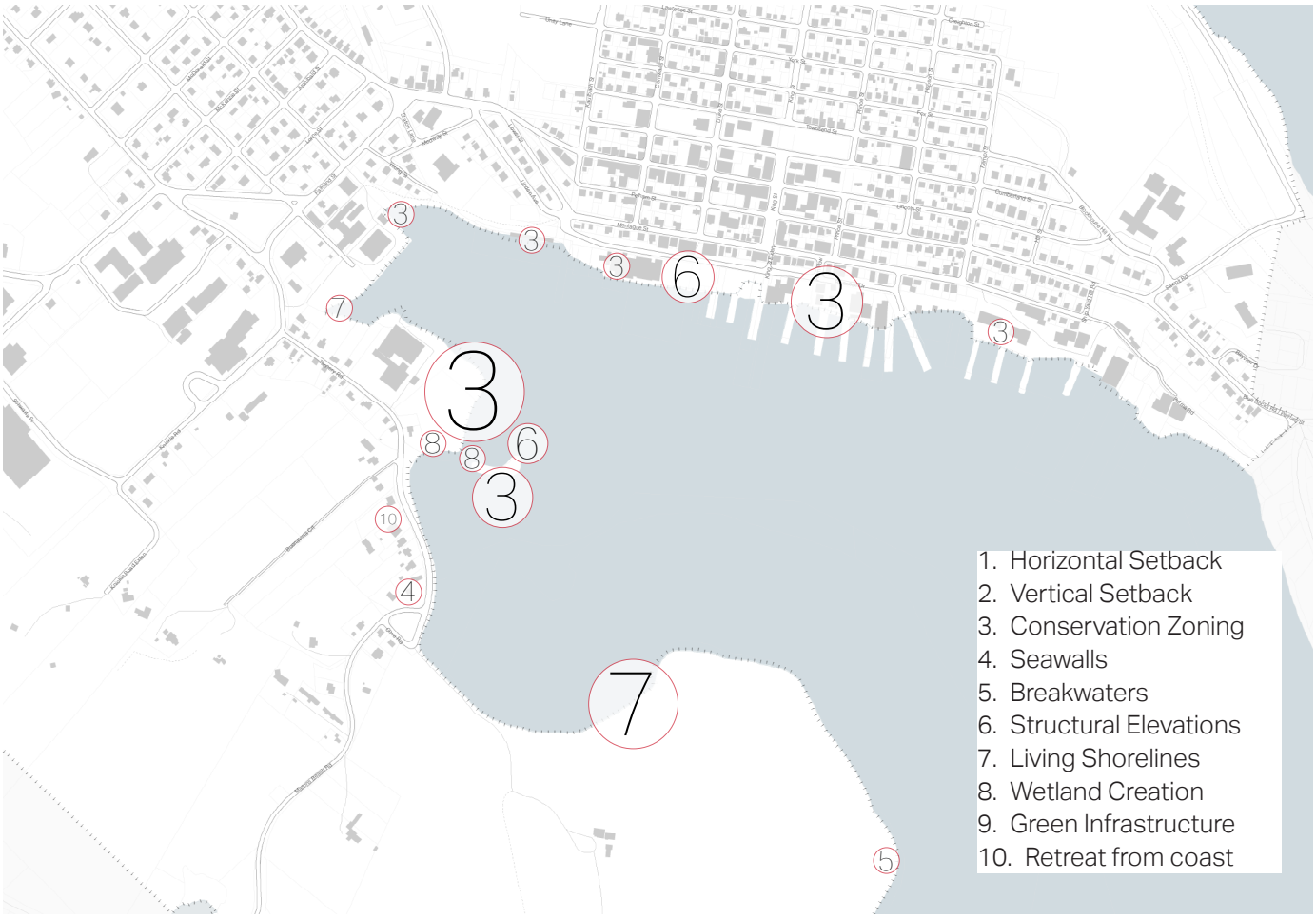

Figure 3: Selected location of adaptation strategies from Sustainability and Environment Community Workshop. The size of the circle represents the frequency each strategy was suggested for the area.

Figure 3 depicts the preferred sea level rise adaptation strategies as indicated by respondents at the Sustainability and Environment Community Workshop. Each number corresponds to a sea level rise adaption strategy. The number and corresponding adaptation strategy is noted in the legend, and the size of each circle represents frequency at which each adaptation strategy was selected for that area.

Secondary Themes

In addition to the primary themes, a series of secondary themes related to sustainability and the environment emerged throughout the engagement. The secondary themes that emerged are discussed on the following two pages.

Waste Reduction

One of the primary methods respondents suggested to reduce human impact on the environment was to increase the town's capacity to recycle and compost waste. Waste diversion from our landfills reduces the need to dispose of waste in harmful landfills. As an extension of waste diversion, respondents commented on the need to reduce the amount of waste that the town produces, specifically through the limiting of single-use plastics. Members of the community mentioned the potential of a single-use plastics ban as a method to decrease waste in Lunenburg. A single-use plastic ban would follow provincial legislation banning most single-use plastics in 2020.

The Canadian Federal Government has also indicated its intention to ban single-use plastics; however, little is known about the proposed legislation as of December 2019. Although there were many comments throughout the engagement suggesting a single-use plastics ban, several respondents focused on the need to educate and engage with community members about how to reduce consumption.

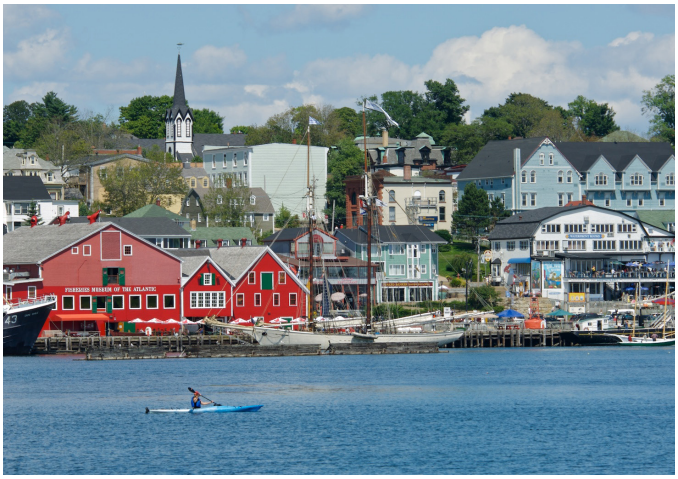

Figure 4: Many respondents commented on the need to clean the harbour and prevent further pollution

Harbour and Water Quality

Throughout the engagement process the water quality in Lunenburg harbour was of particular concern for residents and visitors of Lunenburg. Respondents mentioned the need for the town to adopt strategies to clean the harbour and reduce the amount of waste that is deposited in the water. Studies have determined there is a water quality issue in the harbour, and sources of this pollution are more difficult to identify, though bacteria levels and an out-of-order boat pumping station are likely factors. Interventions in strategic areas, such as the corner of the harbour where pollution is the greatest and along the golf course where runoff is most extreme, could help improve water quality in the harbour.

Figure 4: Respondents discussed living shorelines like this oyster reef as a possible option for mitigation of pollution and the effects of sea level rise

Figure 5: Bioswales collect and treat stormwater before entering the water table

Green Infrastructure

Throughout engagement, respondents mentioned using 'green infrastructure' as a possible way to improve sustainability in Lunenburg. Green infrastructure works to protect, restore and mimic the natural water cycle using techniques including bioswales, rain gardens, green roofs, naturalized ditches, retention ponds and soil cells. These implementations can be applied on different scales, from the local level to town-wide. By retaining water on site, the burden of traditional stormwater infrastructure is reduced.

Lunenburg primarily uses a combined storm and sanitary water system, meaning water that falls into storm gates is also treated at the wastewater treatment facility. Green infrastructure is particularly effective in areas with combined sewer and steep roads. In addition to green infrastructure, respondents mentioned the use of permeable pavement, and reduced lot coverage as tools and mechanisms to reduce stormwater runoff. Related to water treatment, some respondents mentioned the need for a metred water system to be introduced to make residents more aware and accountable for their water use.

Green infrastructure can also be used in and around the harbour, and implementations like living reefs, wave breaks and living shorelines can help to filter bacteria and limit erosion. Participants were also interested in the potential for living shorelines to mitigate the effects of sea level rise in Old Town. Particularly in Lunenburg's protected harbour, it takes water a long time to circulate which can lead to longer, more harmful algal blooms.

Habitat and Ecosystem Protection

Respondents throughout the engagement wished to limit habitat loss within Lunenburg and the surrounding areas to ensure plants and animals have healthy ecosystems and movement corridors. Additionally, respondents mentioned the need to target and remove invasive species in the town and surrounding area so plant and animal species are able to flourish.

Discussion

"Without a healthy habitat, we risk what is most important and differentiating to Lunenburg: high quality of life, health, natural beauty, next generation renewal, sustainable fisheries, working waterfront, affordability, visitors."

During this phase of engagement, residents, community members, and other stakeholders from Lunenburg and the surrounding area provided input regarding sustainability and the environment. Based on the responses that were received, there is overwhelming consensus that the natural environment plays an important role in the daily lives and identity of the community.

The people that have inhabited the region of Lunenburg have continuously adapted, and adapted to, the environmental conditions over the course of history. Beginning with the Mi'kmaq people who inhabited the land more than 10,000 years ago, to the Acadians, to the British, and now to the people who inhabit the town today, the community has emerged to relative stability over the past 30 years. Now, faced with climate change, the resiliency that has been built into the fabric of the community will usher the town into the future and its endeavours to adapt to and mitigate the impacts of climate change.

There is a growing sense of urgency when it comes to dealing with climate change and sea level rise. As was expressed in the engagement, a proactive approach at protecting the environment, humans, and their property was preferred. There is a general urgency and anxiety about the general state of the environment. Many respondents wish to reduce their impact—less habitat destruction, less pollution, and more accountability for human activities.

There were many climate change and sea level rise adaptation and mitigation strategies that were repeatedly expressed through the engagement. To adapt to sea level rise a mix of regulatory, structural, and natural solutions were proposed. Respondents also want to see a wider uptake of renewable energy and tree planting to mitigate climate change.

While there was general support for action from residents and the Municipality, many respondents worried apathy within the community could prevent tangible action from occurring. Respondents felt educational workshops could be valuable to educate the community to decrease their 'environmental footprint' and to ensure more community members are taking action.

There was an acknowledgement during the engagement that the impacts of climate change and sea level rise will not impact individuals equally. Economic and racial inequities position some people to be impacted greater by climate change, and planning for resilience must be done through an equity lens.

There was overwhelming sentiment throughout the engagement that environmental concerns are top of mind for many community members. Community members value development that is in harmony with the environment. The results from this engagement will be integrated into the Comprehensive Community Plan. As the impacts of climate change and sea level rise will continue to increase, the Plan should focus on ensuring the community revisits projects and remains vigilant in its efforts to combat environmental issues.

Figure 6: Respondents wish to see a greater uptake of small-scale renewable energy, such as on-home solar.

Figure 7: Street trees capture carbon, provide shade, encourage active transportation and filter stormwater runoff.

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