

FOR: GOVERNANCE AND PRIORITIES COMMITTEE

MEETING DATE: September 28, 2026

DEPARTMENT: PLANNING AND DEVELOPMENT

SUBJECT: **OUR COASTAL CITY – SEA LEVEL RISE MANAGEMENT PLAN**

OVERVIEW

Purpose of Report

To present the Governance and Priorities Committee with the findings of the recently completed Sea Level Rise Management Plan (Our Coastal City).

BACKGROUND

In 2019, the City of Nanaimo completed a Sea Level Rise Study which provided a high-level vulnerability assessment of the City's coastline. The Study included sea level rise projections for 2050 and 2100; an assessment of potential coastal erosion impacts and a Flood Construction Level (FCL) along the City's shoreline for 2018 and 2100. Results from the Study show that there are low-lying areas along the coastline, which are vulnerable to sea level rise. The 2019 study was a 'strategic level assessment' and did not include 2D inundation modeling. The 2019 study recommended further analysis be carried out in specific low-lying populated areas (Departure Bay, Protection Island and downtown areas) that will more accurately define inundation limits. To plan for and manage potential sea level rise in those vulnerable areas identified, a Sea Level Rise Management Plan (SLRMP) was recommended.

The City received two separate grants from the Ministry of Emergency Management and Climate Readiness (EMCR) and the Federation of Canadian Municipalities (FCM), to fund a sea level rise management plan.

The Sea Level Rise Management Plan, branded as "Our Coastal City", included the following components:

1. Probabilistic Calculation of Sea Level Rise
2. Refined Inundation Modeling
3. Economic Risk Assessment
4. Sea Level Rise Management Options Analysis
5. Coastal Erosion Monitoring Plan
6. Post Study Communication Strategy

While some of the communication strategy work is still ongoing, the other tasks are now complete.

DISCUSSION

The following deliverables for the Our Coastal City project have now been completed.

1. Revised Flood Construction Level Mapping and Relative Sea Level Rise Projection Mapping
2. Risk Assessment and Economic Impacts Analysis
3. An options analysis of area specific sea-level rise adaptation strategies
4. A final report, including general recommendations related to sea level rise mitigation
5. Coastal Erosion Monitoring Plan and Baseline Conditions Report

Mapping

Based on the recommendations from the 2019 study, a joint probability analysis and more detailed modeling was completed to inform flood projection mapping in the following four areas of focus:

1. Departure Bay
2. Downtown
3. Duke Point
4. Protection Island

Based on this work, more accurate flood projection mapping showing the results of 0.5m, 1m and 2m of Relative Sea Level Rise (RSLR) in these areas was completed.

In conjunction to the predicative mapping, the coastal flood hazard assessment results were used to develop regulatory floodplain maps for the four focus areas. In British Columbia, regulatory floodplain mapping delineates areas that can be expected to flood on average once every 200 years under future climate conditions. Floodplain maps support land use planning by identifying areas expected to flood and by providing flood construction levels (FCLs) for those areas. FCLs establish the minimum elevation for habitable, commercial, and industrial buildings, as well as other infrastructure, to reduce flood risk. Staff will consider how these maps may be used to inform future development within the affected areas.

Risk Assessment and Economic Impacts Analysis

Once the mapping projections were completed, the project team was able to assess the risk of future flooding to buildings, roads and critical infrastructure within the areas at risk. Through the building assessment, annual damage costs to buildings included within the risk areas was estimated. Roads and water-related utility infrastructure were assessed using different methods to reflect the available data and risk characterization needs. Roads were assessed based on the length of road vulnerable to high and medium risk of damage from sea level rise, while infrastructure was assessed based on the number of points potentially impacted by sea level rise.

While present-day coastal flood risk is generally relatively low, with the exception of Departure Bay and Protection Island during larger storms, damages increase across all areas at 0.5 m RSLR, rise substantially at 1.0 m and increase sharply at 2.0 m.

Options Anyalysis – Area Specific Adaptation Strategies

Based on the above work and through engagement with several key interest holders, adaptation strategies were provided for each of the four focus areas. Adaptation recommendations are provided based on predictive increases to relative sea level rise (RSLR) for present day or near-term implementation (0 m to 0.5 m RSLR / 0 to 5 years), medium-term measures (0.5 m to 1.0 m RSLR/ 5 to 25 years), long-term measures (1.0 m + RSLR) / 25 to 75 years), and very long-term (2.0 m + RSLR / over 75 years) for each area. The recommended adaptation strategies are included in Section 9 of the report. Given the longer timeframe of the projected impacts and to accommodate the large range of possible future conditions associated with sea level rise projections, an adaptive management approach is recommended. The adaptative management approach outlines a pathway with multiple branches to allow the City to adapt the approach as conditions change. The adaptative management approach is explained in Section 8 of the report, with an example focused on the Departure Bay seawall included in Section 10.

General Recommendations In the Consultants Final Report

In addition to the area specific adaptation strategies, the report also includes the following general recommendations related to mitigating impacts from relative sea level rise and coastal storms.

1. Move all City infrastructure within the relative sea level rise area as identified in the 2026 Nanaimo Sea Level Rise Management Plan that comes to end of life from this point forward. This may involve laying out plans early for large infrastructure such as pump stations, water, stormwater, and sewer mains. Many stormwater infrastructure points are impacted in our current climate in a large storm with the exposure increasing significantly with RSLR. Both sanitary and sewer infrastructure only have a few impacted sites, but they become more exposed after 1.0 m of RSLR.
2. That the City review their planning policies and regulations and make amendments as needed to address the findings in the 2026 Nanaimo Sea Level Rise Management Plan, including:
 - a. Discouraging rezoning for increased density within the RSLR area(s)
 - b. Update the Sea Level Rise development permit area mapping and guidelines, to
 - i. discourage new development and structures within the RSLR area wherever possible
 - ii. where development is permitted require all buildings and infrastructure to be raised to meet or exceed the FCL.
3. Conduct feasibility assessments for all short- and medium-term options included in the 2026 Nanaimo Sea Level Rise Management Plan. Feasibility studies should be completed as the first step in developing an implementation plan for each strategy. These studies should confirm whether each proposed adaptation strategy can be built or undertaken, and should include:
 - a. community engagement to confirm support and identify concerns;
 - b. preliminary cost estimates; or confirmation of project extents;
 - c. review of technical, environmental, regulatory, and property constraints; and
 - d. identification of appropriate phasing, where required.

The results of the feasibility studies should be used to refine the preferred options, outline an adaptive management pathway, confirm implementation requirements, and support future decision-making.

A number of site specific short-term (0 to 5 years) and medium-term (5 to 25 years) recommendations are also included in the recommendations section (Section 11) of the final report, including:

- Develop an adaptive management strategy for Randle and Battersea Road Area (short-term) and Departure Bay Beach (medium-term)
- Plan to raise Front Street to provide protection to Museum Way (medium-term)
- Raise the low points of Duke Point Highway (medium-term); and
- Plan for the raising of the waterfront walkway to accommodate 1m of relative sea level rise (long-term).

Staff recognize that some of the recommendations the consultant has provided are beyond the scope and responsibility of the City of Nanaimo and will require working with a number of interest holders including the Ministry of Transportation and Transit, BC Ferries, Nanaimo Port Authority, Snuneymuxw First Nation, Regional District of Nanaimo, neighbourhood associations and impacted property owners. It is important to note that the consultant's recommendations are high-level and general in nature. Any implementation of the consultant's recommendations will require further consideration and analysis of implications and options and future decisions by Council. Staff will continue to review and evaluate the recommendations within the report.

Coastal Erosion Monitoring Plan

In addition to the options and recommendations regarding coastal flooding in the final report, a Coastal Erosion Monitoring Plan was included as a separate but companion report to the overall Sea Level Rise Management Plan. Instead of focusing on coastal flooding, the report focuses on the impacts of coastal erosion on Nanaimo's coastline. A baseline erosion hazard assessment was completed in the following focus areas:

1. The North Slope (referred to as North Shore in the report)
2. Departure Bay (Stephenson Point side)
3. Cilaire
4. Protection Island (primarily Gallows Point)

The main objectives for the erosion assessment were to establish baseline erosion conditions and rates and provide recommendations for a long-term monitoring plan. The report includes the following recommendations.

1. Complete a recurring 5-year monitoring assessment of coastal erosion along the North Shore and Cilaire focus areas to monitor the coastal erosion rates of bluff retreat
2. Consider performing a current regional geotechnical assessment of bluff stability for the bluff length along the North Shore and Cilaire.
3. Maintain a minimum 40m coastal erosion setback from the bluff crest for any developments as per the North Slope Development Policy
4. Identify priority areas and options for erosion mitigation works along actively eroding shorelines and shorelines with substandard protection

The Coastal Erosion Monitoring Baseline Conditions Report is included as Appendix E of the final report.

COMMUNICATION AND COMMUNITY ENGAGEMENT

Engagement was conducted over the course of the project to first understand community values and later evaluate coastal adaptation objectives and priorities. Communication materials were created to help explain complex technical information and inform the public and key interest holders about projected sea level rise impacts.

Engagement included the following:

- **Early “Listening Conversations”** with groups representing First Nations, older adults and other equity seeking groups. The purpose of these sessions was to help inform engagement so that it can be inclusive of people in their community.
- **Interest Holder Group Meetings** The project team hosted focus group meetings with key technical interest holders (including representatives from senior levels of government and local non-government organizations), the Snuneymuxw First Nation, neighbourhood association representatives and City of Nanaimo Staff.
- **Two online public surveys.** The first was focused on community values while the second included mitigation strategies.
- **A Community Open House.** A community open house was held for the public to learn about the project and provide input regarding proposed mitigation options.
- A pop-up table at the **World Oceans Day** shoreline cleanup event at Maffeo Sutton Park; and
- Multiple **media releases**, news articles, social media posts and online resources.

The engagement activities are summarized in more detail in Section 2 of the final report. While the round 1 and 2 engagement summaries are included as Appendix 1 of the report.

As a final component of the project, a communications strategy is currently under development that will include accessible and informative materials the City can use to help the community better understand sea level rise risk and how we can work together to mitigate that risk.

ALIGNMENT WITH CITY PLAN

☒ A Green Nanaimo: Resilient and Regenerative Ecosystems

C1.2 Climate Adaptation and Hazard Mitigation

- City Plan Policy C1.2.3 supports working with community partners to develop strategic directions for climate change adaptation.
- City Plan Policy C1.2.4 supports prioritizing hazardous lands and properties at risk for consideration in the City’s property acquisition strategy, and seek the Province’s support for their acquisition.
- City Plan Policy C1.2.6 encourages shoreline naturalization to protect waterfront properties from flooding risk and landslip, while also protecting and restoring habitats.
- City Plan Policy C1.2.9 encourages regular updates to coastal flooding plans and regulations to encourage public and private development to avoid areas at risk of anticipated sea level rise and to identify where existing development is in areas of potential risk. Where development exists in risk areas, support adaptation measures for its remaining useful life.

C1.4 Healthy Watersheds

- City Plan Policy C1.4.1 encourages the City to review and regularly update City design standards and regulations for public and private rainwater management systems to manage risks of flooding, including overland flow paths and relationships with sea level rise

☒ A Connected Nanaimo: Equitable Access and Mobility

C2.3 Recreational Trails

- City Plan Policy C2.3.6 supports designing recreational trail to support multiple objectives including hazard mitigation (e.g. wildfire breaks, sea level rise protection), emergency access routes and maintenance access.

☒ A Healthy Nanaimo: Community Wellbeing and Livability

C3.5 Emergency Management

- City Plan Policy C3.5.2 supports preparing to deal with known hazards and emerging threats, both natural and human caused, to limit the adverse impacts of events and effectively manage emergencies.
- City Plan Policy C3.5.7 supports strengthening the City's capacity for emergency preparedness, response and recovery by improving knowledge of known hazards that have potential to impact land, buildings, and infrastructure.

☒ An Empowered Nanaimo: Reconciliation, Representation and Inclusion

C4.10 Waterfront Use and Protection

- City Plan Policy C4.10.18 recommends incorporating sea level rise recommendations into future public and private improvements, amenities, and developments in areas potentially affected by sea level rise.

☐ A Prosperous Nanaimo: Thriving and Resilient Economy

ALIGNMENT WITH COUNCIL'S STRATEGIC PRIORITIES

The report is aligned with the following Council Strategic Framework priorities:

☒ Implementing City Plan Action Plans and Key City Management Plans

Developing a sea level rise management plan is included as a priority action (C1.2.12) within the City's Integrated Action Plan.

☐ Social, Health and Public Safety Challenges

☐ Maintaining and Growing Current Services

☒ Capital Projects

The project will inform capital projects included in Council's Strategic Framework, in particular the Waterfront Walkway and planning for development of 1 Port Drive.

☒ Communicating with the Community

The project includes a communications strategy to help the City develop resources to communicate future sea level rise impacts and how they can be managed to the public.

☐ Governance and Corporate Excellence

NEXT STEPS

The next steps are for Staff to consider ways to move forward with the recommendations from the Study, including potential updates to City Plan policy and updating the Integrated Action Plan with sea level rise related actions.

The report will also be shared with other key interest holders and partners including Snuneymuxw First Nation, Regional District of Nanaimo, Ministry of Emergency Management and Climate Readiness, and Nanaimo Port Authority. Staff recognize that several of the recommendations and options in the report, including erosion monitoring plan recommendations, involve other interest holders, including those named above and impacted property owners.

The Sea Level Rise Management Plan builds on a foundation of work already completed to understand the implications of sea level rise and helps inform decisions and actions to minimize the impact on our coastal city. There will be additional steps and decision points ahead over the short, medium and long term some of which are outlined in the consultant's report for consideration. There will be future consultation opportunities with the community and impacted parties depending on future Council decision points.

KEY MESSAGES

- The Sea Level Rise Management Plan, branded as “Our Coastal City” is now complete.
- Revised sea level rise mapping was completed for Departure Bay, Duke Point, Downtown and Protection Island.
- While present-day coastal flood risk is generally relatively low, with the exception of Departure Bay and Protection Island during larger storms, damages increase across all areas at 0.5 m RSLR, rise substantially at 1.0 m and increase sharply at 2.0 m.
- The final report includes site specific adaptation options as well as general recommendations to help the City mitigate the impacts of future coastal flooding and erosion.

ATTACHMENTS

ATTACHMENT A: Our Coastal City: Summary of Sea Level Rise Adaptation in the City of Nanaimo
ATTACHMENT B: Nanaimo Sea Level Rise Management Plan

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