CITY OF NANAIMO
THE HARBOUR CITY

OUR COASTAL CITY

COMMUNITY MEETING

MAY 21, 2026

We respectfully acknowledge that the city boundary lies within the Traditional Territory of Snuneymuxw First Nation who have many significant ancestral village sites throughout the city including Stlilnup (Departure Bay) and Sxwuyum (Millstone River). We recognize the Snuneymuxw Treaty of 1854, a trade and commerce treaty that forever and always preserves and protects Snuneymuxw villages, waters, enclosed fields, harvesting and gathering sites, and the right to hunt and fish as formerly.

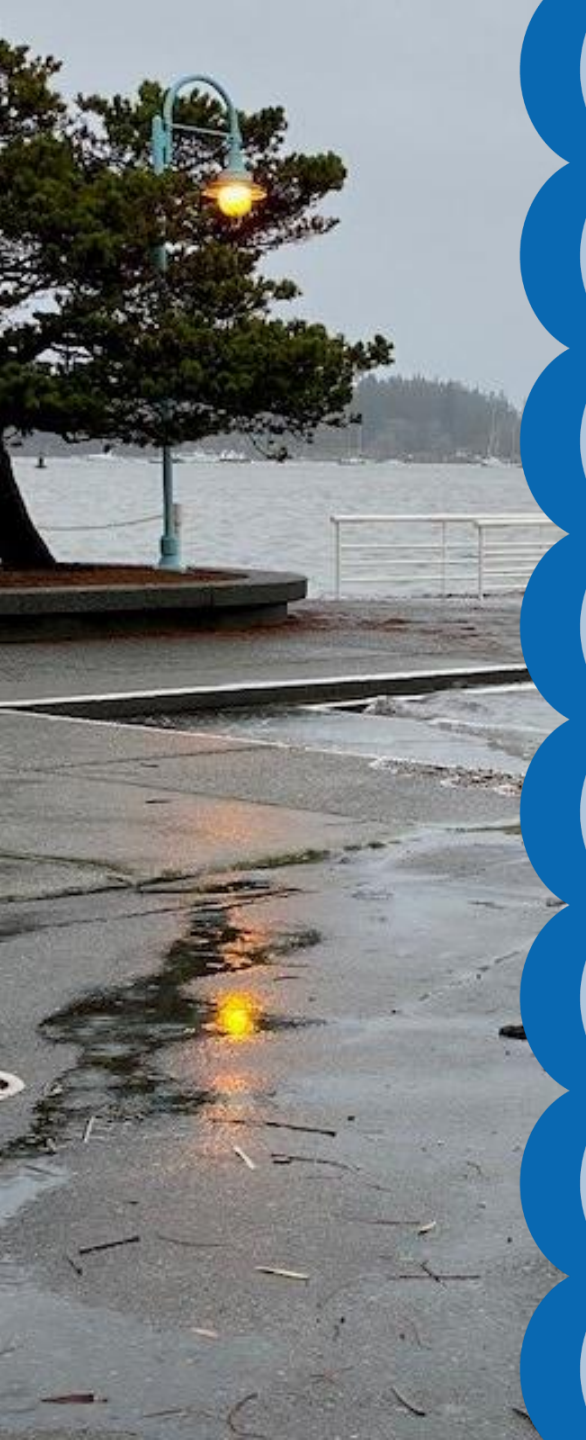
GOALS FOR TODAY

- **A Recap of the City's Project**, what it will accomplish, where it focuses, and efforts to date.
- **Explain** approaches to adaptation.
- **Discuss** the risks and objectives for each of the City's areas of focus.
- **Highlight** the parallel work being done by the RDN.



OUR COASTAL CITY

City of Nanaimo



BUILDING OUR RESILIENCE

Highlights of Work Led by the City



Sea Level Rise Study (2018)

The Sea Level Rise Study was conducted to better understand potential coastal flooding vulnerabilities along the City's shorelines. It identified several low-lying areas along the coastline which are likely to be impacted by sea level rise.

Climate Change Resilience Strategy (2020)

The Climate Change Resilience Strategy built on the Sea Level Rise Study to identify a wider range of climate related vulnerabilities within the City and suggest best practice actions to address or avoid climate related risks.

Our Coastal City (CURRENT)

We are exploring practical short- and long-term actions to reduce risk in key areas. The team is also conducting further modeling to refine likely impacts of sea level rise, as well as conduct an economic risk assessment of its impact in the City.

Implementation, Monitoring & Further Work (FUTURE)

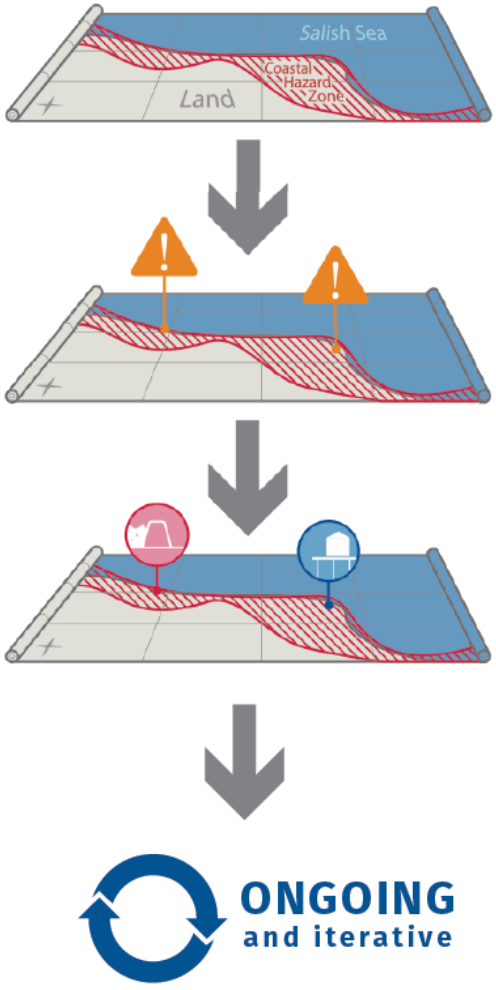
Climate change impacts cannot be solved in a single plan or project. The City's work will be ongoing and adaptive, requiring collaboration across communities, governments, and interest holders. By building a strong knowledge base and decision-making structures now, we lay the foundation for long-term success in addressing sea level rise and coastal change.



OUR CHANGING COAST

The Regional District of Nanaimo

BUILDING SHARED KNOWLEDGE



Coastal Floodplain Mapping (2021)

Floodplain mapping identified areas most likely to experience flooding today and in the future.

Coastal Flood Hazard DPAs (2024)

Updated for Areas A, E, G and H, which clarifies the requirement for Geotechnical Assessments prior to development in Coastal flood plain areas.

Coastal Risk Assessment and Coastal Erosion Hazard Assessment (2025)

The Coastal Risk Assessment evaluated how vulnerable buildings, roads and water and sewer infrastructure are to both current and future flooding. The Coastal Erosion Hazard Assessment identified shoreline areas more likely to experience erosion in the years ahead.

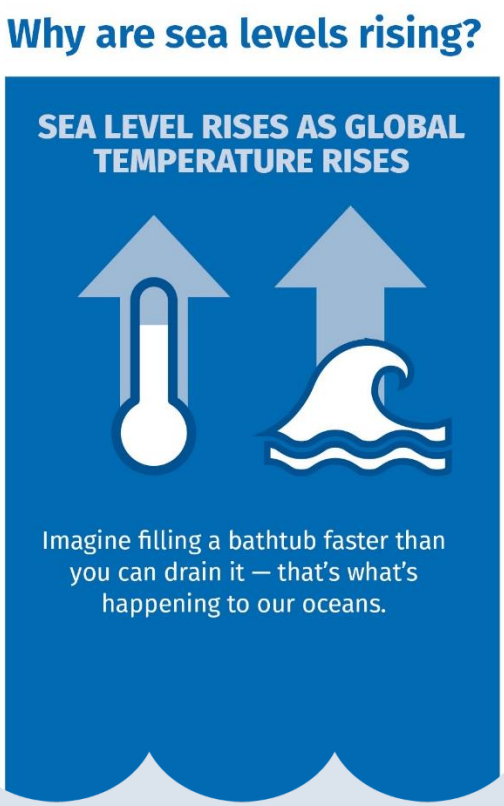
Coastal Climate Adaptation Strategy (Current)

Over the next two years, we are exploring practical short- and long-term actions to reduce risk in key areas and develop a clear, action-oriented strategy with defined steps, responsibilities and timelines for adaptation.

Implementation, Monitoring & Further Work (FUTURE)

Climate change impacts cannot be solved in a single plan or project. Our region's work will be ongoing and adaptive, requiring collaboration across communities, governments and interest holders. By building strong decision-making structures now, we lay the foundation for long-term success in addressing sea level rise and coastal change.

WHY ARE WE STUDYING THIS?



- Sea levels are rising primarily due to human-caused climate change.
- Warmer oceans expand, and ice is melting
- Sea levels present a unique challenge for coastal communities.



WHAT IS AT RISK IN THE CITY?

The **2018 Sea Level Rise Study** conducted a high-level investigation of potential flooding in the City

247 buildings
including homes, businesses, institutions, and offices

4 **high risk areas**
including Departure Bay, Duke Point, Protection Island, and areas of downtown

drainage systems
12,065 meters of pipe
121 manholes
147 outlets
2 reducers

sanitary systems
20,257 meters of pipe **160** manholes **8** pump stations

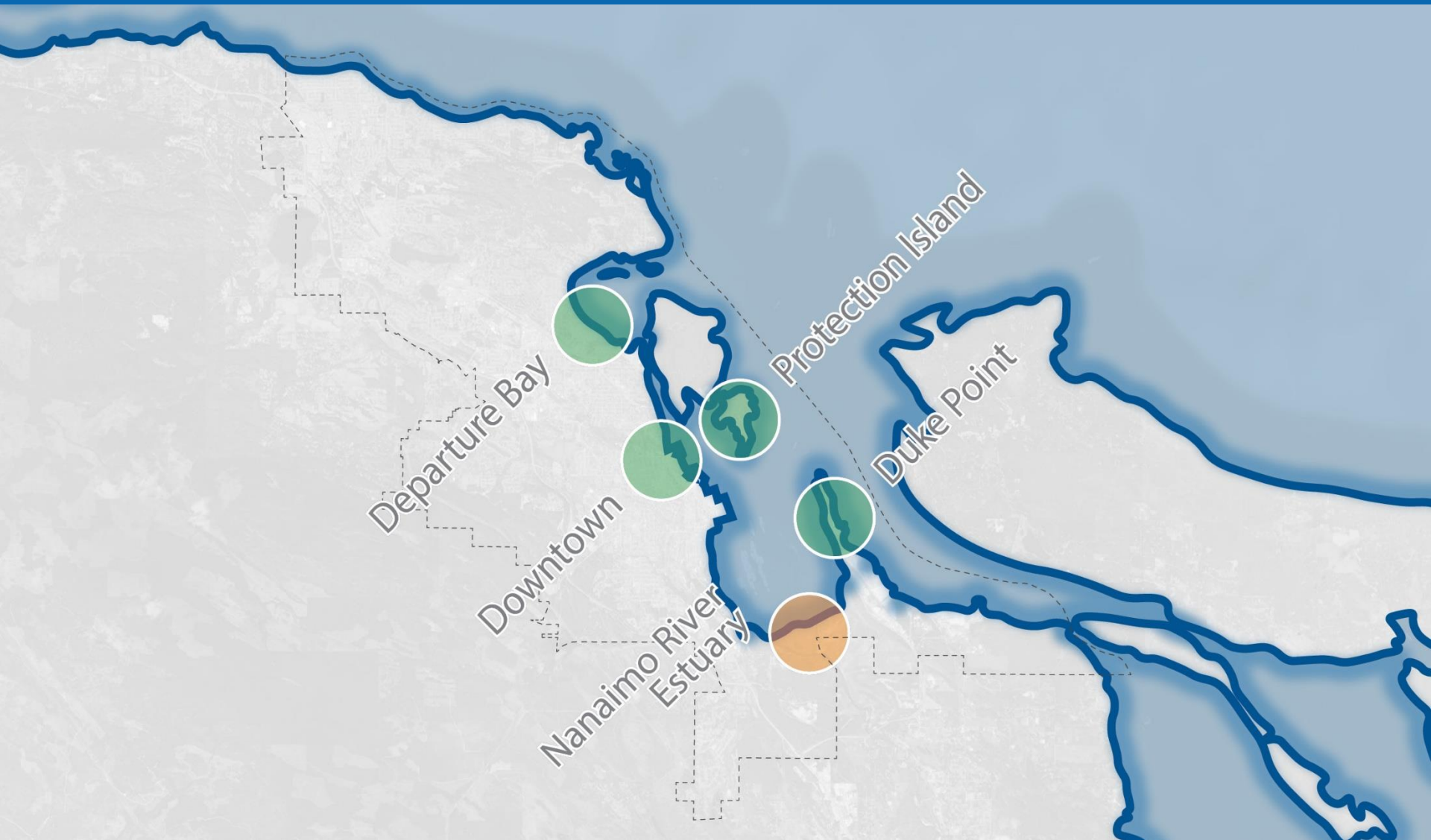
757
Number of lots affected

other potential utilities
like roads, telecom facilities, cables, and equipment

+ more (our future adaptation planning will include talking about what is most important)

* Impacts from flooding that could occur by 2050 based on the City of Nanaimo Sea Level Rise Study, 2018. Sea Level Rise relative to the year 2000 was used, with +0.06m noted in 2018, +0.38m anticipated for year 2050, and +0.88m for year 2100.

CITY AREAS OF FOCUS



WHAT IS AT RISK IN THE RDN?

The **Coastal Risk Assessment** illustrated potential risks across our region's coastal areas. These are for future conditions with 1 m of Relative Sea Level Rise and a Large Storm Event.

235 buildings
including homes, businesses and public spaces



18 km of roads
including sections of Inland Island Highway and parts of collector and local roads

water ecosystems



10 freshwater lakes
6 freshwater wetlands
9 saltwater wetlands
17 km of stream



2.5 km² of waterfront parkland
including parts of Rathtrevor Park, Parksville Community Park, Sandwell Provincial Park, Roberts Memorial Provincial Park and dozens of local beach accesses



3.6 km²
of sensitive ecosystems

hundreds of utilities
like manholes, telecom facilities, cables, pipes and equipment

+ more
adaptation planning includes talking about what is important within affected areas

*Impacts from flooding that could occur at 1 metre sea level rise based on the RDN Coastal Risk Assessment, 2025. According to CMIP-6 projections for the RDN based on RSLR projections for Gabriola Island, the highest risk scenario could reach 1 m by 2083. Coastal risk assessments are based on a model and are not an exact replica of reality. They generate approximate numbers meant for planning purposes.

RDN AREAS OF FOCUS

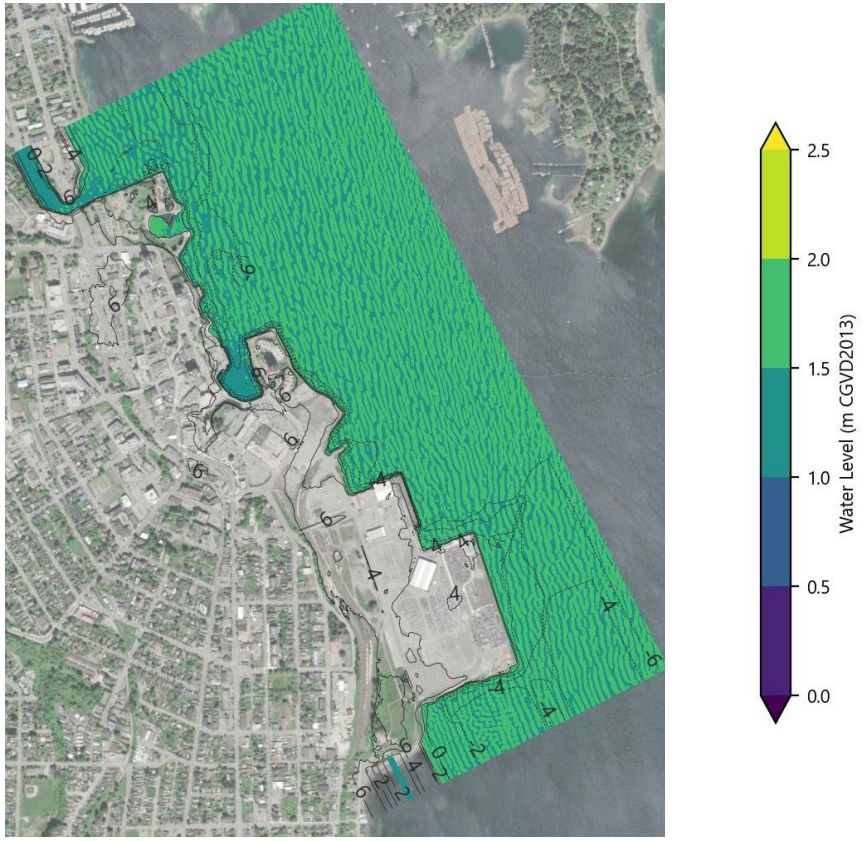




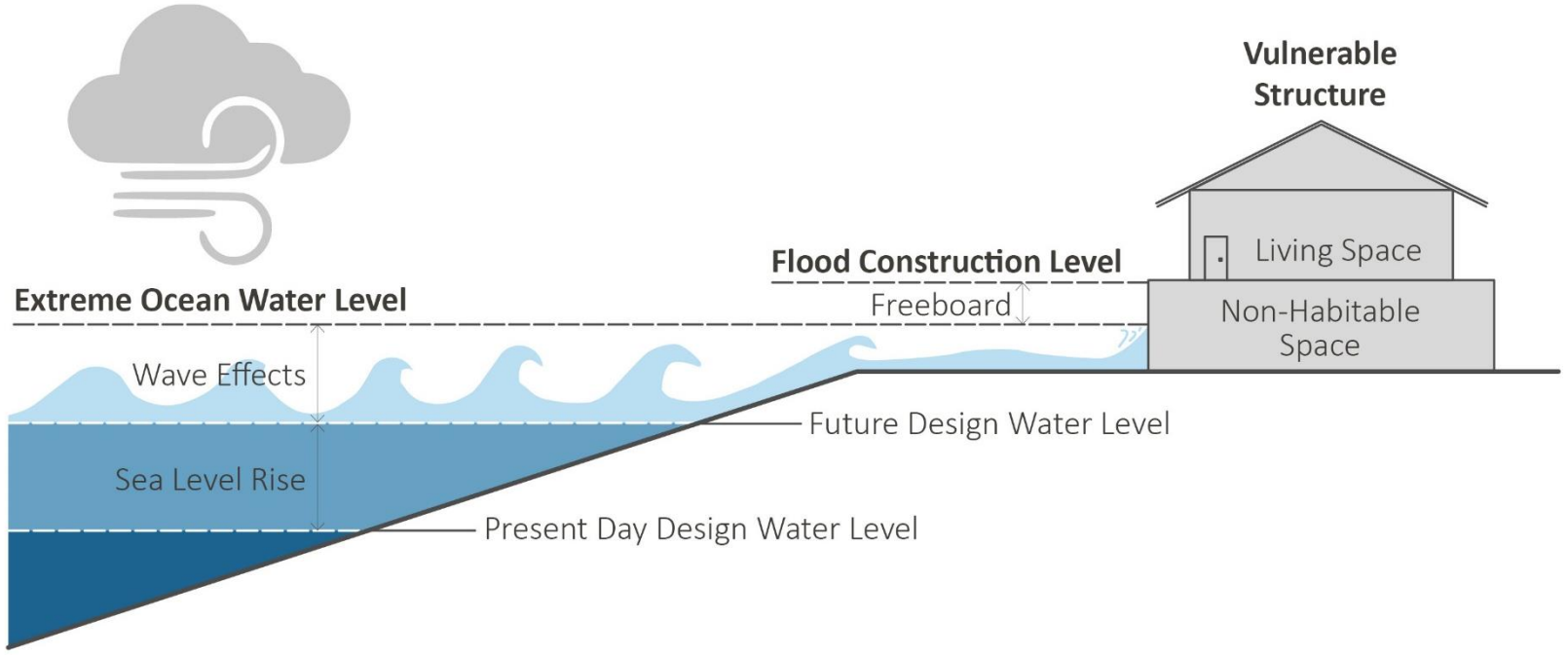
ROUND #1 RECAP

Development of Floodplain Maps

1. Joint Probability Analysis – to determine water level and waves
2. Regional Modelling
3. Nearshore Detailed Modelling
4. Floodplain Maps



Flood Construction Levels (FCLs)



Protection Island Floodplain Map

- FIRST NATIONS ADMINISTRATIVE AREA
- CITY OF NANAIMO
- EXTENT OF 2024 IMAGERY
- PROPERTY PARCEL BOUNDARY
- MAPPING LIMIT
- 4.6 DESIGN FLOOD CONSTRUCTION LEVEL (FCL) *COMPRISED OF THE 200 YEAR JOINT TIDE, STORM SURGE, AND WAVE RUN-UP (R_2%) WITH 1 m OF SEA LEVEL RISE (SLR)*, (m)
- DESIGN FLOOD INUNDATION EXTENT *INCLUDING SLR AND FREEBOARD*
- 4.6 DESIGN FCL ZONE *INCLUDING SLR AND FREEBOARD* (m)
- FCL EXTENT

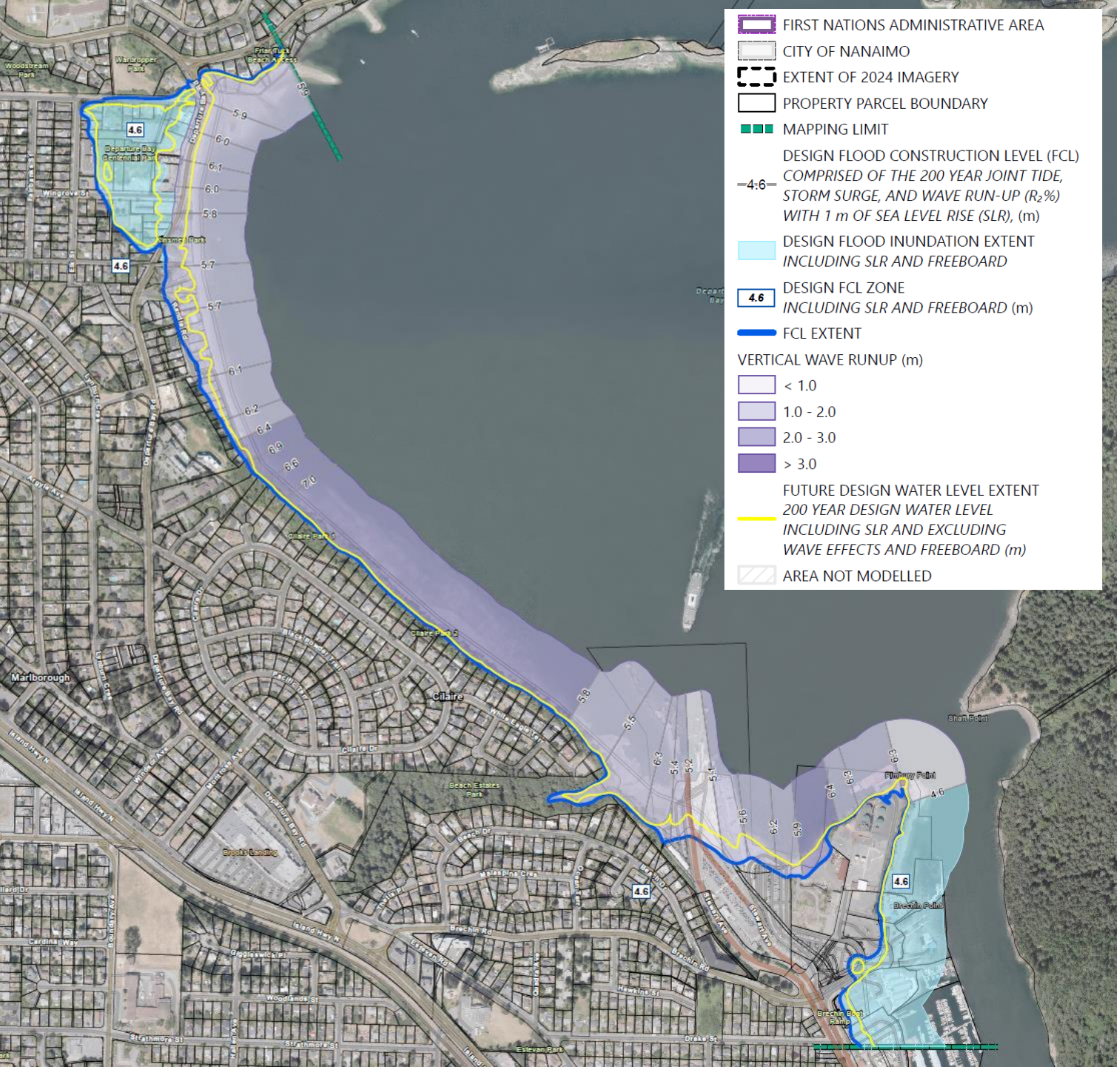
VERTICAL WAVE RUNUP (m)

- < 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- > 3.0

- FUTURE DESIGN WATER LEVEL EXTENT *200 YEAR DESIGN WATER LEVEL INCLUDING SLR AND EXCLUDING WAVE EFFECTS AND FREEBOARD (m)*
- AREA NOT MODELLED



Departure Bay Floodplain Map



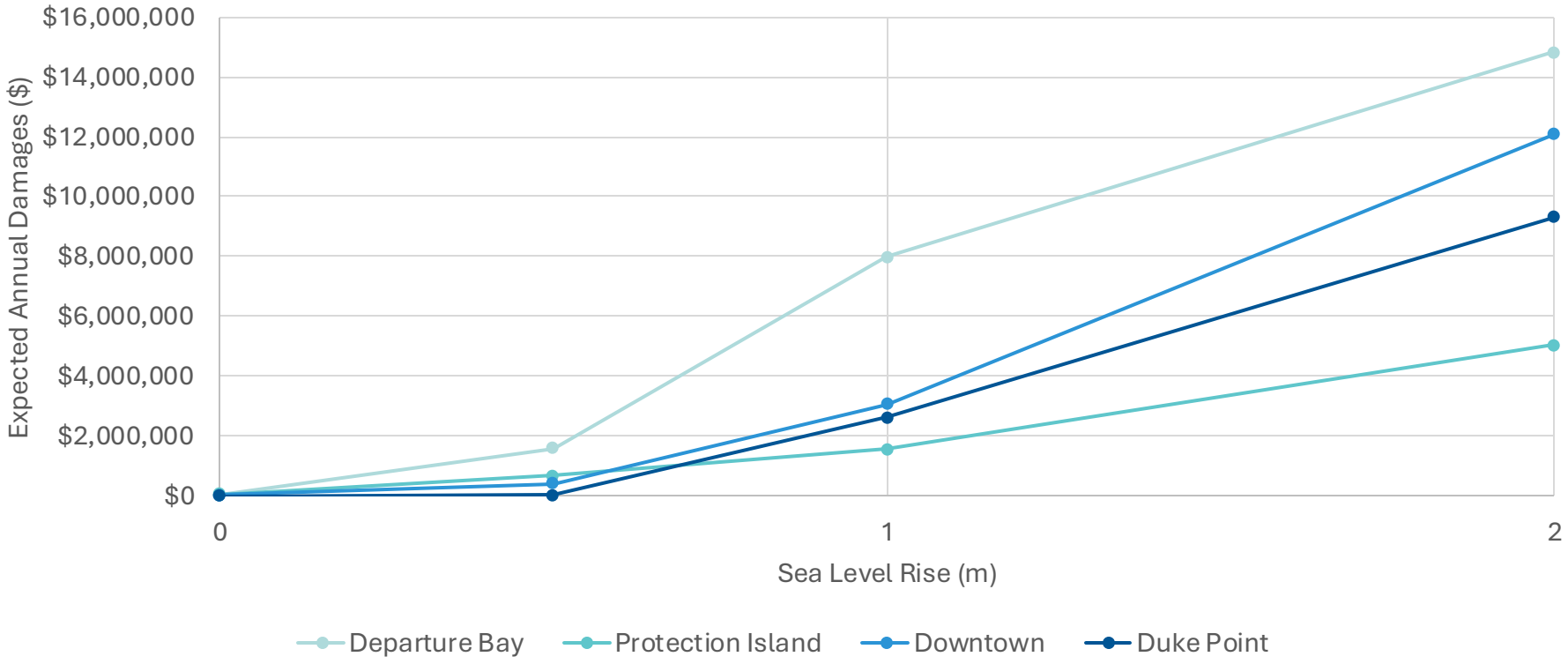
Downtown Floodplain Map



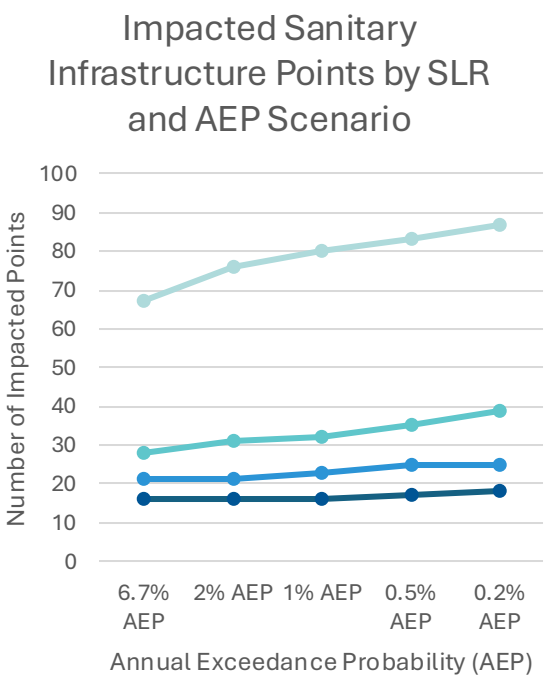
Duke Point Floodplain Map

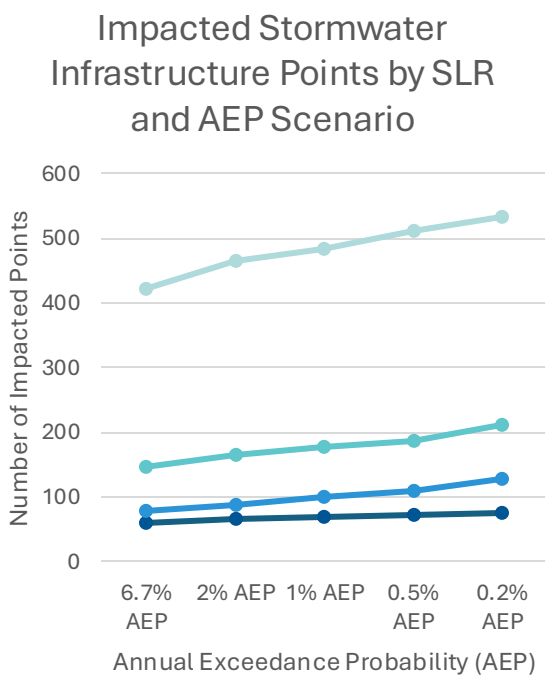


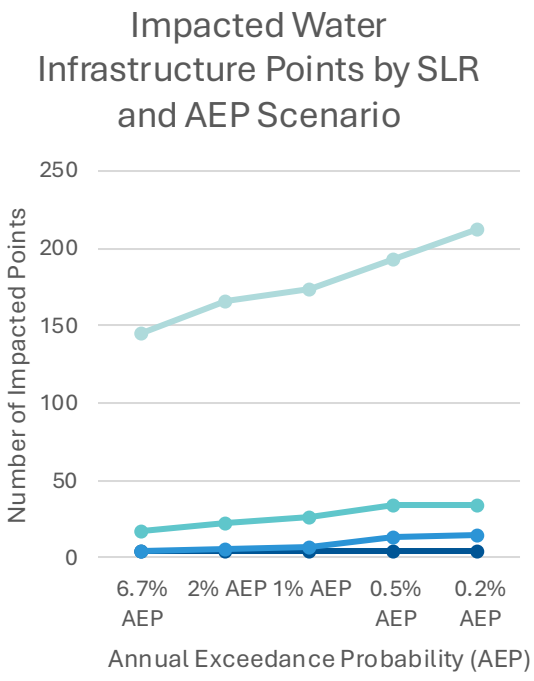
Risk Analysis – Preliminary Results (Buildings)

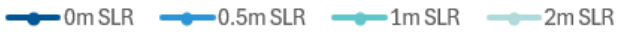


Risk Analysis – Preliminary Results (Infrastructure)









What We Heard ...

181 Survey Respondents

5 Focus Group Meetings

+640 Get Involved Page Visitors

ROUND 1 COMMUNITY VALUES

SUMMARY HIGHLIGHTS:

Most respondents (94%) have at least a basic knowledge of sea level rise (SLR).

59% of respondents do not own property at risk of being impacted by sea level rise.

AREAS WITH NOTABLE IMPACTS

- Departure Bay
- Protection Island
- Downtown
- Duke Point

RESPONDENT CONCERNS

- Loss of beaches, shoreline habitat, and public access
- Too much short term focus and not enough planning for the future
- Public cost and taxes to fund adaptation projects

COMMUNITY PRIORITIES
FOR ADAPTING TO SLR

- Preserve shorelines and natural areas
- Plan with consideration for future generations
- Protect homes and infrastructure
- Maintain safe public access to the shoreline

HOMEOWNER FEEDBACK

HOMEOWNER CONCERNS ABOUT SLR

- Loss of the shoreline and beaches
- Impacts to homes and property
- Too much short term focus and not enough planning for the future

HOMEOWNER PRIORITIES FOR ADAPTING TO SLR

- Preserve the shoreline
- Protect homes and property
- Include long term planning for future generations

(93%) of respondents prioritize solutions that mimic the natural coast

ACCESS TO THE COAST

Top ways respondents access the coast are:

- Visiting public spaces (parks, beaches, etc.)
- Enjoying scenic views (from home or public locations)



APPROACHES TO ADAPTATION



What actions are possible?

Depending on the scale of the solution, coastal adaptation can take many forms. At the highest level, adaptation strategies can be broadly categorized into five approaches. In practice, a combination of adaptation measures will be required.

Do Nothing



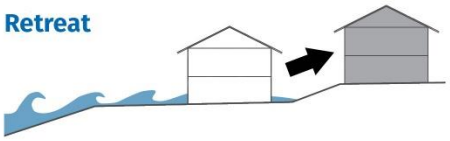
This means not planning, preparing or developing any strategies to deal with the impacts of sea level rise. **Doing nothing will most likely result in a delayed and much a more costly response** to sea level rise in the future.

Avoid



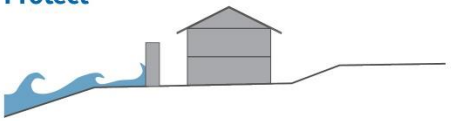
In areas that presently have little or no development, **avoiding future development through "no-build" areas is often the most effective approach to mitigating coastal hazards.** In areas with extensive existing human development, this approach may be more difficult.

Retreat



Retreat involves strategic, and often phased, **relocation of people and assets outside of high hazard areas.** It may also benefit the natural environment by providing space to adapt to the effects of climate change and sea level rise. Retreat can be implemented with assistance over long timescales to avoid negative outcomes.

Protect



Protecting involves constructing barriers against flood waters. This can include **"hard" measures like dykes and seawalls or "soft" measures like green shores**. "Hard" measures often have negative impacts on ecosystems.



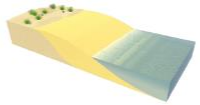
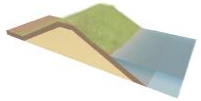
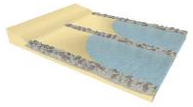
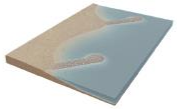
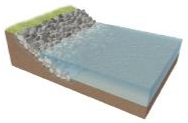
"Soft" measures work with natural systems to find ways to protect against flooding while expanding the ecological integrity of a shoreline. These often involved the creation of new habitat and ecosystems.

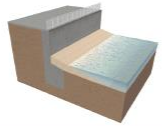
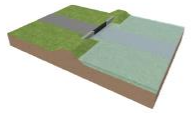
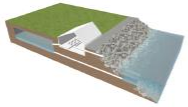
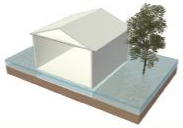
Accommodate



Accommodation involves adapting existing land uses through measures like elevating living areas and improving building design to help a structure withstand flooding.

A TOOLKIT OF METHODS

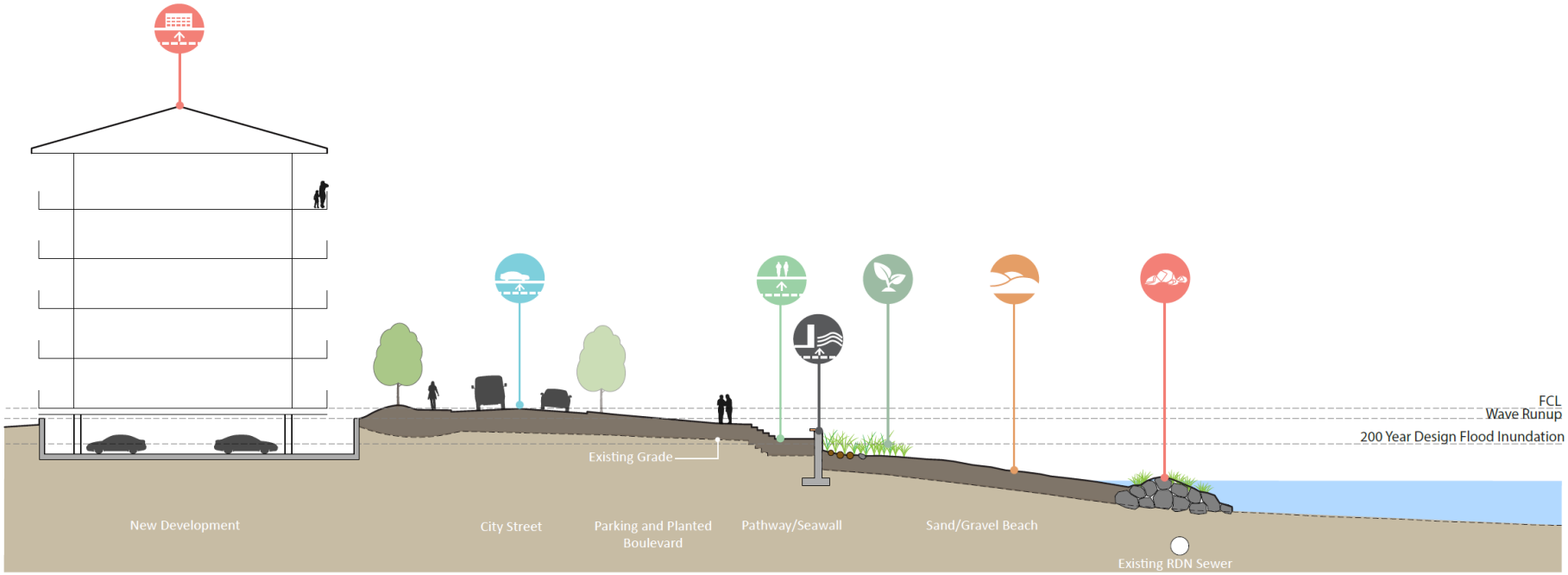
ADAPTIVE STRATEGY	SCALE	BENEFITS/LIMITS
Beach Nourishment 	Neighbourhood / reach	• Expands the usable beach area, allowing for increased public access and use • Reduces wave runup and wave effect elevations at natural boundary
Living Shorelines 	Neighbourhood / reach	• Provides increased complexity of intertidal habitat and coastal vegetation • May help improve water quality • Provides educational opportunities • Must be sheltered from erosion
Dikes 	Neighbourhood / reach	• Will resist storm waves when surface is properly armoured • Land on top of dikes can be used for paths or roads • May block views of the sea
Groynes 	Neighbourhood / reach	• Can extend lifespan of beach nourishment projects • Wide range of construction methods and materials • Inconvenience to walking along the shore • Can increase beach erosion
Offshore Reefs / Breakwaters 	Neighbourhood / reach	• Can create marine habitat • Provide recreational opportunities • May be augmented as seas rise • Potential visual impact and navigation hazard
Pocket Beach / Headland 	Neighbourhood / reach	• Use a combination of gravel beach nourishment and offshore stone headlands • Provide recreational opportunities • Can be relatively expensive
Rock armouring 	Neighbourhood / reach	• Unlikely to fail catastrophically, and when properly engineered have an indefinite lifespan • Leads to coastal squeeze and intertidal habitat loss • Creates wave splash, but less than seawall

ADAPTIVE STRATEGY	SCALE	BENEFITS/LIMITS
Seawalls 	Neighbourhood / reach	• Smaller footprint compared to other strategies • Can be designed to allow for public use of the waterfront • Not recommended for exposed areas due to high wave runup and overtopping elevations • Leads to habitat loss
Temporary Flood Barriers at Driveways 	Neighbourhood / reach	• Relatively easy to install • Appropriate where grades do not allow raising roadways • Barrier must be placed in advance of storm
Floodbox / Pump Station 	Neighbourhood / reach	• Used to drain large areas that have been inundated by coastal and/or inland floodwaters when storm drains are overwhelmed • Expensive to build and can have high energy consumption
Elevate on Fill 	Building / Lot	• At appropriate elevations, can provide continued protection from flooding due to coastal storms or sea level rise • Neighbouring constraints may limit space for fill slope • May require maintenance to prevent erosion
Elevate on Piles 	Building / Lot	• Provide protection for the broadest range of flooding conditions • May provide for additional parking space under the building. • Emergency access is restricted
Wet Floodproofing 	Building / Lot	• Recognizes some uses like crawl spaces, parking or storage could accept flooding • Does not stop flooding
Protect Building Systems 	Building / Lot	• Relocate critical equipment above flood level • Can often be applied to buildings in place • Can be used in conjunction with other strategies to provide additional protection • Can allow quicker building recovery • Does not stop flooding

PUTTING THE PIECES TOGETHER

- The strategies shown on the previous page will likely be **used in a combination of measures.**
- **Successful approaches will rely on many different interventions** to protect buildings and community spaces from future flooding.
- Want to **understand at a conceptual level** how you might approach adaptation in different locations within the City.

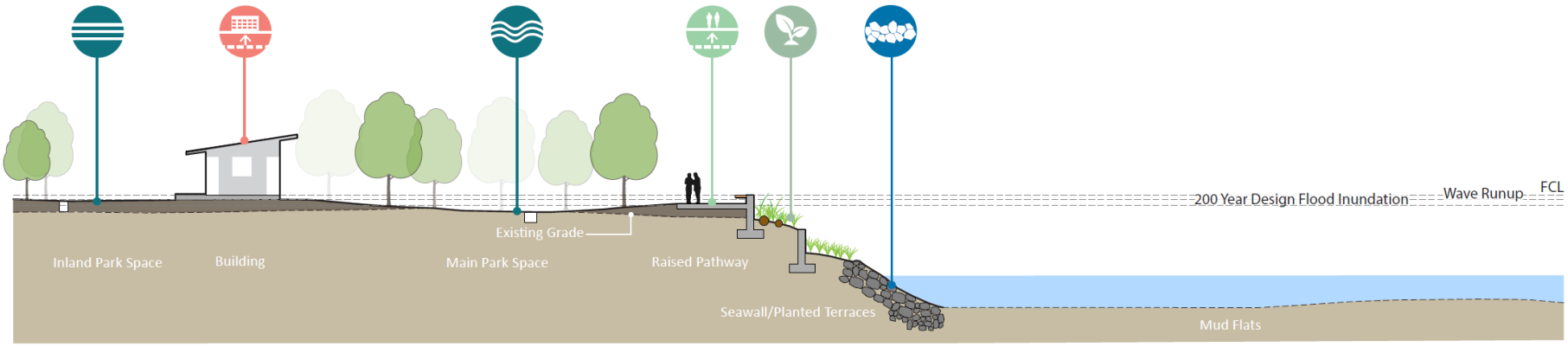
Adapting In Low-lying, Developed Areas



ADAPTION STRATEGIES

- Habitable floors of new development to be above FCL. Parking to be above still flood water (200 Year flood design) or wet floodproofed
- Raise road to be above wave runup at time of reconstruction
- Raise waterfront trail as sea level rises
- Raise seawall at time of reconstruction
- Naturalized area (dunegrass complex)
- Boulder reef break water
- Beach nourishment, beach retained as a community amenity

Options For Waterfront Parks



ADAPTION STRATEGIES

Non-floodable park uses designed to be above waves/ inundation and to drain to remain dry

New park buildings to be constructed above FCL or designed to be wet floodproofed

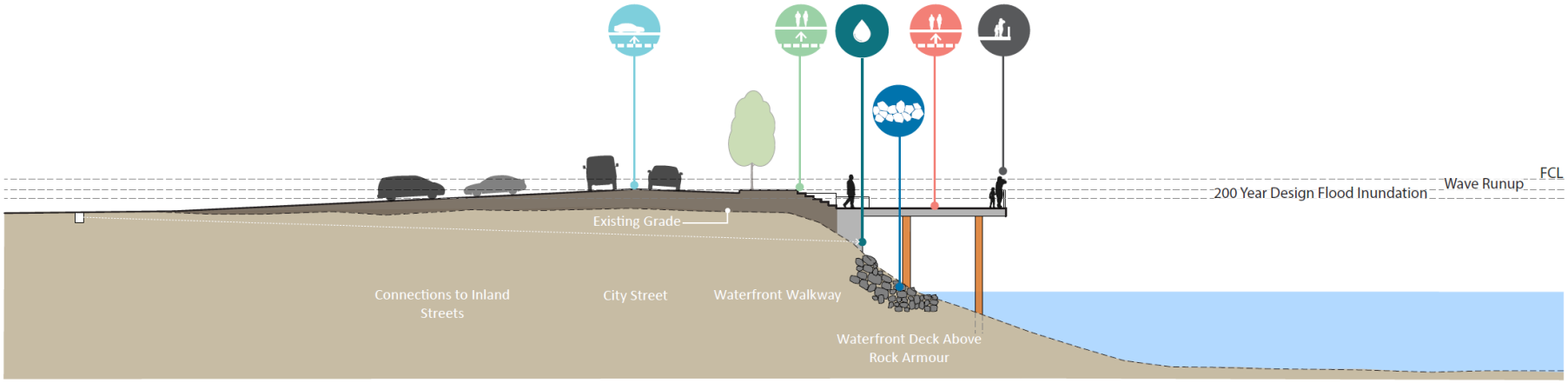
Some park uses acceptable to be temporarily floodable and to drain post storm event

Raise waterfront trail as sea levels rise

Naturalized terraces with tiered seawalls (dunegrass complex above 2.5m, sedge complex above 0.9m)

Rock armour foreshore

Considering Movement Corridors



ADAPTION STRATEGIES

- Raise road to above wave runup (road to ramp down to Museum Way)
- Raised pedestrian route with ramp/step down to waterfront deck
- Storm drain flood box outlet through sea wall
- Rock armour foreshore
- Existing deck on piles (raise elevation when rebuild occurs)
- Flood barrier handrail and temporary barriers (interim)

DETERMINING VIABILITY

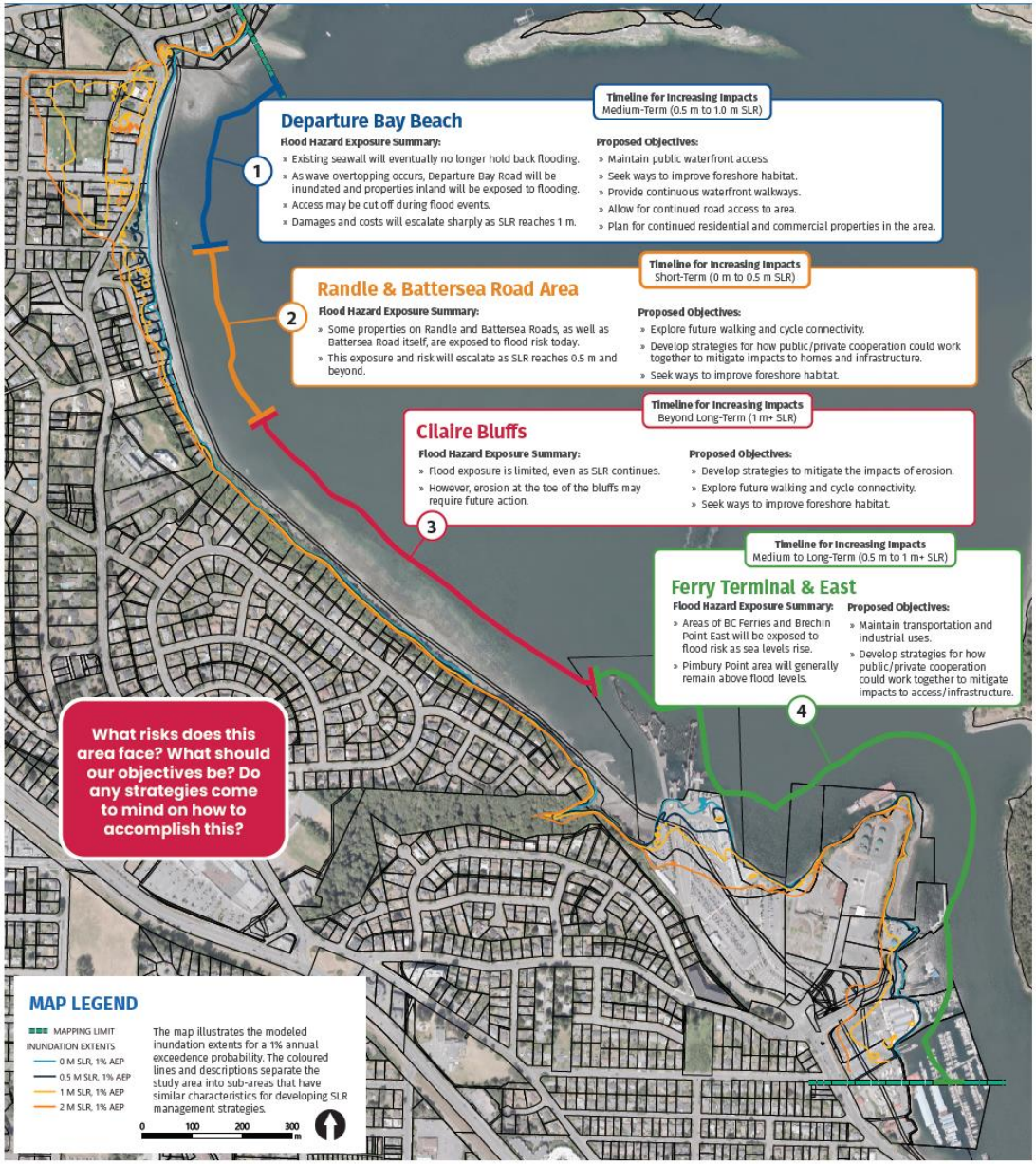
- **Technical studies** determine conditions at each location and which methods might be applied.
- Each **balances a variety of criteria** related to people, economics, the environment, recreation/culture, and impacts to infrastructure.
- **What Can the Private Landowners Do? What Can Government Do?** There are varying scales of interventions possible for each.



RISKS & OBJECTIVES

OUR COASTAL CITY
DEPARTURE BAY

SUB-AREAS:
SUMMARY OF FLOOD HAZARD EXPOSURE & OBJECTIVES



DISCUSSION

Steps

1. Review the risks and proposed objectives for each sub-area to the left.
2. Record your questions and feedback in the space provided.

Comments, Questions, or Alternate Objectives? Record Your Thoughts on a Sticky Note Below!

1 Departure Bay Beach

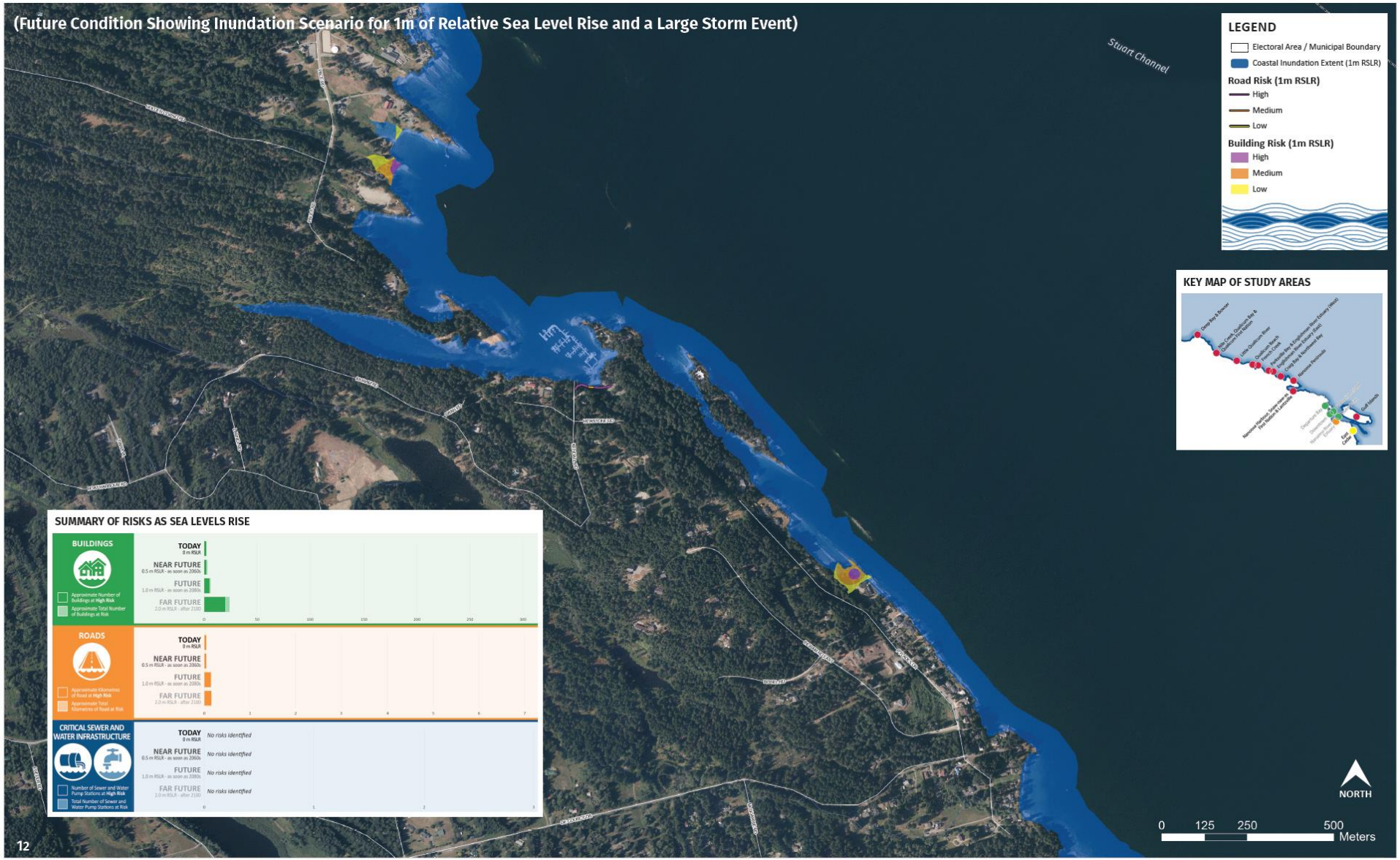
2 Randle & Battersea Road Area

3 Cilaire Bluffs

4 Ferry Terminal & East

East Cedar

1m of Relative Sea Level Rise and a large storm surge (as early as 2080s)





QUESTIONS?



OUR COASTAL CITY
Take the survey on the project webpage!

OUR CHANGING COAST
Visit the RDN's page to find out more!

DISCUSSION