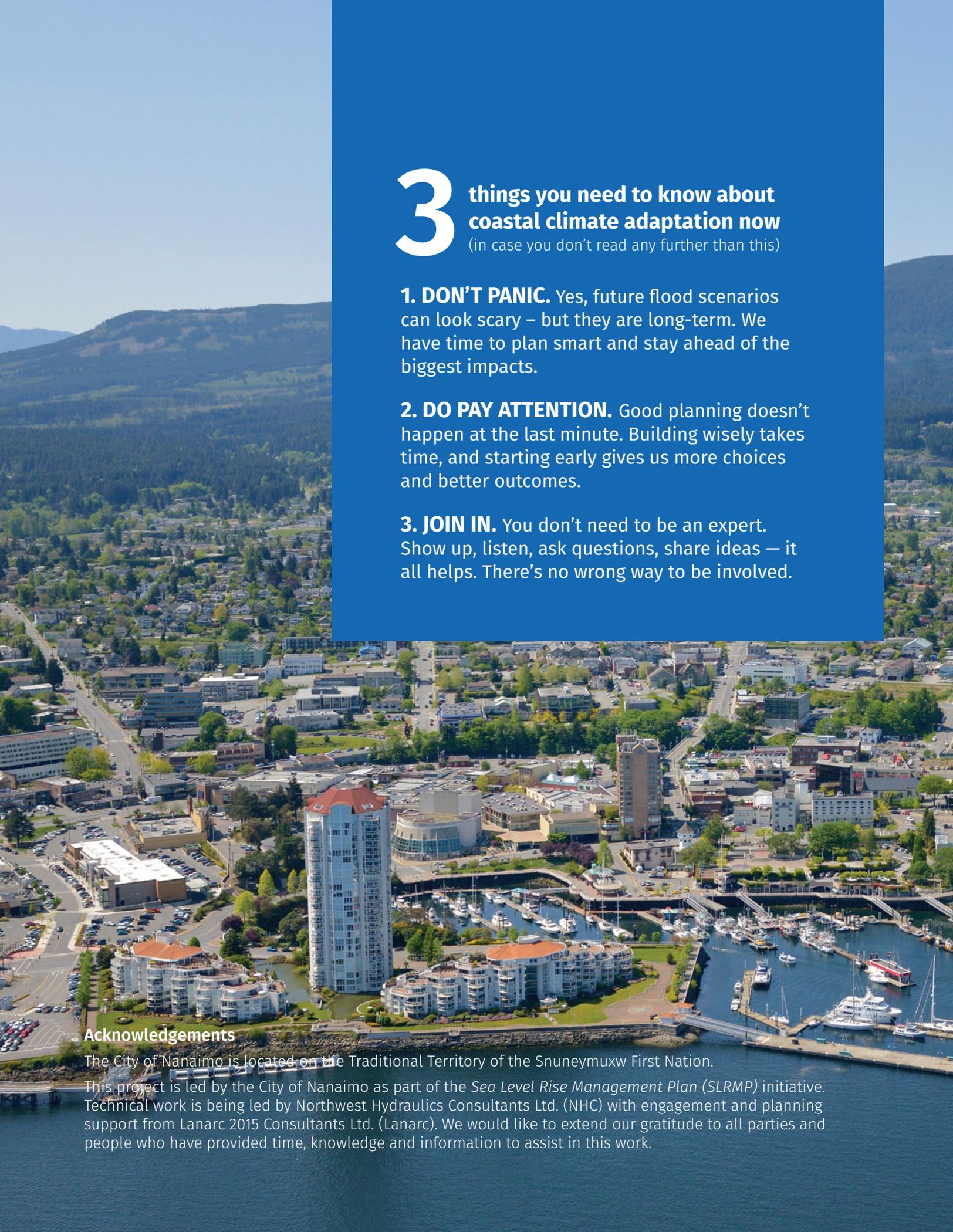


OUR COASTAL CITY

An Introduction to Coastal Climate
Adaptation in the City of Nanaimo

FEBRUARY 2026





3 things you need to know about coastal climate adaptation now

(in case you don't read any further than this)

1. DON'T PANIC. Yes, future flood scenarios can look scary – but they are long-term. We have time to plan smart and stay ahead of the biggest impacts.

2. DO PAY ATTENTION. Good planning doesn't happen at the last minute. Building wisely takes time, and starting early gives us more choices and better outcomes.

3. JOIN IN. You don't need to be an expert. Show up, listen, ask questions, share ideas — it all helps. There's no wrong way to be involved.

Acknowledgements

The City of Nanaimo is located on the Traditional Territory of the Snuneymuxw First Nation.

This project is led by the City of Nanaimo as part of the *Sea Level Rise Management Plan (SLRMP)* initiative. Technical work is being led by Northwest Hydraulics Consultants Ltd. (NHC) with engagement and planning support from Lanarc 2015 Consultants Ltd. (Lanarc). We would like to extend our gratitude to all parties and people who have provided time, knowledge and information to assist in this work.



What's inside?

Lots of information! Feel free to skip around to what interests you most.

SECTION 1: About Our Coastal City

Start here to learn about why we're doing this work and why you should be a part of it. We're going to do our best to convince you to be part of planning for coastal climate adaptation in our city.

SECTION 2: The Science and Studies

We'll talk (a tiny bit) about climate change and then more about how it is affecting areas in our city.

SECTION 3: Adaptation Pathways

We're going to introduce you to adaptation options and the idea of planning using adaptation pathways. What on earth they are and why they're helpful in coastal climate adaptation planning.

SECTION 4: What Happens Next?

We'll leave you with a list of next steps and a special request to make sure you share your ideas and thoughts about the values of our coastal areas.

The Regional District of Nanaimo is also studying coastal adaptation. See the accompanying *Our Changing Coast* primer.



Better Together

Flooding doesn't care about boundaries. Rising seas don't check who owns the land, which municipality is nearby, or who is affected. Preparing for the flooding, erosion, and disruptions ahead — whether it's your home, your business, your commute, or your favorite picnic spot — is something we must tackle together.

The Case for Collaboration

The best solutions don't exist in isolation. If one area builds protections while a neighboring area does not, the water will simply find the next weak spot along the shore. Unprotected areas can face greater impacts — from damaged buildings and lost habitat to higher emergency costs and increased stress on residents.

Shared Approaches, Specific Risks

The science behind sea level rise, and the range of options to deal with, it is consistent across jurisdictions. Each will need to apply them in a way tailored to location specific risks. This document outlines an approach at the city scale, and is related to primers for the region (refer to *Our Changing Coast*, a Regional District of Nanaimo focused version).

SECTION 1

About Our Coastal City

Our Coastal City is about starting conversations, planning ahead, and taking action together to prepare our City's coastal areas for climate change. It focuses on understanding what we need to do — and when — to protect people, nature, and the places we value as sea levels rise.

Our City's Shorelines Are Changing

Sea level rise can feel like a distant issue. The salt still tastes the same when we swim at Blueback Beach. The views look familiar as we drive along Departure Bay Road. The water feels no different when we push off in our boats.

But if we look closer, the signs are already there. Tree roots are exposed along eroding shorelines. Debris sits higher on beaches after high tides. Water flows over roads during a storm that once passed without notice. **Sea level rise is affecting our communities and our natural environment. Even a few more inches will significantly change life in coastal areas.**

The Salish Sea — influenced by an expanding Pacific ocean and melting glaciers — is rising. Current climate science suggests we could see over three quarters of a metre of sea level rise by 2100, with change accelerating over time.¹ Combined with atmospheric rivers and King Tides, rising seas increase the risk of flooding to homes, roads, and shorelines we know and love.

¹ City of Nanaimo Sea Level Rise Study. 2018

A Choice: Action or Inaction?

Life is busy and the second half of the century can feel far away. It's easy to push sea level rise to the back of our minds. But the choices we make today shape the future our children and grandchildren will inherit. And the infrastructure and buildings we construct now will have lifespans into the 2050s and beyond.

In 2019, an expert panel on climate change risks and adaptation potential estimated that, **with early planning and action, up to 75% of the costs and disruption from coastal climate impacts could be avoided** over a 20-year timeframe — including impacts to infrastructure, community services, and health and wellbeing.²

That is why now is the time to act.

² CCA | CAC. Canada's Top Climate Change Risks. 2019.



What are we planning for?

Protecting People

Coastal flooding can put people at risk during sudden flood events and, over time, force residents and businesses to relocate as land is permanently lost.

Sustaining Environmental Values

Rising seas and saltwater intrusion threaten coastal wetlands, freshwater fish habitat, and riparian areas. As the space between on natural shorelines and hardened development get squeezed by sea level rise, the ecosystems that protect our coast and support biodiversity can be lost.

Adapting Infrastructure

Roads, utilities, and essential services are vulnerable to flooding and erosion. As shorelines change, some infrastructure may need to be reinforced, redesigned, or relocated to remain safe and reliable.

Supporting Economy

Storm surges and sea level rise can damage homes, businesses, and private property. When infrastructure is disrupted, access to goods, services, and customers is interrupted — affecting livelihoods and local economies.

Preserving Valued Spaces and Practices

Public waterfront spaces, cultural sites, and recreational areas are central to coastal life. These places — where people gather, work, live, and play — are often among the first to experience flood impacts.

Using Resources Wisely

Planning ahead allows us to make thoughtful, long-term decisions while also taking practical, “no-regret” actions that reduce risk and provide benefits today.

Building Our Resilience

The City is proactively addressing this challenge. Many efforts have already been completed and are underway that will contribute to building Nanaimo’s resilience in the face of rising sea levels and the broader impacts of climate change. Below are a selection of studies that *Our Coastal City* is building upon.

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.

Explore the work: www.getinvolvednanaimo.ca/sea-level-rise

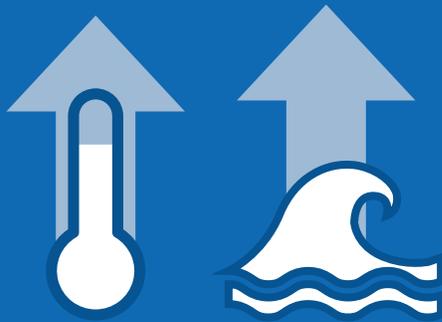
SECTION 2

The Science and Studies

Many (very long) reports have been, and continue to be written, on the science of climate change. To keep things brief, we're including a short intro here, but if you're curious to dive deeper into the science, visit www.getinvolvednanaimo.ca/sea-level-rise for useful links.

Why are sea levels rising?

SEA LEVEL RISES AS GLOBAL TEMPERATURE RISES



Imagine filling a bathtub faster than you can drain it — that's what's happening to our oceans.

Sea levels are rising primarily because of human-caused climate change. Since 1880, the global average temperature has increased by about 1.1°C, with most of that warming occurring since 1975 at a rate of 0.15–0.20°C per decade.¹

Warmer oceans expand, taking up more space, and melting glaciers and ice sheets in the Arctic and Antarctic add even more water to the seas. Together, these processes increase the volume of water in our oceans, raising sea levels worldwide.

Sea level rise presents a unique challenge. Even if we drastically reduce greenhouse gas emissions today, oceans will continue to rise for hundreds — or even thousands — of years. That means we must prepare.

¹ NASA. World of Change: Global Change: www.science.nasa.gov/earth/earth-observatory/world-of-change/global-temperatures/



What causes coastal flooding?

Coastal environments are dynamic—constantly being influenced by many factors. When the five factors below combine under the right conditions, higher-than-normal ocean water levels can be created, leading to coastal flooding. While tides will remain constant and predictable, climate change will affect all the other factors, with sea levels rising over time and potential for bigger storms with more storm surge, wave effects and wind effects.

1 TIDES

Tides are the predictable and cyclical rise and fall of ocean water levels caused by the gravitational pull of the moon and sun. High and low tides in the City have a range of about five metres. A few times a year, larger tides occur, sometimes called king tides. When high tides coincide with storm events, the potential for flooding increases.

2 SEA LEVEL RISE

Sea level rise is the overall increase in the level of the world’s oceans due to climate change. It is primarily caused by two factors: added water from melting ice sheets and glaciers caused by a warming climate, and the expansion of ocean water as it warms. As sea levels rise, high tides will become even higher than today, increasing the risk of future flooding.

3 STORM SURGE

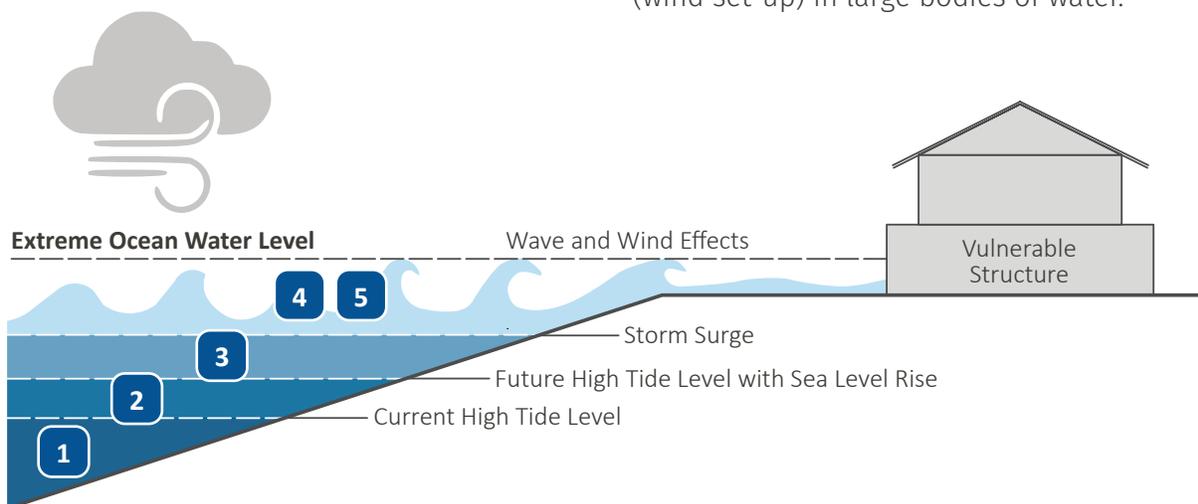
Storm surge is the rise in sea level on top of the normal tide due to the combined effect of strong winds and low air pressure. Storm surges in the City typically peak at less than 0.5 metres, but can be greater than one metre over regular water levels.

4 WAVE EFFECTS

Waves are disturbances on the ocean, usually generated by wind blowing across its surface. Wave effects are how waves interact with the coastline, including how they can both increase overall water level next to the shore during a storm and crash against shoreline lands and structures with significant force.

5 WIND EFFECTS

Winds can push water in a specific direction, causing a rise in water level near the shore (wind set-up) in large bodies of water.



What do rising seas mean for coastal communities?

Coastal impacts are already happening today, often during high tides, King Tides, or storm surges, leading to flooding and shoreline erosion. As sea levels continue to rise, these events are expected to become more frequent, more severe, and affect larger areas.

Impacts Today

- Damage to homes and businesses
- Damage to critical infrastructure like roads, bridges, sewer, water, and communications
- Destruction of plant and wildlife habitat
- Erosion and loss of coastal lands
- Temporary flooding of communities
- Waves washing out sea walls, berms, and other shoreline defenses
- Damage to cultural, parks, and recreational assets

Impacts Tomorrow

- Increased duration and frequency of today's hazards
- Threats to human health and safety
- Increasing insurance costs
- More salt contamination in soils, groundwater, and surface water resources
- Longer periods of flooding and recovery
- Loss of intertidal zone habitats
- Interruptions to business and economic loss



What could be at risk in the City by 2050?*

The **2018 Sea Level Rise Study** conducted a high-level investigation of potential flooding in the City to facilitate future planning. It generated a broad assessment of what was potentially at risk from the present all the way to 2100. The snapshot below illustrates features that could be impacted as sea levels rise to 2050.

Note: The 2018 Sea Level Rise Study was a strategic-level assessment that used conservative 'Flood Construction Levels' to map potential risks on buildings, properties, and infrastructure. Due to this general methodology it was not intended to show a true reflection of flooding for particular locations. The current work is looking to further refine the data for select, vulnerable areas to give a more realistic picture of what is at risk.



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

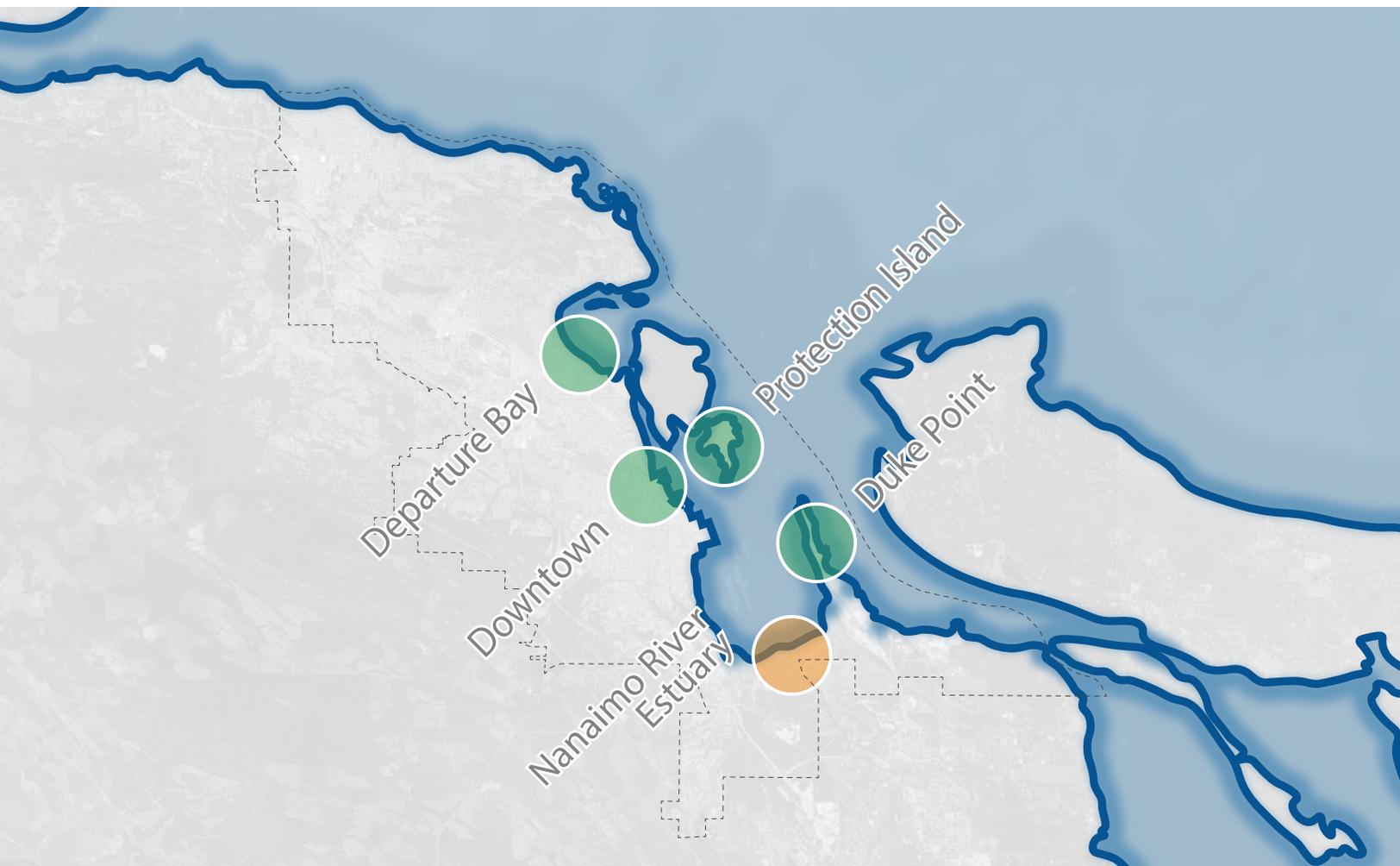
+ more

(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.

Areas with Rising Risks

The 2018 *Sea Level Rise Study* completed by the City **identified areas along the City's shoreline where existing homes, businesses, and infrastructure face increased vulnerability to flooding as sea levels rise.** Our work will focus on these areas to improve our understanding of the risks and consider plausible solutions.



LEGEND

 Areas of the City identified in the 2018 *Sea Level Rise Study* with higher vulnerability to coastal flooding.

 Area where additional data gathering is in progress.

Okay, so what are we going to do about it?

Remember What Page 1 Said: Don't Panic

Although future risk projections can feel concerning, the latest sea level rise estimates show that we still have time to prepare. Current climate science suggests we have decades to plan for sea level rise of 0.5 metres and above. With the right mix of targeted adaptation actions, many of the potential damages and costs of climate change can be reduced.

Having time on our side gives us the opportunity to plan thoughtfully and efficiently. Everything we build eventually reaches the end of its life and must be renewed, replaced, redesigned, or removed — and those moments are often the best opportunities to incorporate adaptation. By planning now, we can make informed choices about what to do when those moments arrive, reducing future damage and disruption.

Choosing to delay or do nothing narrows our options and increases costs over time. What we build today will still be around for the impacts of tomorrow.

Adaptation isn't a single solution. It is a combination of many actions we can take over time to stay ahead of increasing risks.

Adaptation Actions that Prepare

These actions lay the **groundwork for good decision-making** — supporting future choices that are equitable, inclusive, and informed by science, local knowledge, and community values

- **Building knowledge and capacity.**
Improving data, tools, monitoring, and community understanding to support informed decisions.
- **Creating supportive policies and regulations.**
Updating land-use rules, regulations, and decision-making frameworks so adaptation is seamlessly integrated into future development and plans.
- **Agreeing on how decisions are made.**
Establishing a shared approach to who makes decisions, what information is used, and how actions are planned and funded — with attention to reducing disproportionate impacts on vulnerable communities.



Example project: Beach Creek Estuary, Qualicum Beach, BC. This project supported shoreline adaptation to coastal pressures through the creation of a marine spit, salt marsh terraces, and Green Shores planting. Work was completed as part of an infrastructure renewal project for the Memorial Avenue roundabout.

SECTION 3

Adaption Pathways

How do we achieve action amidst uncertainty?

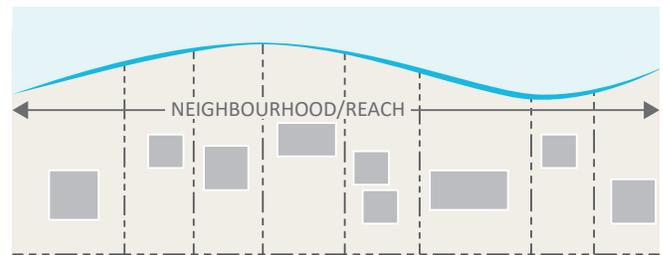
Choosing a pathway forward requires navigating a world where uncertainty forces us to be flexible. There are a wide variety of options we can choose from to adapt to sea level rise, and our path to a successful future means weighing these options and using a combination of them over the short and long term.

A Story of Two Scales

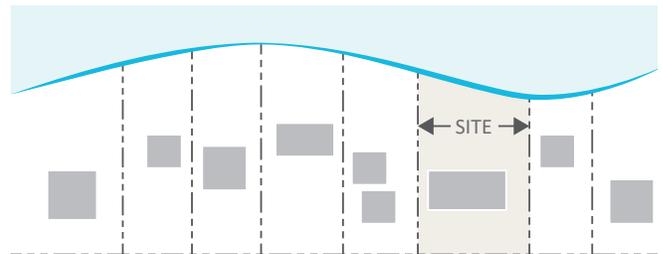
When starting to decide how to adapt to sea level rise, one of the first decisions is at what level to tackle the problem. A broad list of typical adaptation methods are possible, and these can be separated into two scales.

Neighbourhood (or 'reach' scale) adaptations use larger areas of coastline, often changing the foreshore to protect land from damage caused by coastal flooding. These adaptations often require different administrative areas to work together on larger-scale strategies, which may be more effective for complex areas of impact.

Site scale strategies aim to prevent damage to buildings and their occupants and contents. This is achieved by keeping flood waters out of buildings or lots, or by building structures that can accept and accommodate water. These strategies will often be implemented by individual property owners.



Neighbourhood Scale

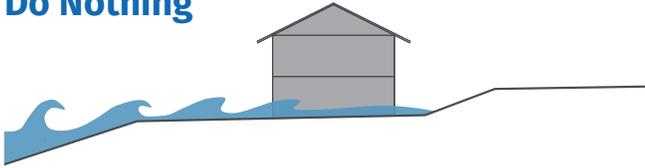


Site Scale

What actions are possible?

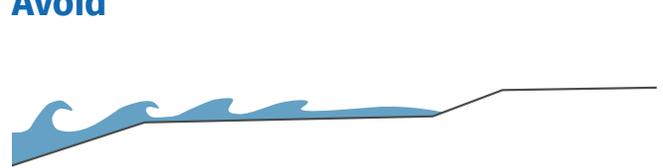
Depending on the scale of the solution, coastal adaptation can take many forms. At the highest level, adaptation strategies can be broadly categorized into five approaches. In practice, a combination of adaptation measures will be required.

Do Nothing



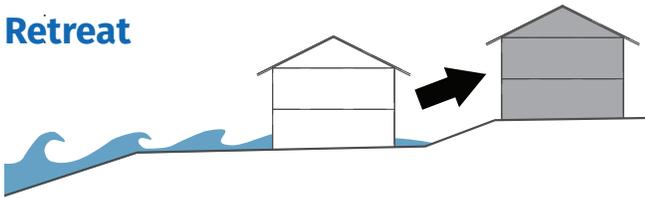
This means not planning, preparing or developing any strategies to deal with the impacts of sea level rise. **Doing nothing will most likely result in a delayed and much a more costly response** to sea level rise in the future.

Avoid



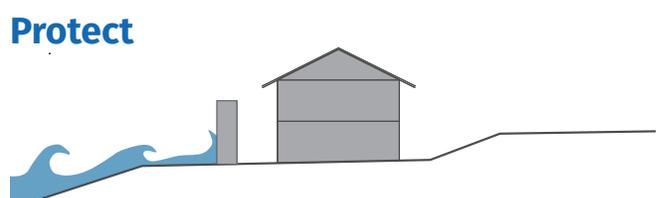
In areas that presently have little or no development, **avoiding future development through “no-build” areas is often the most effective approach to mitigating coastal hazards.** In areas with extensive existing human development, this approach may be more difficult.

Retreat



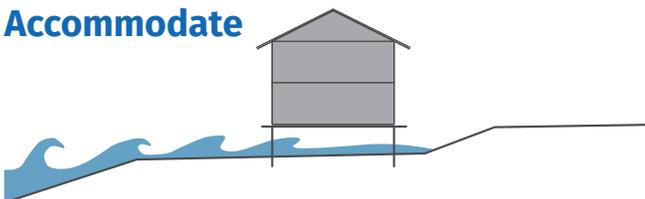
Retreat involves strategic, and often phased, **relocation of people and assets outside of high hazard areas.** It may also benefit the natural environment by providing space to adapt to the effects of climate change and sea level rise. Retreat can be implemented with assistance over long timescales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

Protect

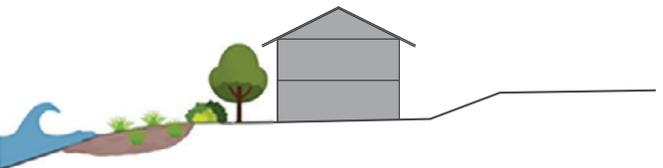


Protecting involves constructing barriers against flood waters. This can include **“hard” measures like dykes and seawalls or “soft” measures like green shores.** “Hard” measures often have negative impacts on ecosystems.

Accommodate



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



“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.

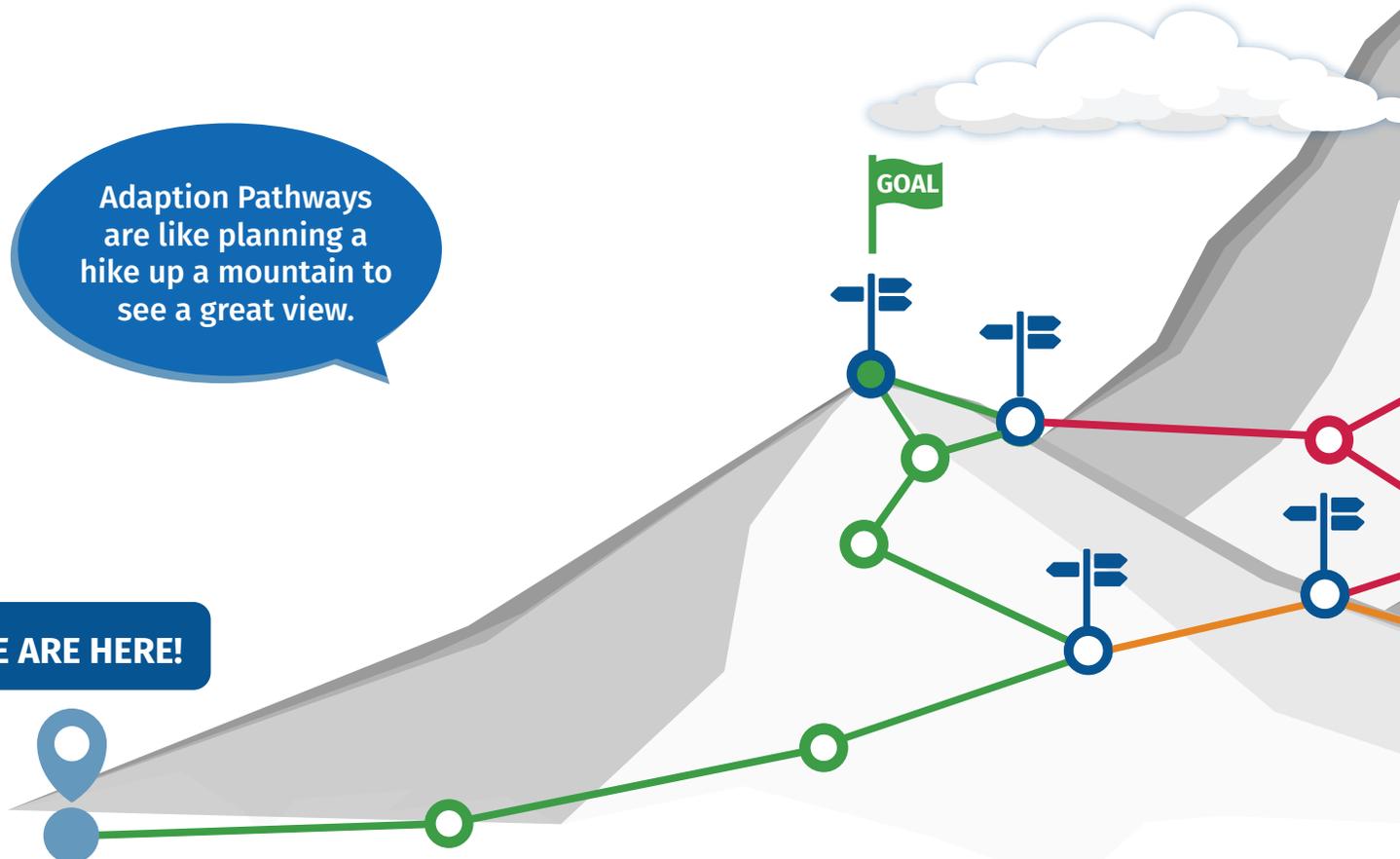
What are Adaption Pathways?

Understanding the options for coastal adaptation lays the ground work for the next step – determining our plan for moving forward. **Planning for sea level rise is tricky when we don't know how fast water levels will be rising.** It requires a flexible and adaptable approach that can respond to changing environmental conditions, timescales and community priorities.

An Approach for Uncertain Futures

Adaptation Pathways are an approach that supports processes navigating uncertain futures (i.e., the rate of sea level rise). They allow communities to decide what is important to them, guide planning of a path that addresses adaptation needs, and provides the flexibility to change that path as needed along the way.

This approach reminds us that there is no single correct way to approach coastal adaption, rather a multitude of pathway options that meet our community's goal. As we move along a path towards our goal we will reach decision points where we can re-evaluate if our current path still meets our needs or if we need to pivot towards a new path or goal.



Adaption Pathways are like planning a hike up a mountain to see a great view.

WE ARE HERE!



Our starting point - We start out on our hike at the base with a goal in mind, in this example we want to see a marvelous view from above the clouds.

This is where we are we are today, starting our coastal adaptation journey.



Our goal - The view.

Our communities have achieved what we need for our coasts to be climate ready.



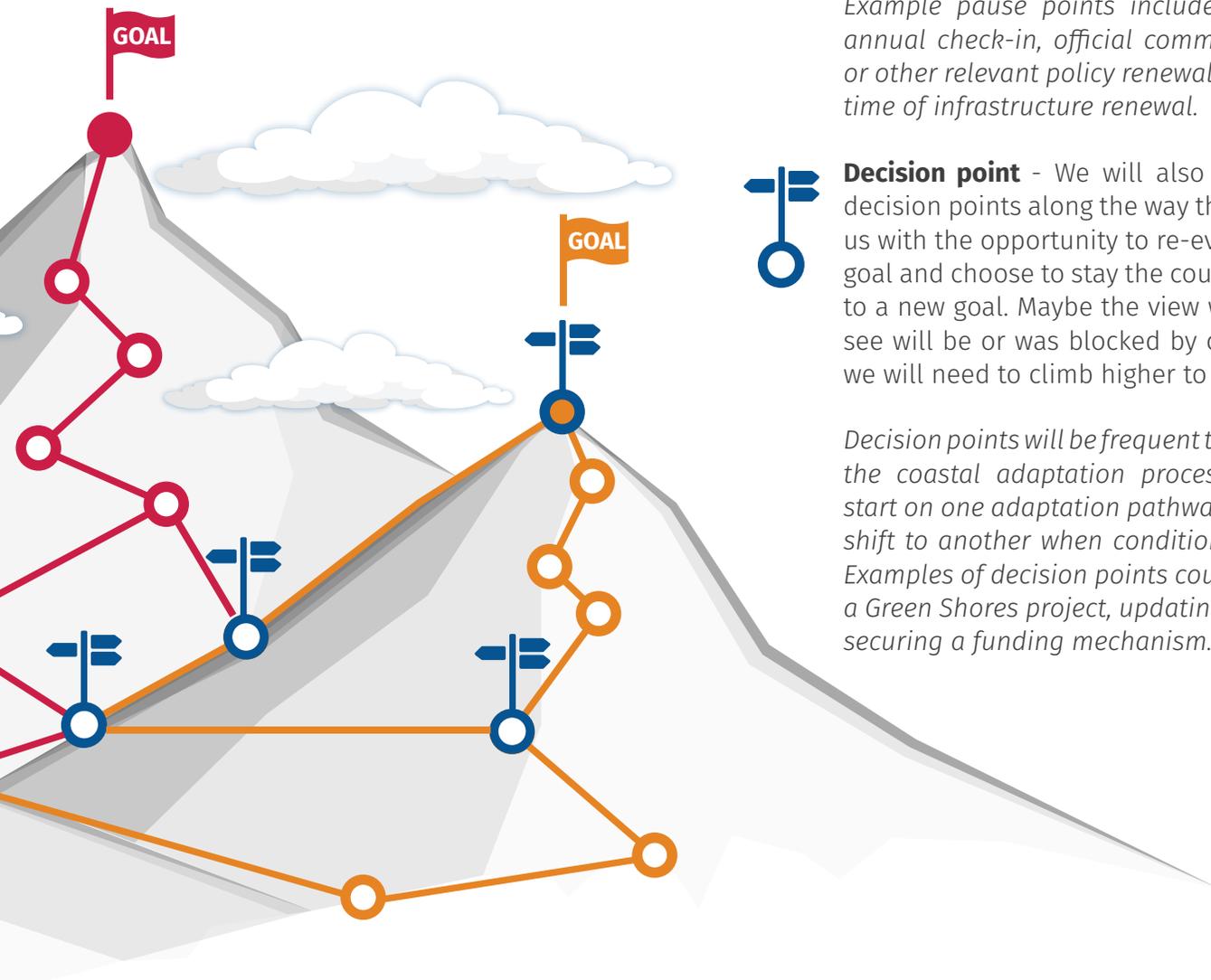
Pause point - Along the trail we will periodically pause to check-in with ourselves, take in our surroundings and decide where we need to go next to keep moving towards our goal. Maybe we need to take a break to rest and refuel, gather berries if we are running low on food, or put on an extra coat as it gets colder at high elevations?

City and community scale check-in to evaluate where we are, how it's going, and what changes we need to make to keep working towards our goal of sustainable coastal climate adaptation (e.g., more funds, to seek an alternate path, etc.). Example pause points include, strategic annual check-in, official community plan or other relevant policy renewals, or at the time of infrastructure renewal.



Decision point - We will also encounter decision points along the way that provide us with the opportunity to re-evaluate our goal and choose to stay the course or shift to a new goal. Maybe the view we want to see will be or was blocked by clouds and we will need to climb higher to see it.

Decision points will be frequent throughout the coastal adaptation process, we will start on one adaptation pathway and then shift to another when conditions change. Examples of decision points could include, a Green Shores project, updating policy, or securing a funding mechanism.



SECTION 4

What Happens Next?

Applying the Adaptation Pathways approach to each location involves a complex set of decision points — at each turn in the path deciding on which direction to take. These decisions will be based on technical studies and real world factors. They will also be **based on what we value**. Understanding what a community's priorities are will be crucial in helping to map out our journey.

There are many types of values a community might hold related to coastal adaptation. Does the community want to prioritize natural systems? Is access to shorelines for enjoyment and recreation important? How do we feel about protecting built infrastructure and cultural elements? Understanding what these values are will be critical to deciding what path we take. It will also allow us to take a 'multi-criteria look' (weighing economic, environmental, social, and health impacts) at all of the options. Below are a few examples of the kinds of values that might guide our journey.



Access ensures we can continue to reach shorelines and low-lying areas for enjoyment. It also ensures uninterrupted services and emergency access during flood-events .



Equity & Culture centres historically marginalized communities, ensuring their needs and cultural priorities are considered.



Economics involves protecting livelihoods, areas of investment, and critical assets for long-term financial health.



Recreation needs guide adaptation so that people can safely enjoy nature and community life as conditions change.

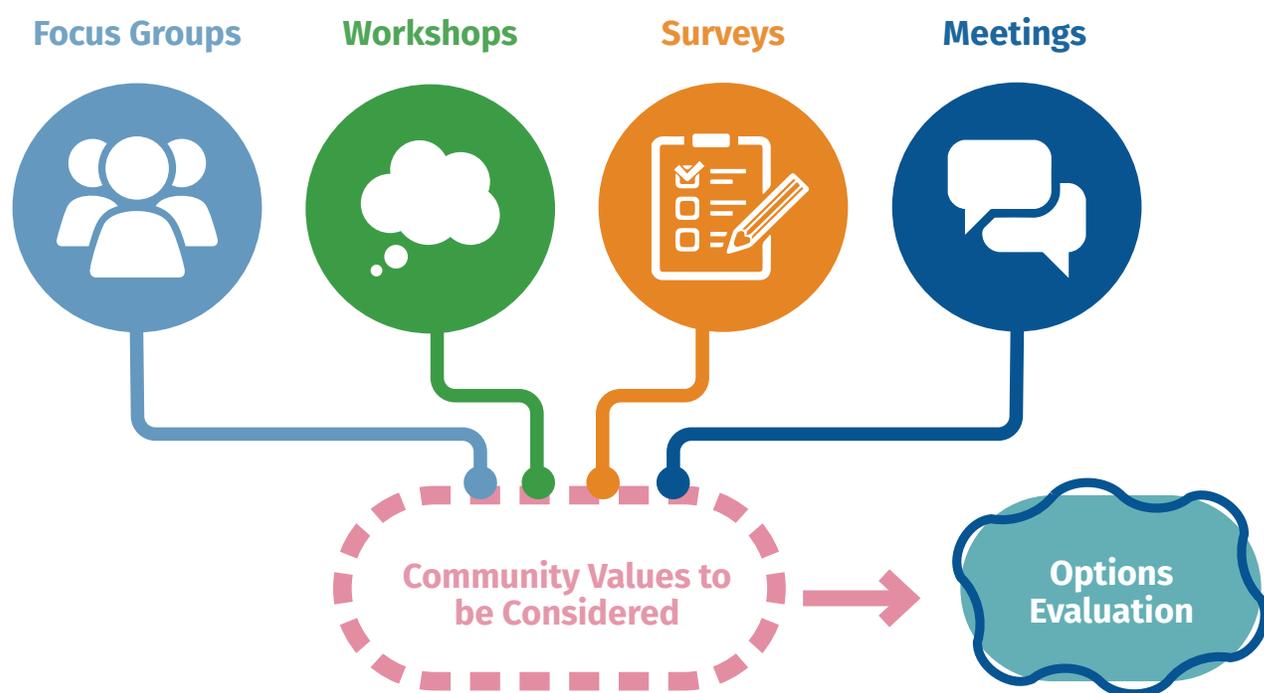


Ecology shapes coastal adaptation by prioritizing the protection and restoration of habitats that buffer storms, support biodiversity, and provide co-benefits for people.



Infrastructure focuses on upgrading, relocating, or reimagining built systems so they remain safe, reliable, and flexible in the face of rising seas.

We want to learn from a diverse set of voices to understand the range of values in our region. If there are things we haven't considered, this will allow us to hear them before we create adaptation pathways. To accomplish this we will be **hosting a number of upcoming touch-points** with interest holders and the public including focus groups, workshops, surveys, and meetings. These are planned to allow us to collect a wide variety of aspirations, concerns, and goals that can then be applied to the process of evaluating adaptation options for the areas under study.



We are looking forward to connecting with you!

Opportunities to engage with the process of collecting values will be advertised over the coming months in a variety of in-person and digital formats. Please stay connected with the project for updates on how you can participate at:

www.getinvolvednanaimo.ca/sea-level-rise





APPENDIX

SUPPLEMENTARY MATERIALS

Some Words You May Need

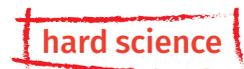
Scientists, engineers, and planners love coming up with technical terms for coastal climate adaptation. **Use this library if you spot an unfamiliar word!**

Term	Definition
Adaptation	The process of undertaking procedures or actions to reduce potential negative impacts of climate change, while taking advantage of potential new opportunities.
Adaptation Pathways	This refers to an approach in planning where strategies, made up of individual actions, are broken up into a sequence of manageable steps with specific “decision points” that support the ability to take shorter-term actions with longer-term alternative futures in mind. An adaptation pathways approach embeds a more flexible process towards decision-making under future uncertainty by staggering actions and decisions to maintain flexibility
Climate Change	A change in global or regional climate patterns, in particular, a change noticed from the mid to late 20th century onwards, and attributed largely to increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.
Coastal Floodplain Mapping	Mapping that identifies areas that could be affected by flooding from the sea, including those affected by sea level rise and storm surges. These maps are a tool for local governments to use to develop policy and undertake adaptation planning, emergency planning and community engagement.
Coastal Hazard	A naturally occurring coastal event, like a storm surge, that has the potential to cause flooding or erosion in coastal areas.
Coastal Risk	The potential for harm or damage to occur if coastal hazards (such as flooding and erosion) impact a specific asset that is valued by people, for example, damage to properties, people, infrastructure, natural environment, cultural elements, etc.



want to see our maps?
getinvolvednanaimo.ca/sea-level-rise

Term	Definition
Coastal Squeeze	When natural coastal habitats, like beaches or salt marshes, get trapped and gradually lost between rising sea levels on one side and fixed human structures such as seawalls or roads on the other.
Flood Construction Level (FCL)	The minimum required elevation of the underside of a building's floor system or top of slab, set at or above a designated flood level, to reduce flood damage risk.
Infrastructure	The basic systems and services supplied to a community. Common infrastructure components include transportation elements like roads and bridges; utilities like sewer, water and power; and communications networks.
Inundation	The total water level that occurs on normally dry ground as a result of flooding.
Qualitative	Research that focuses on understanding concepts and experiences through non-numerical data like interviews and observation.
Quantitative	Research that measures variables and tests theories using numerical data such as surveys and experiments.
Risk	The chance of injury or loss defined as a measure of the likelihood and severity of consequences from a hazard such as flooding. Injuries and losses can range broadly, for example, impacts to health, property, the environment or other elements of value.
Sea Level Rise	The overall increase in the level of the world's oceans due to climate change. It is primarily caused by two factors: added water from melting ice sheets and glaciers caused by a warming climate, and the expansion of ocean water as it warms.
Storm Surge	The abnormal rise in ocean level during a storm, measured as the height of the water above the normal predicted tide level.



lots of water!

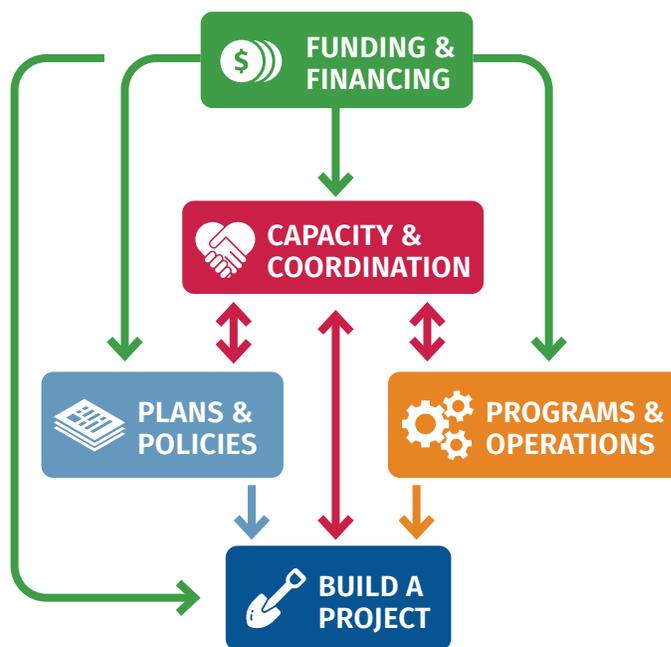
Achieving Action

Choosing a pathway forward requires the coordination and alignment of 5 key components that work together to support each step of the process. These components are **“funding & finance”, “capacity & coordination”, “programs & operations”, “plans & policies”,** and **“built projects”**. Examples of each of the components are provided on the adjacent page.

Understanding the Pathway, Navigating the Terrain

The pathway from funding & financing to a built project, plan, or program is like navigating a forested trail. If there is a fallen tree blocking the way our forward momentum is paused until the tree is removed or a new avenue around the obstacle is created.

Building a coastal adaptation intervention is the last step in the process. If funding is not secured, staff capacity is limited or there is no plan in place, well thought out built actions are difficult to achieve. The adjacent diagram illustrates the relationship between the 5 key components.



Example project: Beach Creek Estuary, Qualicum Beach, BC. This project supported shoreline adaptation to coastal pressures through the creation of a marine spit, salt marsh terraces, and Green Shores planting. Work was completed as part of an infrastructure renewal project for the Memorial Avenue roundabout.



FUNDING & FINANCING

Money is an important and influential component that can drive processes forward (or to a grinding halt).

Explore Taxation Models including Specific Area Tax

Pursue Provincial and Federal Grant Funding

Enact Utility Fees

Determine Annual Budget Allocations Suitable to Support Projects

Develop Grant Application Program



CAPACITY & COORDINATION

Maintaining momentum and conversation with all parties, regulatory bodies, and local organizations.

Establish Cooperative Shoreline Management Program

Proactive Relationships with Regulatory Agencies

Public Engagement to Educate on Climate Risks

Develop Citizen Science Sensing Stations and Monitoring Program



PROGRAMS & OPERATIONS

Initiatives that support maintenance, monitoring and implementation of coastal adaptation projects.

Research Equitable Buy-Out Programs

Establish Monitoring Programs (Contaminated Sites, Shallow Groundwater Rise, Coastal Erosion)

Economic Risk Analysis

Establish a Levee Monitoring and Maintenance Program



PLANS & POLICIES

Documentation and process that will guide community-wide coastal adaptation.

Update Flood Hazard Mitigation Bylaw

Update Electoral Area Official Community Plans

Update Zoning Map & Bylaw: Land Use Regulations, Overlay Zones, Transfer of Development Rights

Update Policies: Building Codes & Retrofits



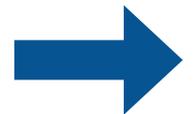
BUILT PROJECTS

The physical interventions that help us adapt to our changing coast.

Project A

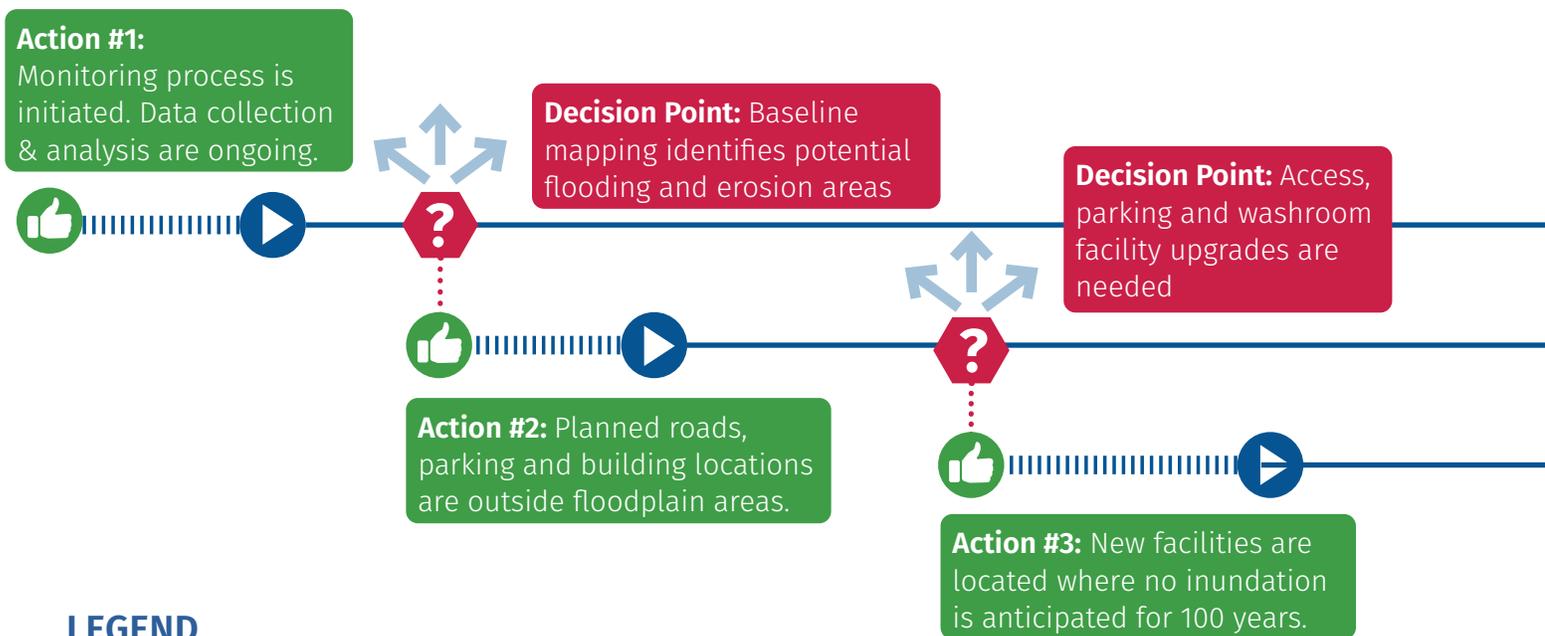
Project B

Project C



Example Adaptation Pathway: A Park Neighbourhood

There are many seaside parks within the region. These spaces provide countless wellness, environmental, and recreational benefits to the community. In some locations, seaside parks are undeveloped forest ecosystems, while other are in a neighbourhood context with active park amenity uses. While each location will require an individual approach **we can explore what an example Adaption Pathway for a park condition in a neighbourhood context might include.**



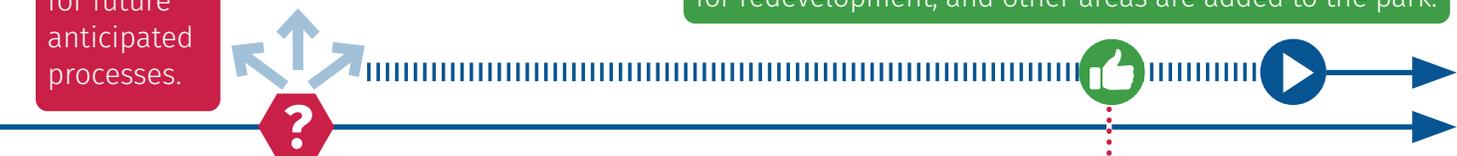
LEGEND

-  Decision to pursue action
-  Lead time to prepare for action implementation
-  Action implementation
-  Action continues to serve its function
-  End of action lifespan
-  Ongoing action
-  Decision point, a trigger initiates a process to determine the next step in the adaptation process.
-  Change primary focus to new action
-  Other unpursued adaptation options considered at the decision point.



Decision Point: Early planning for future anticipated processes.

Action #6: Working with disaster and adaptation funding programs, older low lying residential areas that are too expensive to protect are purchased. Some areas are raised for redevelopment, and other areas are added to the park.



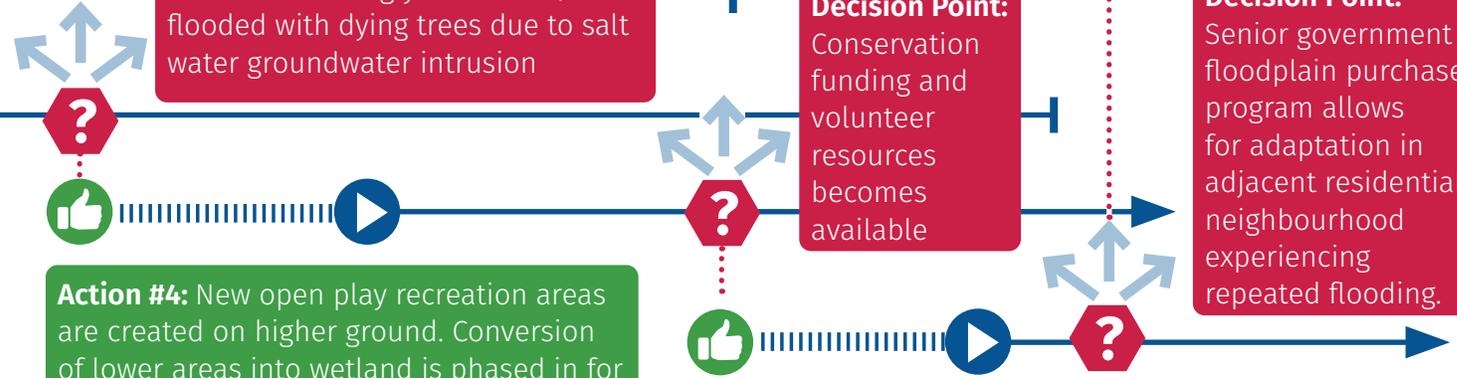
Decision Point: Existing open play field is increasingly saturated / flooded with dying trees due to salt water groundwater intrusion

Decision Point: Conservation funding and volunteer resources becomes available

Decision Point: Senior government floodplain purchase program allows for adaptation in adjacent residential neighbourhood experiencing repeated flooding.

Action #4: New open play recreation areas are created on higher ground. Conversion of lower areas into wetland is phased in for environmental benefits and stewardship.

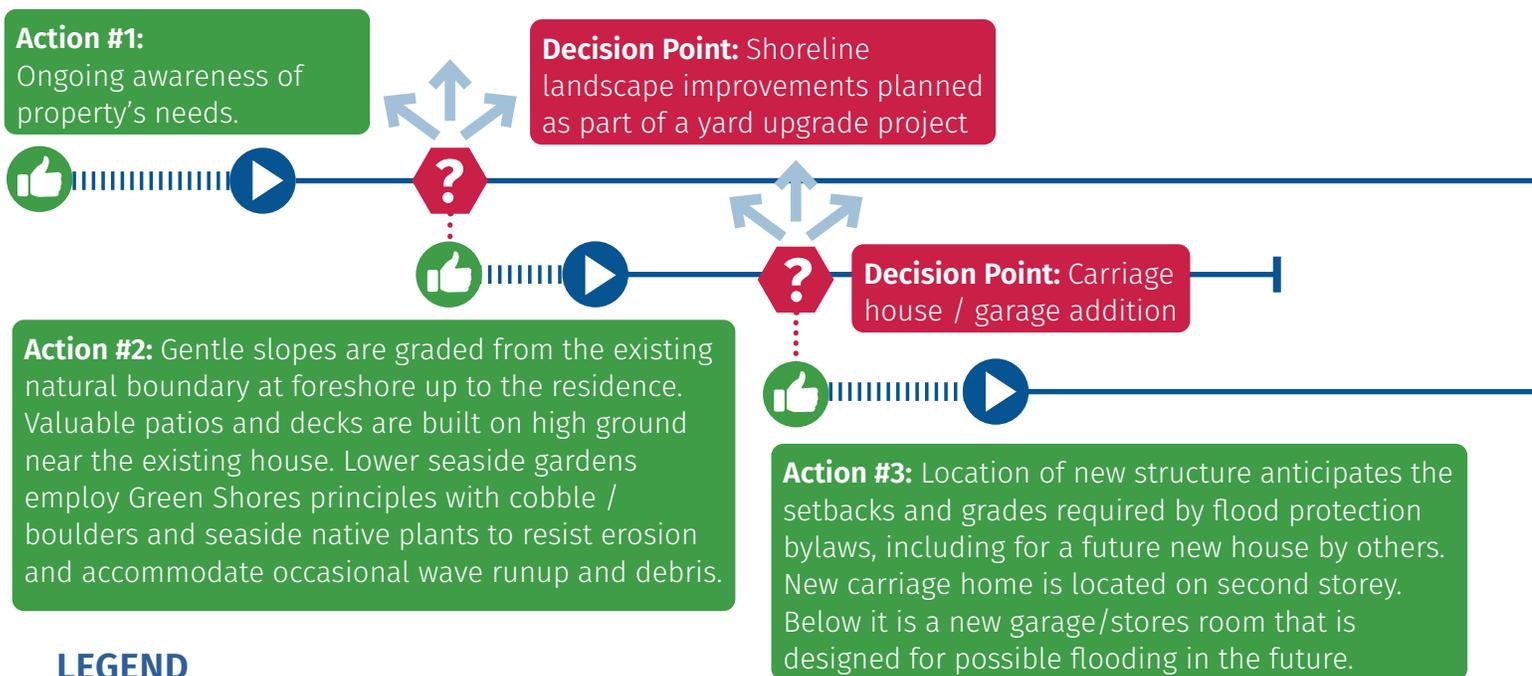
Action #5: Where higher sea levels are causing erosion / inundation of waterfront recreation – different approaches are designed to suit wave exposure and terrain. Sheltered beach covers have beach nourishment with sandy materials. Wave exposed points are protected with various sizes of cobble slopes and berms. Both treatments have shoreline vegetation planted to assist in habitat and stabilization.



Example Adaptation Pathway: A Low-Lying Residential Area

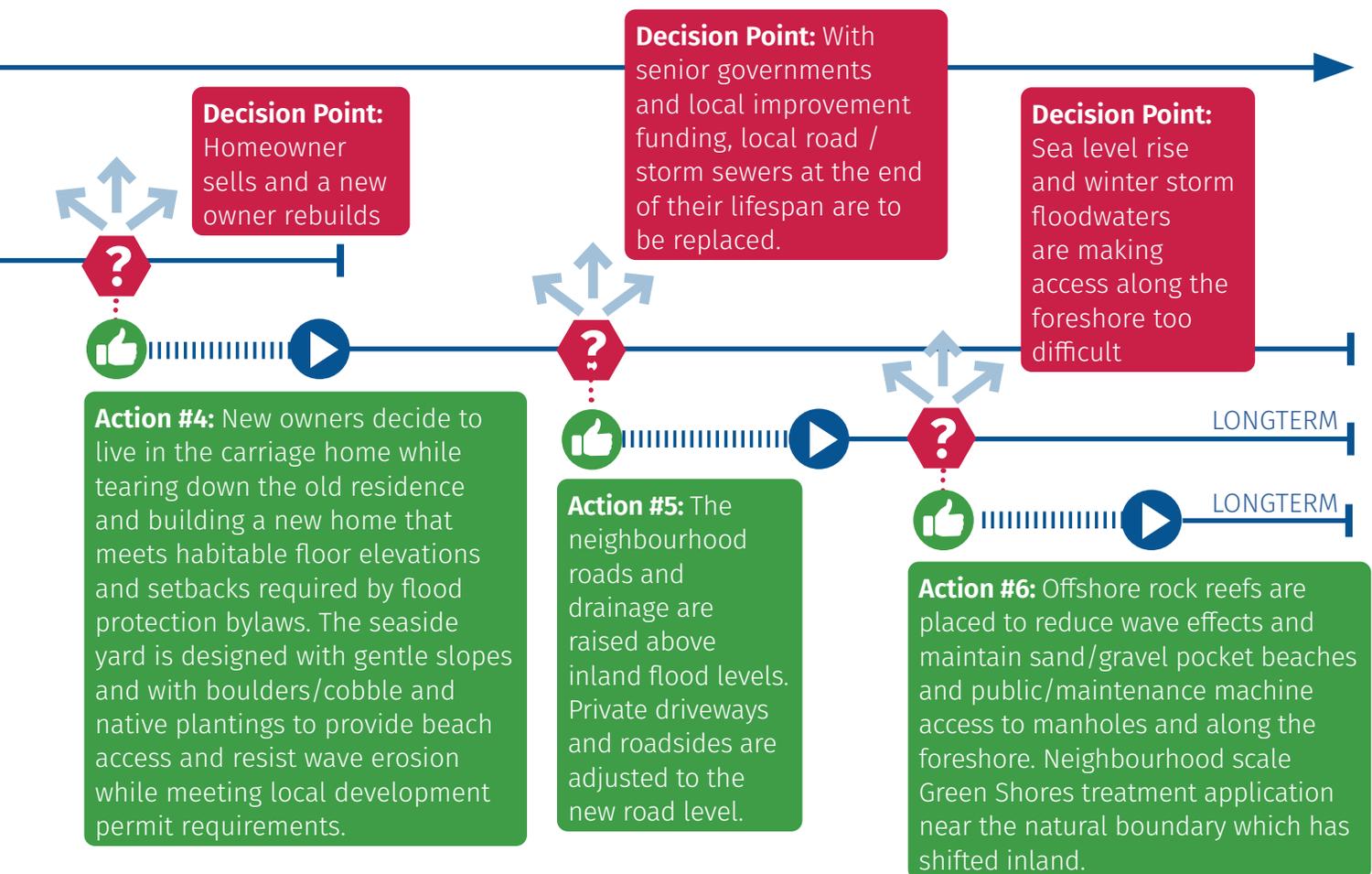
Coastal floodplain mapping indicates there are low-lying residential neighbourhoods at risk of flooding. While this can feel scary we don't need to worry, as explained on page 13 early planning can set us up for success.

Individual properties and neighbourhoods alike can develop a path forward toward a resilient future. Below we explore what an example Adaptation Pathway for a low lying residential neighbourhood might include.



LEGEND

-  Decision to pursue action
-  Lead time to prepare for action implementation
-  Action implementation
-  Action continues to serve its function
-  End of action lifespan
-  Ongoing action
-  Decision point, a trigger initiates a process to determine the next step in the adaptation process.
-  Change primary focus to new action
-  Other unpursued adaptation options considered at the decision point.



Why Does This Feel So Hard?

Planning for coastal adaptation can feel overwhelming. The challenges are big, the choices are complex, and the future is uncertain. Let's take a moment to talk about why.



(Spoiler Alert: It's because it is hard – but that's okay)

Solutions cost big bucks. Shoreline projects are expensive to plan, design, and build. The scale of the problem can make costs feel daunting.

It involves everyone. Each of us brings different perspectives, priorities, and values. Pulling these together into a shared vision isn't easy – but it's essential.

We must embrace uncertainty. Sea levels are rising, but we can't predict exactly how fast, or how our communities and needs will change. Decisions made now will shape the future – for better or worse.

Perfection isn't possible. We will need to act based on what we know today, and adjust as new information emerges. Flexibility is part of the process.

Equity matters. Who makes decisions, who is impacted, and who benefits? These questions must guide adaptation choices.

Ownership is complex. Our shoreline is a patchwork of public and private land. Working together for the common good requires collaboration across boundaries and scales.

Regulations vary. Different governments and agencies have their own rules, responsibilities, and capacities. Coordination is essential.

Change is hard. It asks us balance needs, invest effort now for benefits that often come later. It can feel uncomfortable – but it's also how we learn, adapt, and build a better future.

It is a generational challenge. Adaptation requires investment now for impacts that may occur decades from today. What we do (or don't do) now will affect the options of future generations.

Nature is adapting too. Coastal habitats need space and time to adjust to rising seas. Development and shoreline structures can limit their ability to respond naturally.

We have other priorities. Because the most serious consequences are gradual, it can be tempting to focus on more immediate concerns.

It demands new approaches. Coastal climate adaptation is unlike any challenge we've faced before. That means our response must be different – creative, collaborative, and forward-looking.

The reality that sea level rise can impact so many different people and sectors is the same reason why it can be such a transformative opportunity for great change. **We know we're capable of great things when work together, stick with challenging conversations, and focus on the values we all share.**