

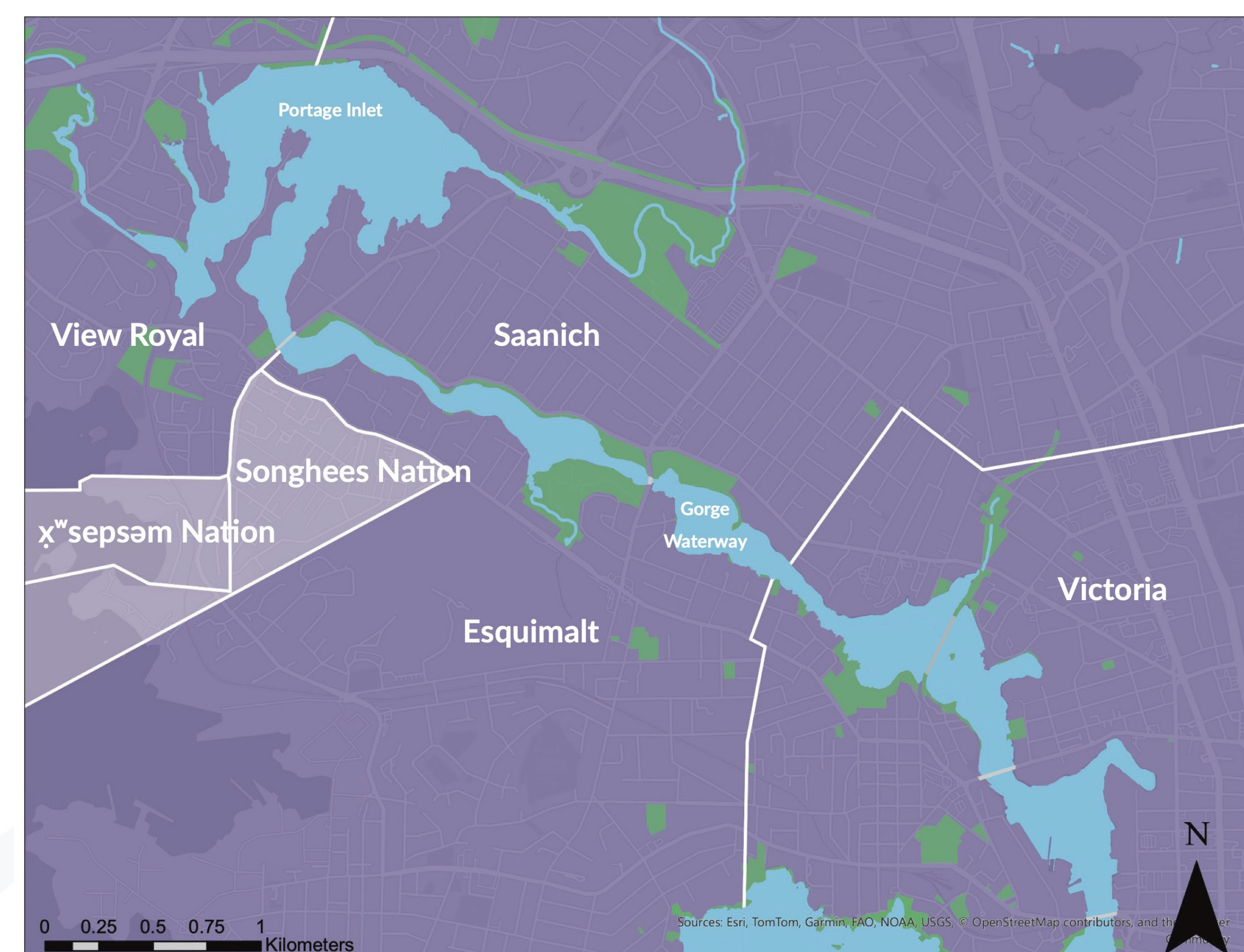
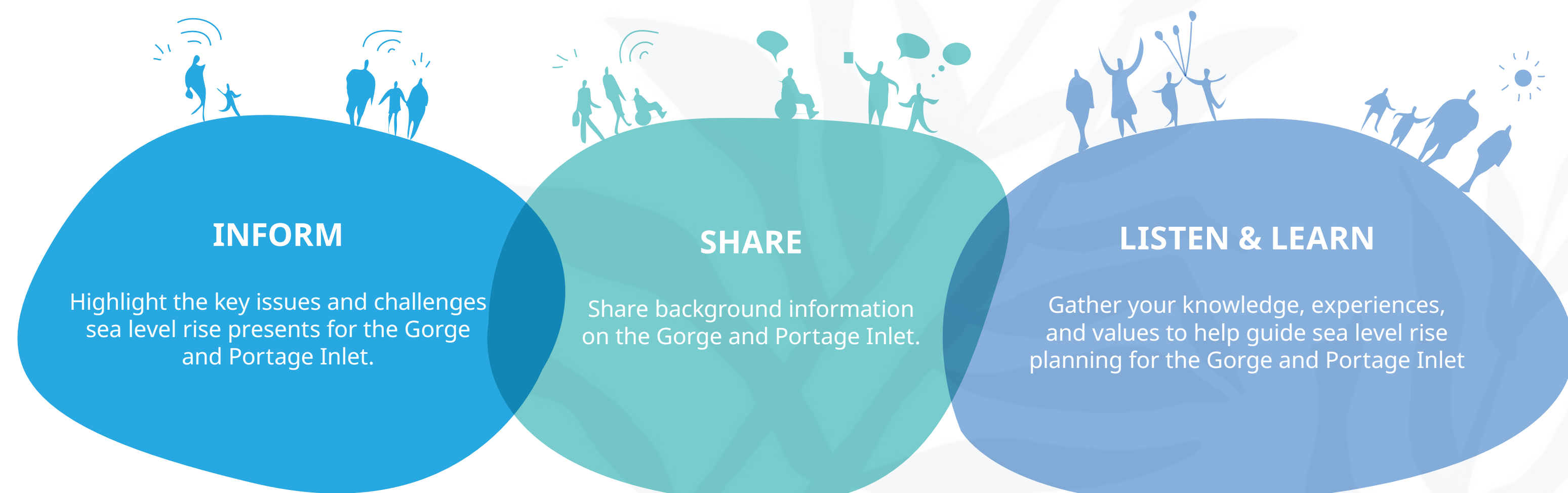
Gorge Flood Adaptation for Sea Level Rise

Take the survey!



Why are we here today?

To hear from you! Your input matters and it will help shape the future of the Gorge. Your input will ensure the areas align with community values and meet community needs. We are here to:

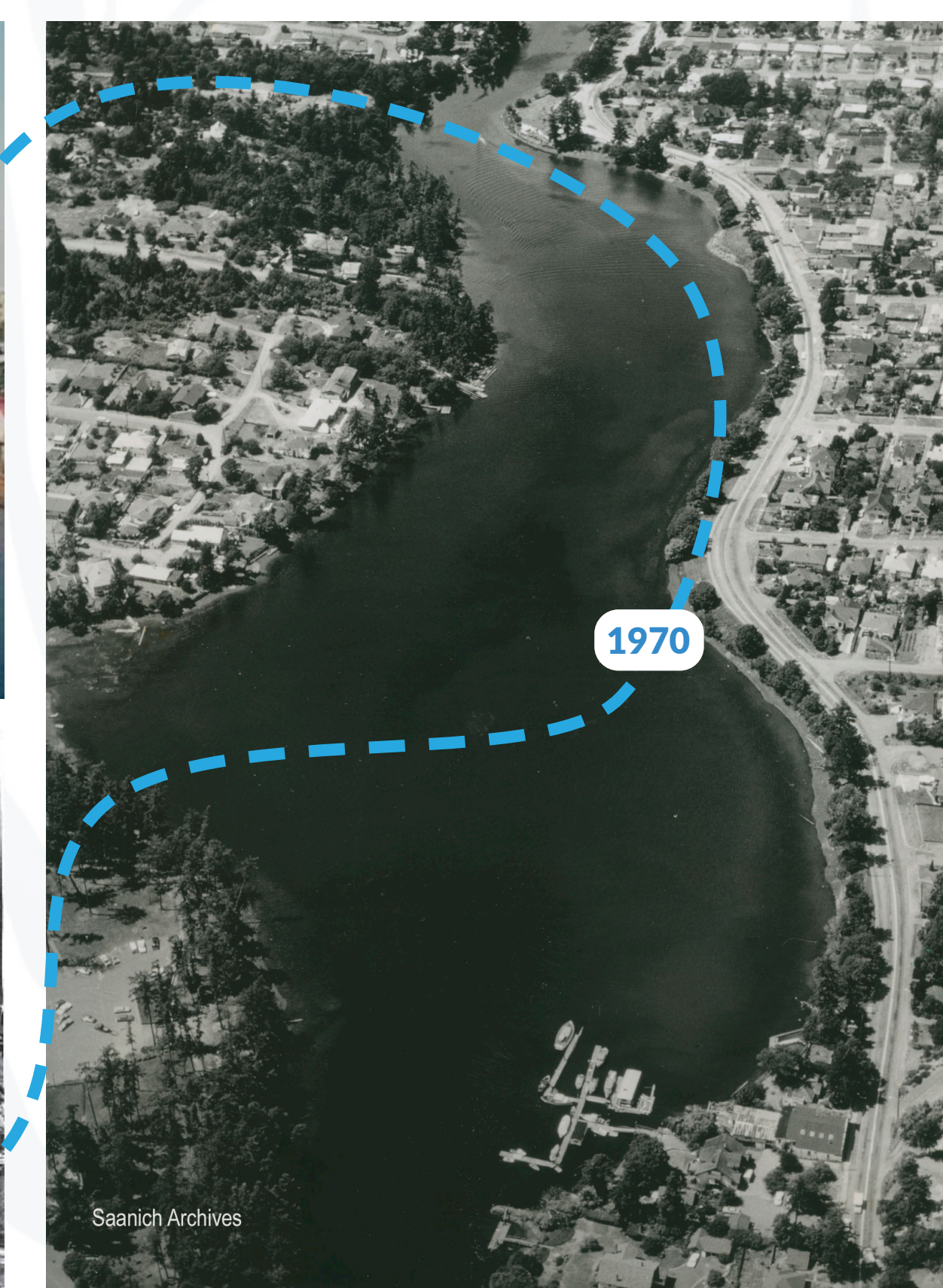
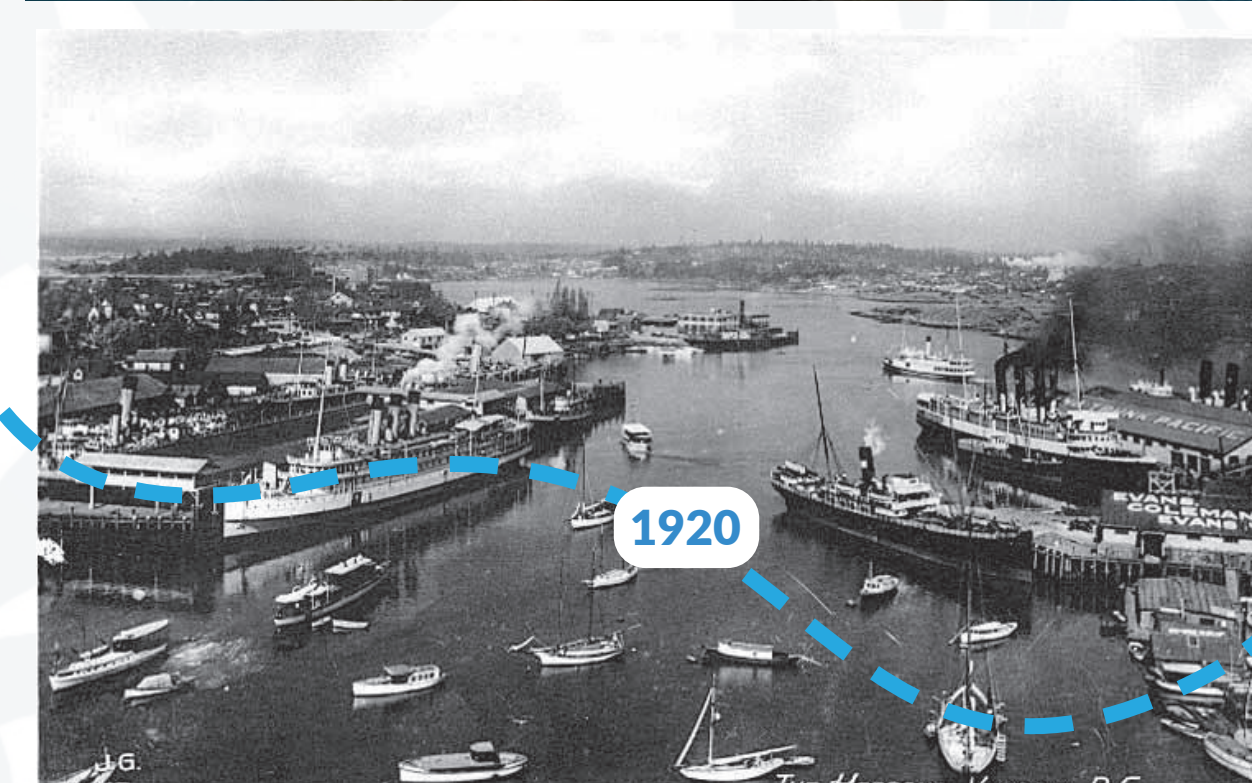
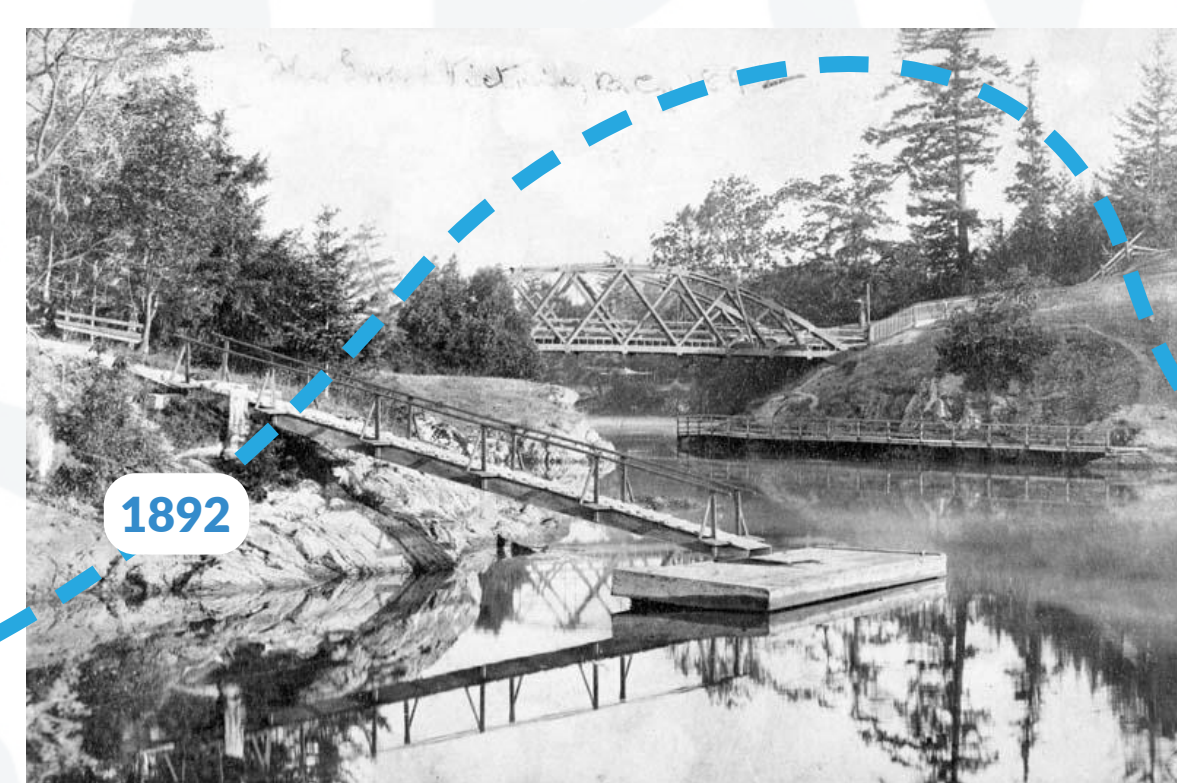
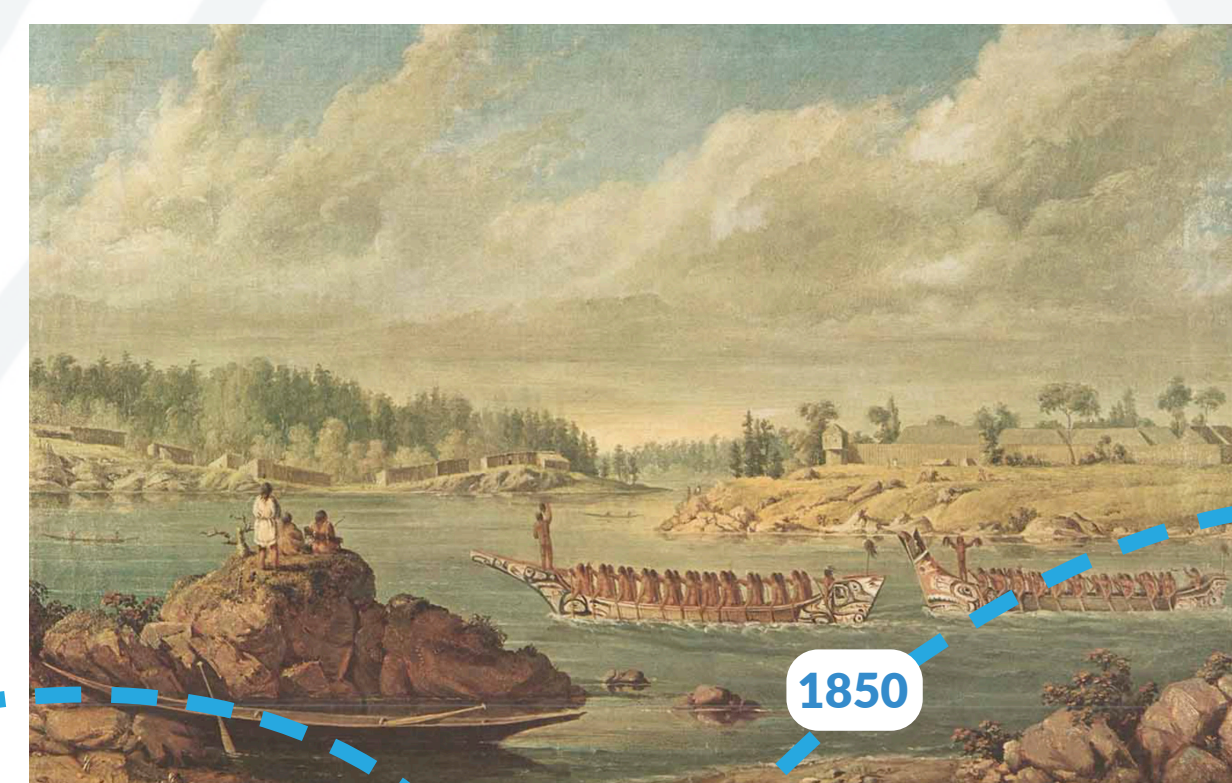


PROJECT LOCATION AND CONTEXT

Change over time

The Gorge and Portage Inlet has been a place of deep ecological and cultural significance for countless generations. For thousands of years, ləkʷəŋən people have lived with and cared for these lands and waters. Over time, the shoreline and the ways people live in relation to it have seen profound transformation.

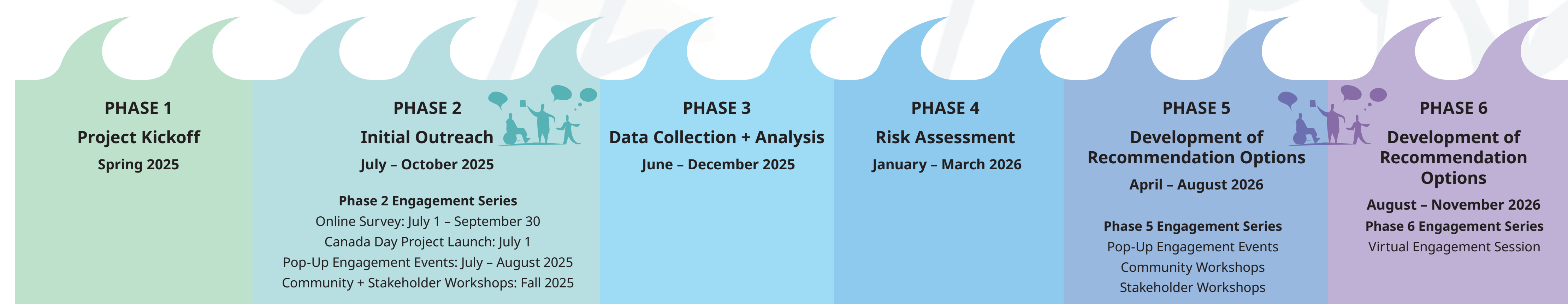
With sea level rise, more change is on the horizon—both to the coastal places we depend on and to our relationship with them. By planning for sea level rise now, we have the opportunity to reflect on what we value most about this place and this community, and to shape a shared vision for the future of the Gorge and Portage Inlet that is resilient to the impacts of sea level rise.



SITE HISTORY

Project Process and Timeline

The development of a coordinated Gorge Coastal Flood Adaptation Strategy seeks to minimize risks and vulnerabilities by developing and prioritizing coastal flood adaptation options. To do this, the project will engage with community members, local government staff, First Nations and other interest-holders to spread awareness of sea level rise and develop a vision for the future of the Gorge and Portage Inlet, along with knowledge gained through a risk assessment process.



PROJECT TIMELINE



Gorge Flood Adaptation for Sea Level Rise

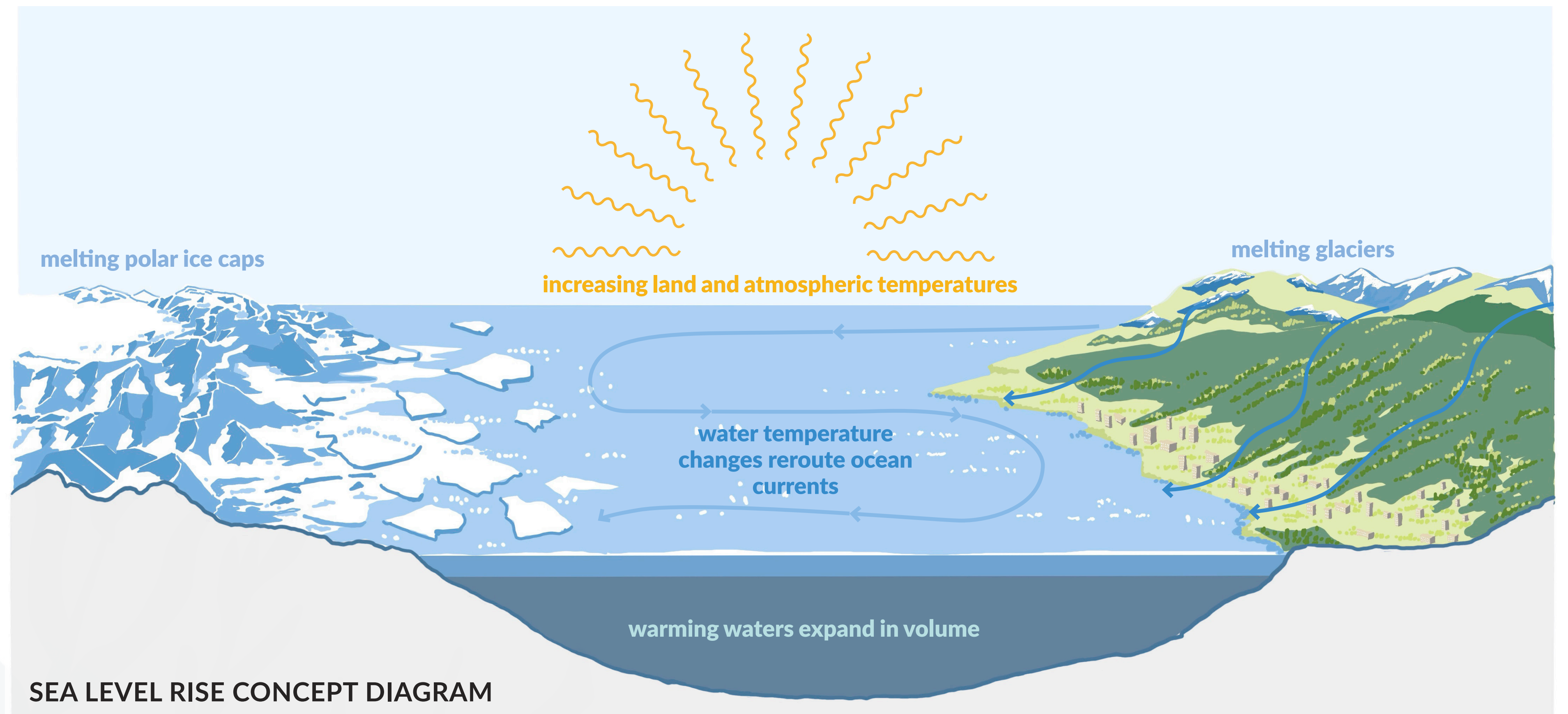
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What is sea level rise?

Sea level rise refers to the long-term increase in the average level of the ocean. As the climate warms, melting glaciers and ice sheets, along with the expansion of warmer ocean water and changes in ocean circulation, cause sea levels to rise around the world.

A warming planet also generates more frequent and severe storms, increasing the risk of overland flooding from heavy rain events. Storms caused by low atmospheric pressure are also accompanied by winds that push waves and water higher onto land, called 'storm surge.'



Flood Risk and Coastal Adaptation

Most flooding that occurs in the Gorge and Portage Inlet today is the result of a combination of storm surge and high tide. As sea level rise progresses, mean sea level (the halfway point between high and low tide when the water is calm) will rise, permanently inundating low-lying areas. Storm surge will also rise, reaching further inland and creating periodic flooding in areas that have not historically been subject to inundation. Coastal adaptation is the process of changing the physical characteristics and/or function of shorelines (both ecosystems and human environments) to become resilient to the impacts of sea level rise.



FLOOD EVENTS AT THE GORGE

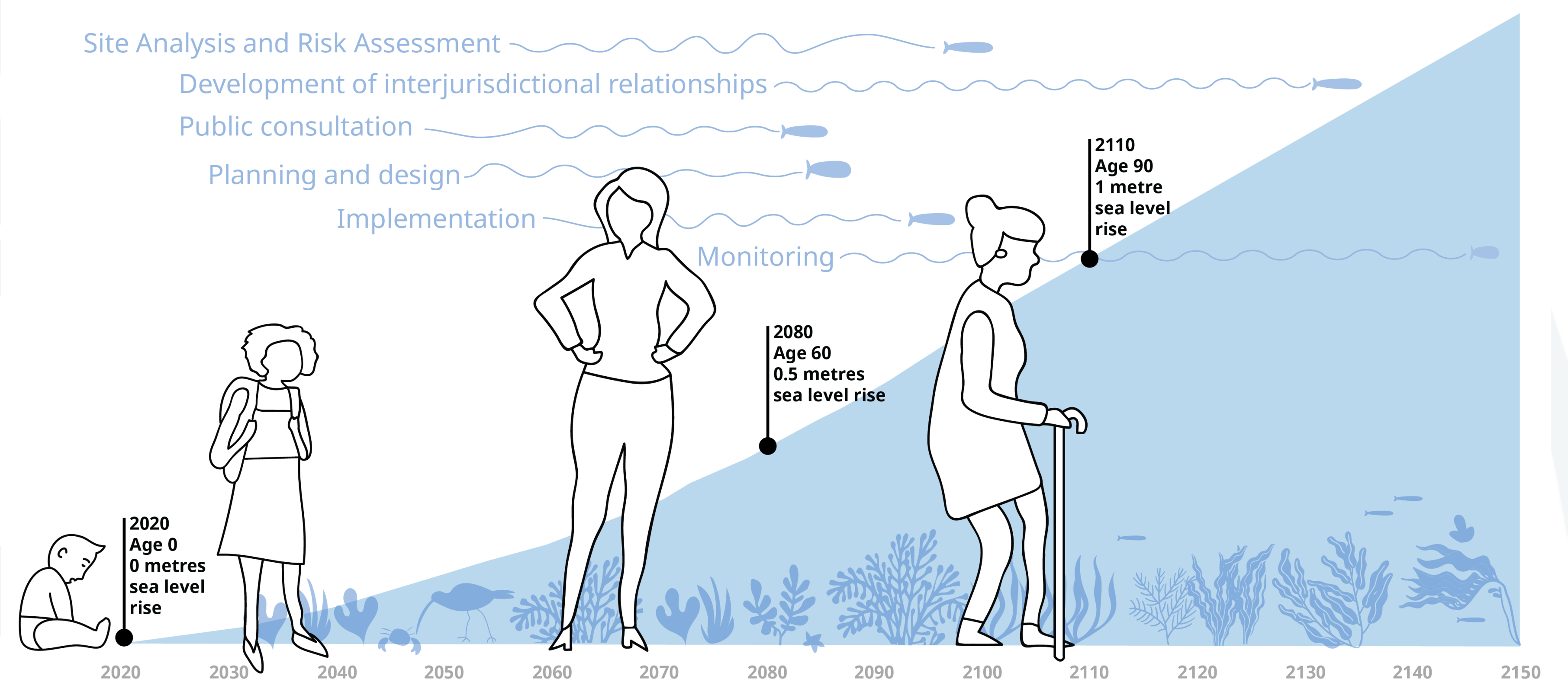
5 Key Project Objectives

- 1 START THE CONVERSATION:** Build awareness of sea level rise and coastal flood hazards in the Gorge and Portage Inlet and understand Indigenous and community values.
- 2 DATA COLLECTION AND TECHNICAL ANALYSIS:** Compile information to evaluate local flood hazards and vulnerabilities.
- 3 UNDERSTAND THE RISKS:** To people, infrastructure and the environment, informed by Indigenous and community perspectives, and technical knowledge.
- 4 DEVELOP SOLUTIONS:** Develop a prioritized suite of adaptation options to address impacts from coastal flooding.
- 5 WORK TOGETHER:** Participating municipalities will work collaboratively on the implementation of adaptation options.

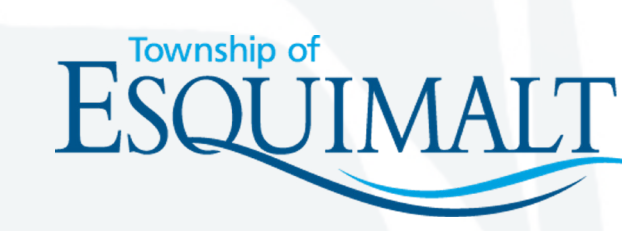
What does this mean for me?

Although the most significant impacts of sea level rise are decades away, planning for and implementing coastal adaptation actions in the Capital Region is a complex and long-term process. Children who are alive today will see a metre or more of sea level rise in their lifetime. Now is the time to begin the process of risk assessment, planning, collaboration and implementation so that the generations to come will be able to manage the impacts of sea level rise.

Sea Level Rise (SLR) Projections are based on the AR6 SSP5-8.5 83rd percentile. They have been normalized to the year 2020 (i.e., 0 m SLR at the year 2020), and include a 0.5 m SLR in the year 2080, and 1.0 m SLR in the year 2110, based on projections for this site location.



SEA LEVEL RISE AND ADAPTATION OVER TIME



Gorge Flood Adaptation for Sea Level Rise

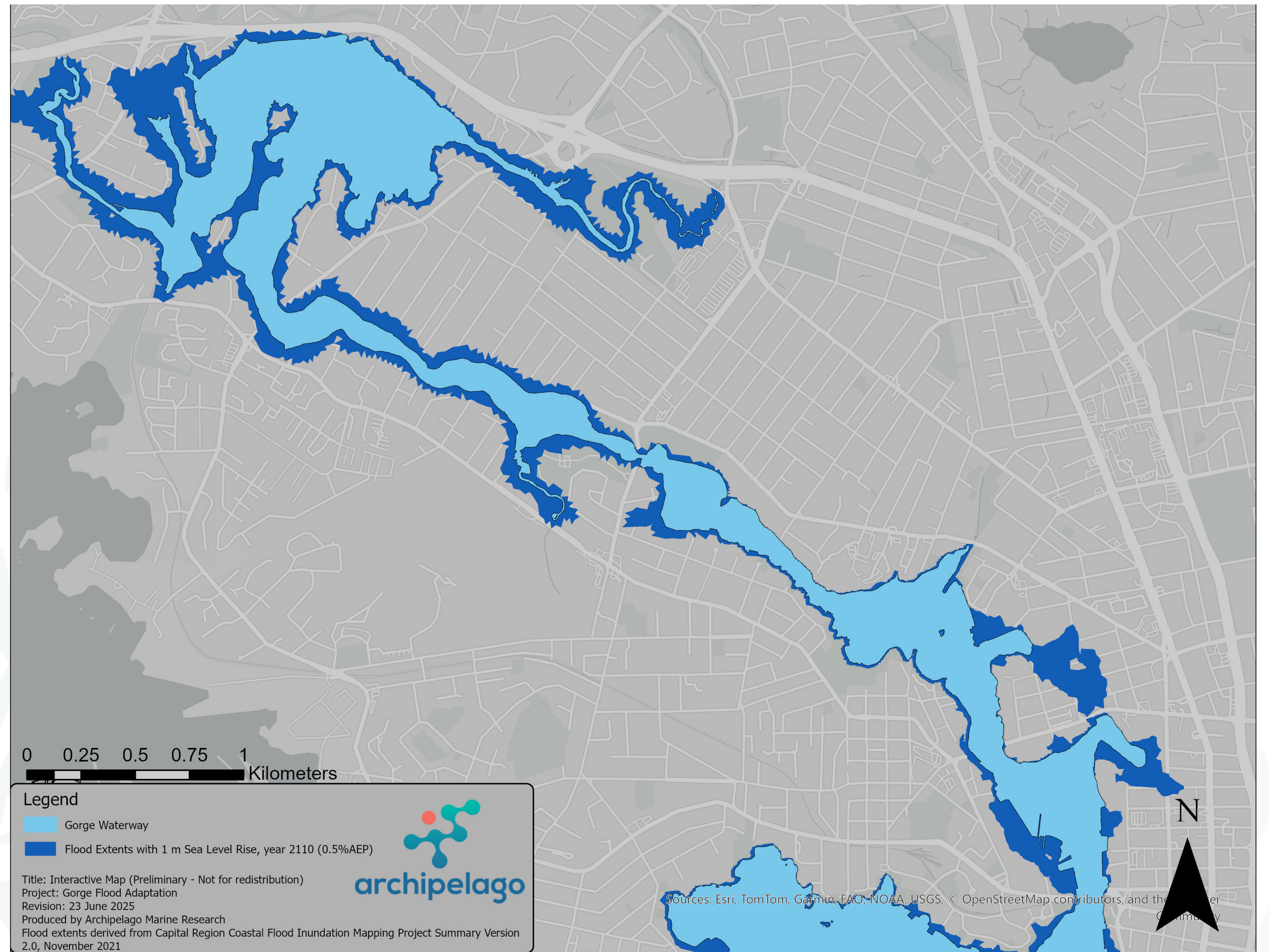
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Local Impacts

The Gorge and Portage Inlet are home to many different shoreline types, from sea walls to rocky banks, low-angle shorelines and steep banks. These different shoreline types shape the community's interaction with this waterway, and will be affected in different ways by sea level rise. These include extensive flooding, erosion, or failure and overtopping of walls, loss of habitat, homes and culturally and historically important sites. These different shoreline types may require multiple approaches to coastal adaptation.

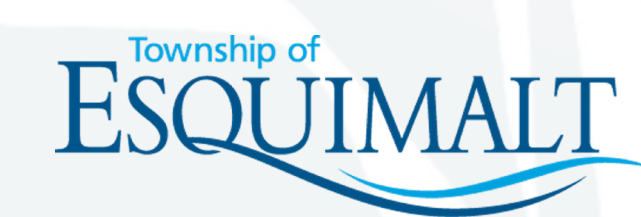
The adaptation approaches chosen now will shape future generations' relationship to the Gorge and Portage Inlet's shoreline and waters.



SEA LEVEL RISE OVER TIME IN THE GORGE



THE GORGE LANDSCAPE AND SITE TYPOLOGIES



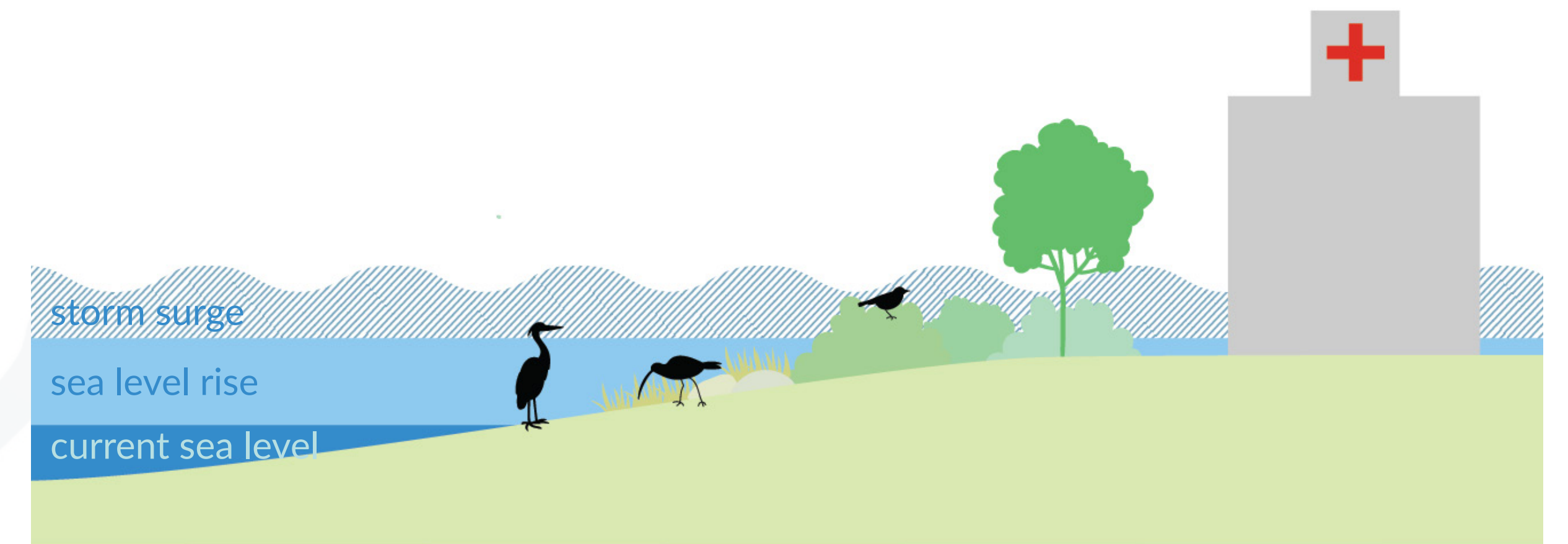
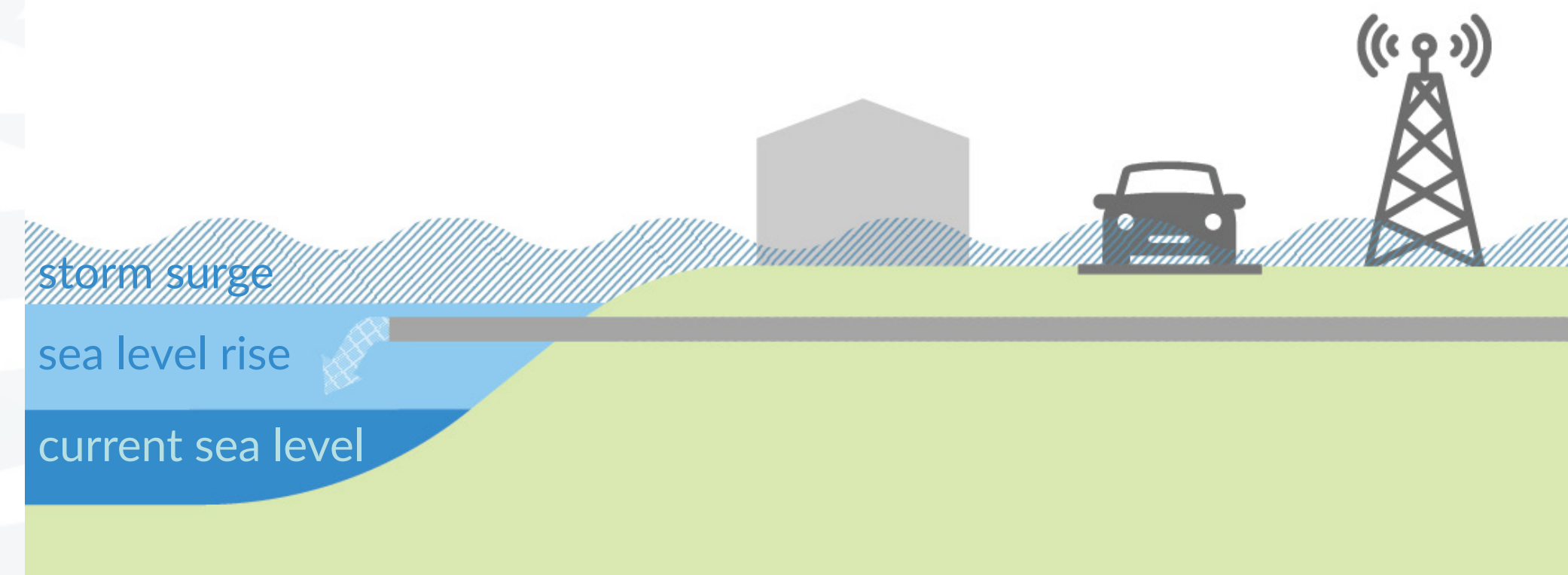
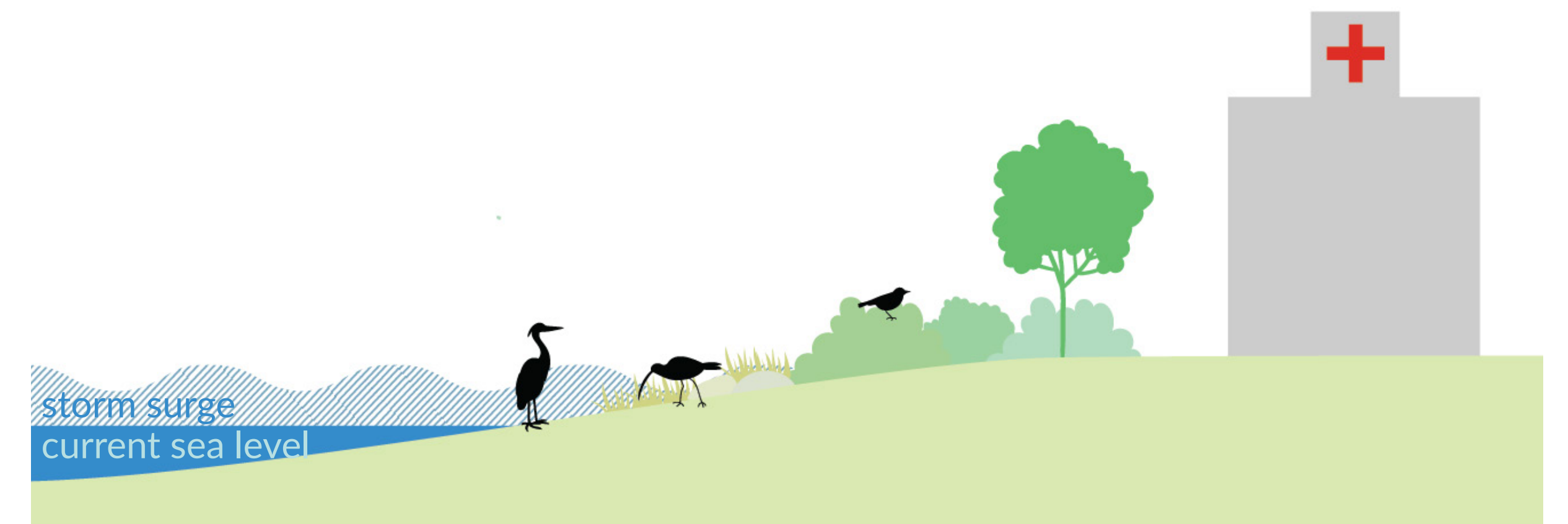
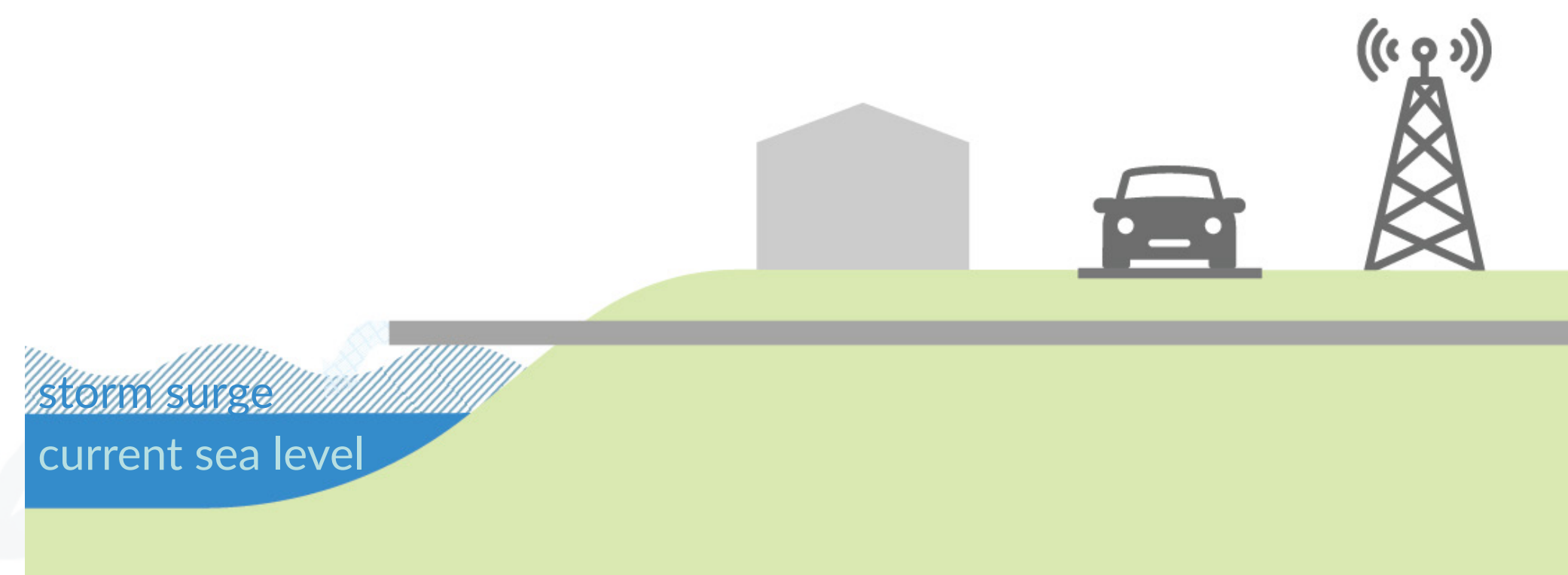


Vulnerabilities and Risks

Risks from coastal flood and sea level rise are diverse and layered, with vulnerabilities changing from location to location. Critical services and infrastructure, like hospitals and telecommunications; roads and emergency access; properties like homes and businesses; public spaces like parks; culturally, historically, or archaeologically significant sites; and marine, intertidal, and terrestrial ecosystems are all examples of what may be at risk from periodic flooding or permanent inundation.

“The question of what you do about [our coasts] is not a rational engineering conversation. It’s a conversation about what we want to be as a society, what a place means to us as a community locally and as a country.”

— Ben Zaitchik



VULNERABILITY AND RISK IMPACTS

Adaptation Considerations

Coastal adaptation is the process of changing the physical characteristics and / or function of shorelines (both ecosystems and human environments) to become resilient to the impacts of sea level rise. It is often expressed as four broad strategic approaches: Protect, Accommodate, Retreat, and Avoid. Understanding what coastal adaptation will look like in the Gorge and Portage Inlet requires careful weighing of site characteristics and uses, the community's priorities and values, and how the risks associated with sea level rise will change over the coming years and decades.



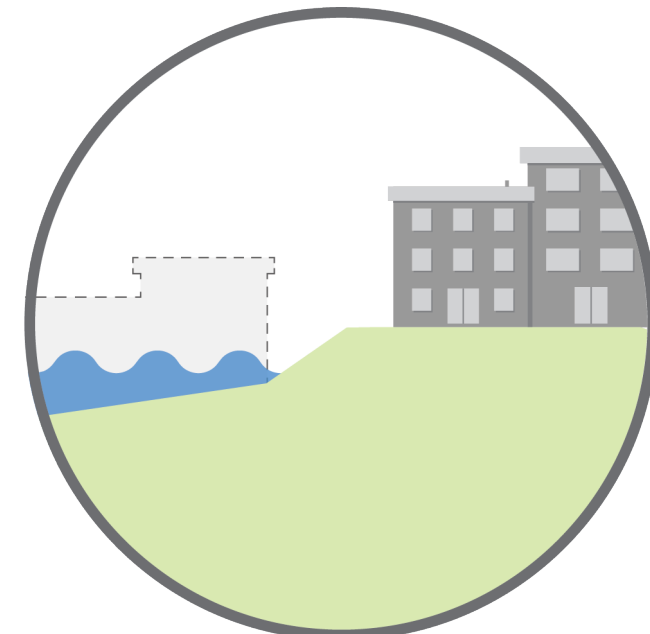
Protect

A reactive strategy to protect people, property, and infrastructure through mechanisms such as dikes and seawalls. Tools can include structural flood protection like sea walls and dikes.



Accommodate

An adaptive strategy that alters human activities and / or infrastructure to allow continued occupation of coastal areas. Tools can include planning and regulatory solutions, and structural protection like retrofitting existing buildings.



Managed Retreat

An adaptive strategy to relocate away from areas that will become increasingly subject to flooding over time. Tools primarily include planning and regulatory solutions like zoning, land use policy, and land acquisition.



Avoid

Ensure no new development takes place in areas vulnerable to sea level rise, or in places where the risk is presently low but will increase over time. Tools include planning solutions like policy, emergency planning, and risk management.

Examples of Coastal Landscape Types Often Used in Adaptation



FLOOD GATES AND FLOW CONTROL STRUCTURES

- Small footprint
- Preserves existing shoreline
- Often involves engineering structures and mechanisms that are more complex and fragile than fixed defenses.
- May require pumping and other considerations for pluvial or riverine flooding from the waterway.
- Can result in increased overall risk if their presence justifies increased development within flood risk areas
- Can be damaging to marine ecology



BEACH

- Very large footprint
- Excellent ecological value
- Excellent recreational and public access value
- Can be difficult to ensure stability where not naturally occurring (e.g. to prevent silting up or erosion)
- Can require beach nourishment (sand replenishment) after storm events.
- Does not provide mitigation for static water level flooding.



REVETMENT

- Small to medium footprint
- Robust erosion protection
- Can tolerate settlement while still providing protection
- Can incorporate some habitat
- Few operational requirements
- Too steep for accessible public shoreline access. Potential for a stacked-stone revetment for limited access to shoreline.



SEAWALL

- Small spatial footprint
- Ecologically poor
- Low maintenance
- Sensitive to cracking due to settlement
- Opportunity for recreational trails on top or behind sea wall



TERRACE

- Large footprint
- Can incorporate limited habitat
- Can be used to maintain public access to areas inundated during high water events



DIKE

- Large spatial footprint
- Drainage systems may require pumping
- Visually imposing
- Opportunity for recreational trails on top
- Opportunity for riparian vegetation on top

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