# qathet Regional District Regional Coastal Flood Adaptation Strategy

## Workshop 3

22 June 2022

Stakeholders and Partners

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# Project Goal

To engage with the public in exploring adaptation options and increase resilience in the region.

# Overall Progress on Coastal Adaptation


- Foundational information
- Completed by Tetra Tech
- Finalized in March 2022

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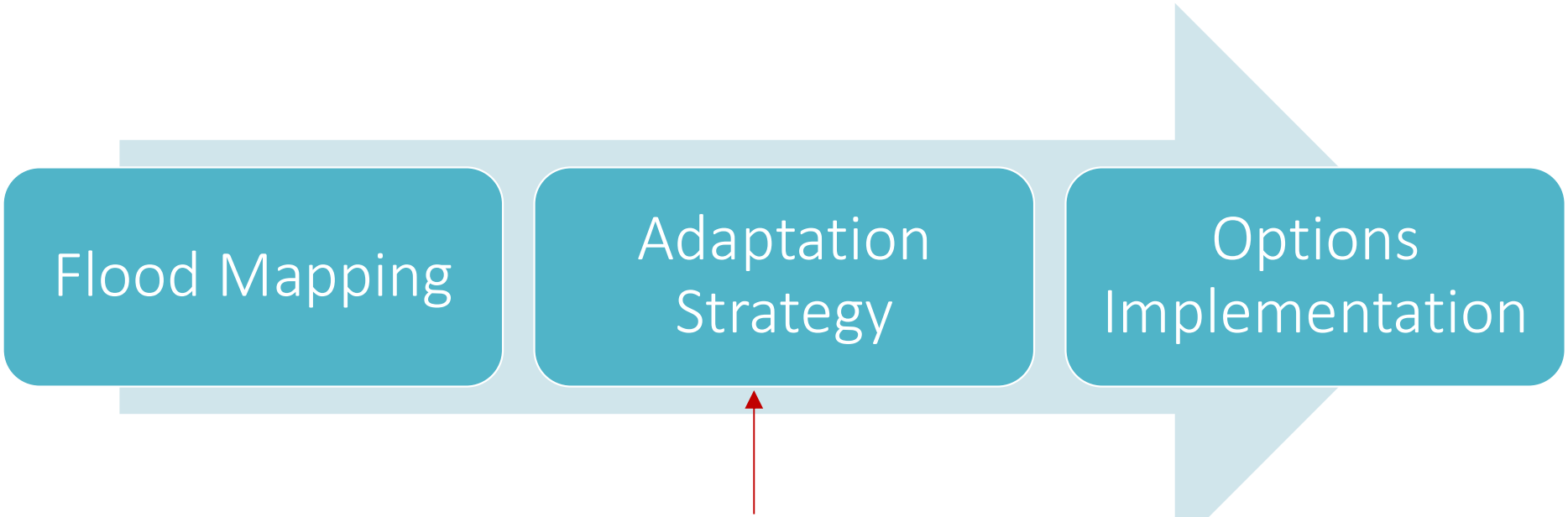
# Coastal Flood Adaptation in the qRD




- Identify preferred adaptation strategies.
- Obtain input on values and the things that matter to people.

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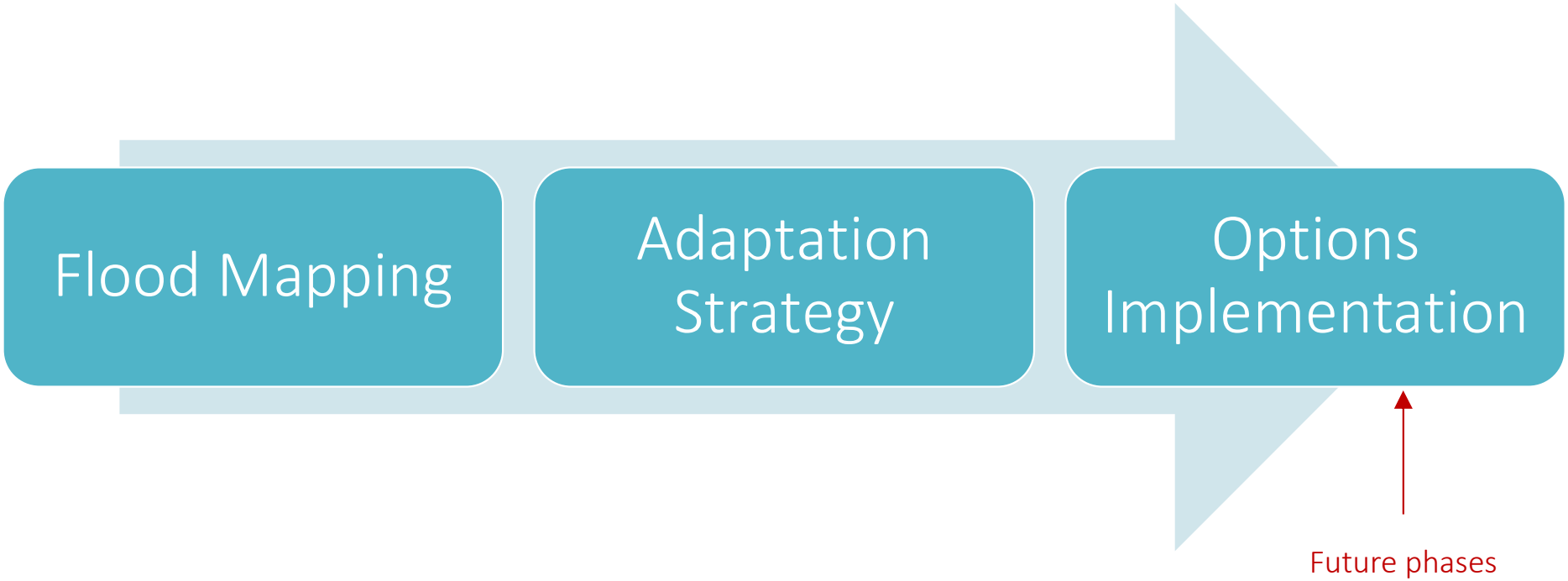
# Coastal Flood Adaptation in the qRD

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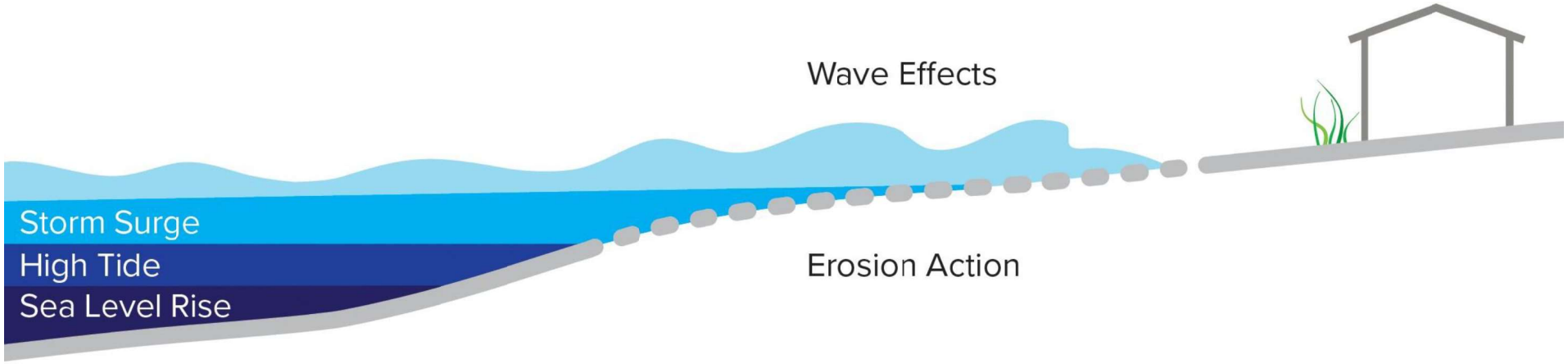
# Flood and Erosion Risk

# There are multiple water level components

## These influence flood and erosion

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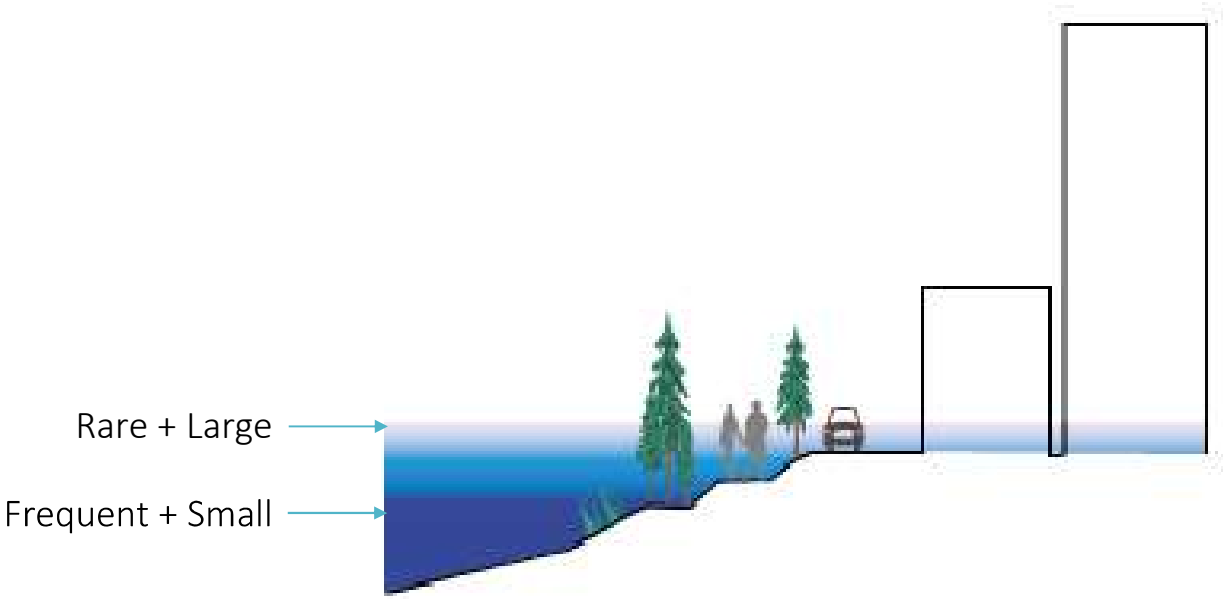
# *Not all flood hazards are created equal*

## *The many characteristics of flood: Likelihood and Magnitude*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# *Not all flood hazards are created equal*

## *Small, frequent floods lead to erosion*

Saltery Bay (2012). Obtained from qRD

Tla'amin Lands (2010) Source: Hugh Prichard

Savary Island (2017). Source: Bud Graham

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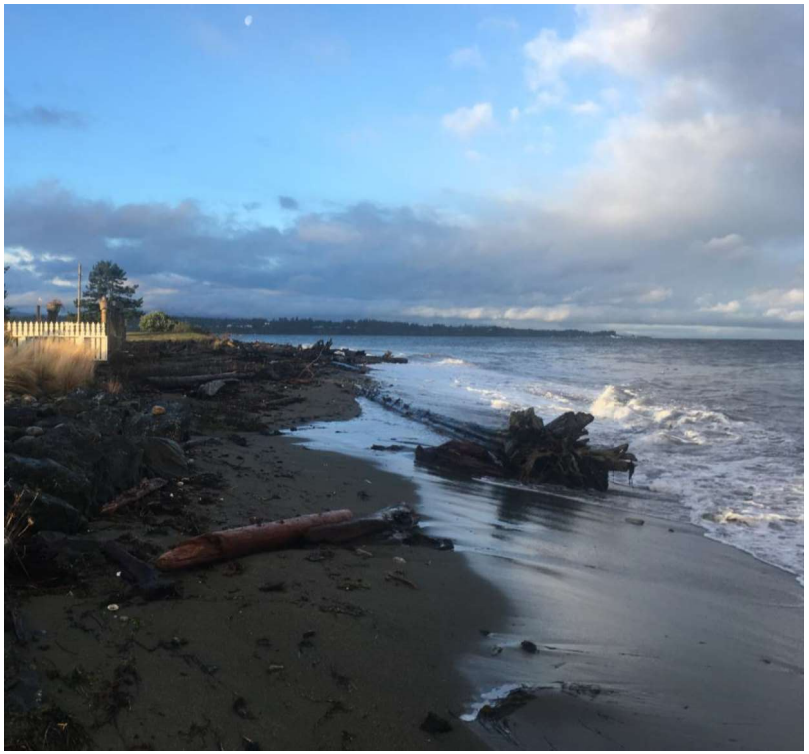
# *Not all flood hazards are created equal*

## *Key message and best practice response*



Key message #1: Flood hazards are nuanced. Adaptation actions need to be too.

Action #1: Consider the nuance and range of events in decision processes.

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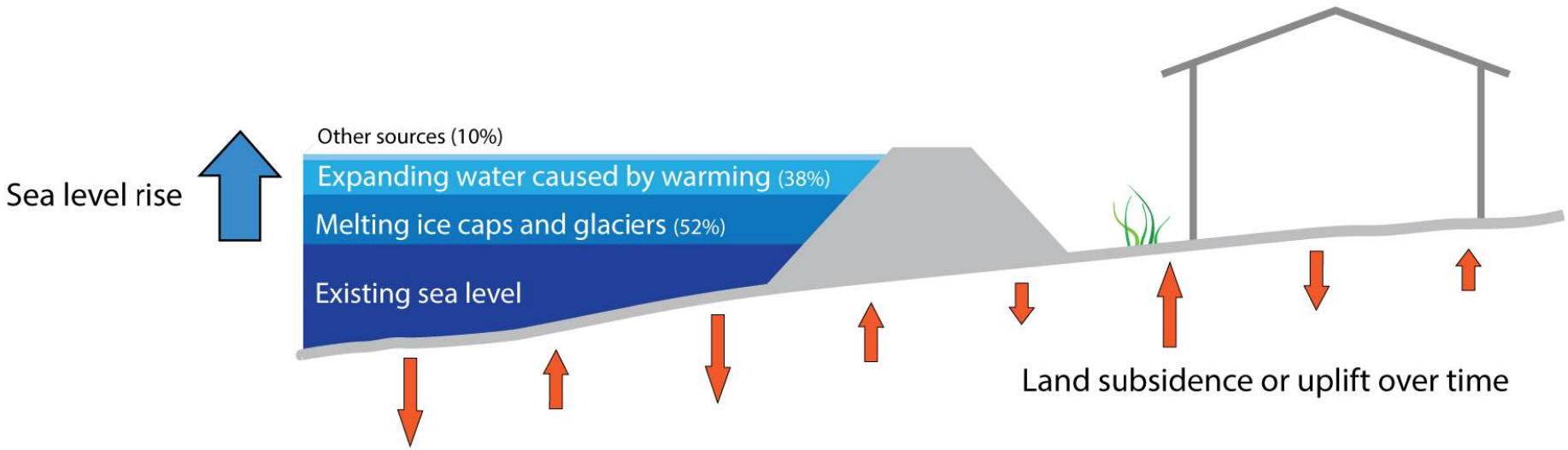
# *Sea level rise means a dynamic coast*

## *Climate change is driving sea level rise*

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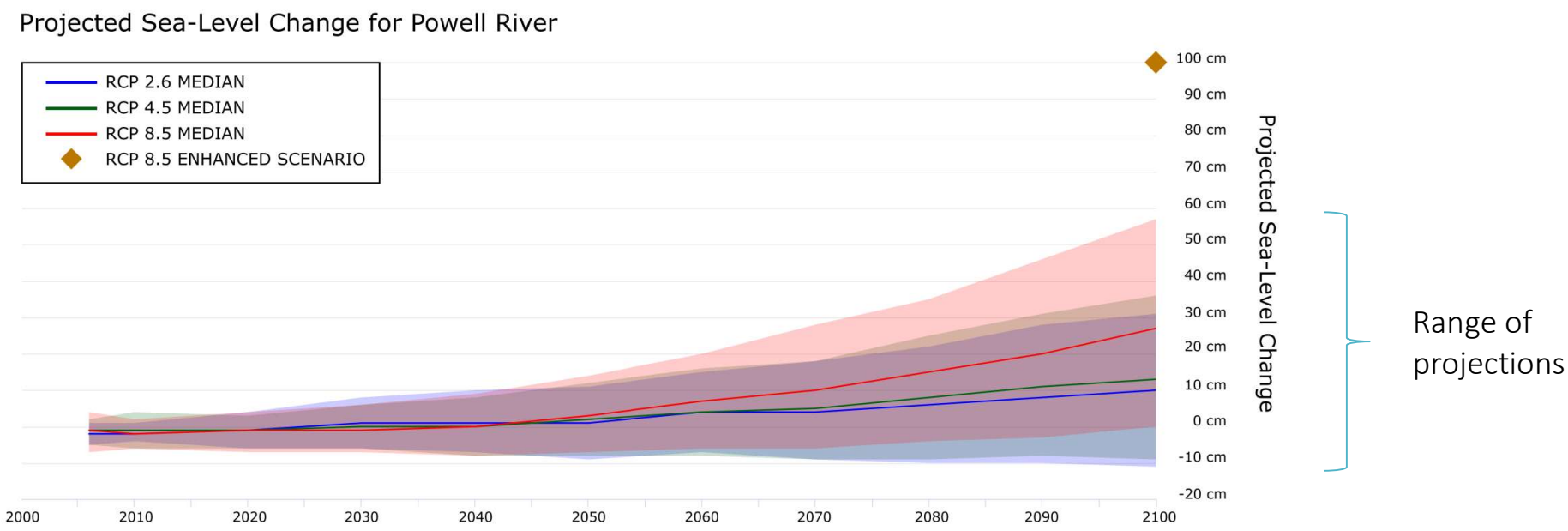
# *Sea level rise means a dynamic coast*

## *The uncertainty challenges design*




*Source: ClimateData.ca*

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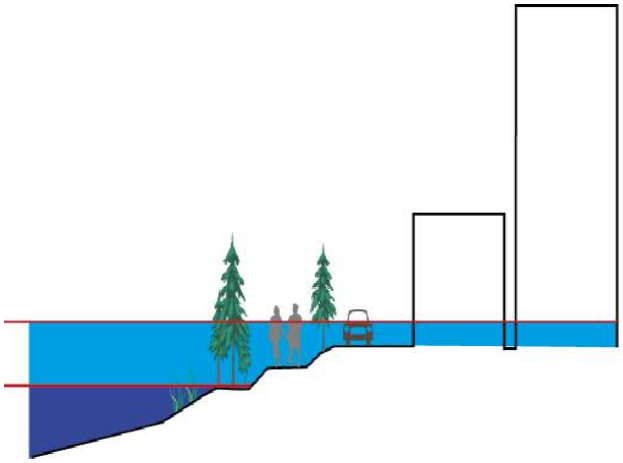
# *Sea level rise means a dynamic coast*

## *Key message and best practice response*

Key message #2: Sea level is rising, but an unknown rate. Embrace the uncertainty.

Action #2: Don't rush in; preserve options. Avoid solutions that are single-minded or remove future pathways. Strive for adaptive solutions that will work under multiple futures.



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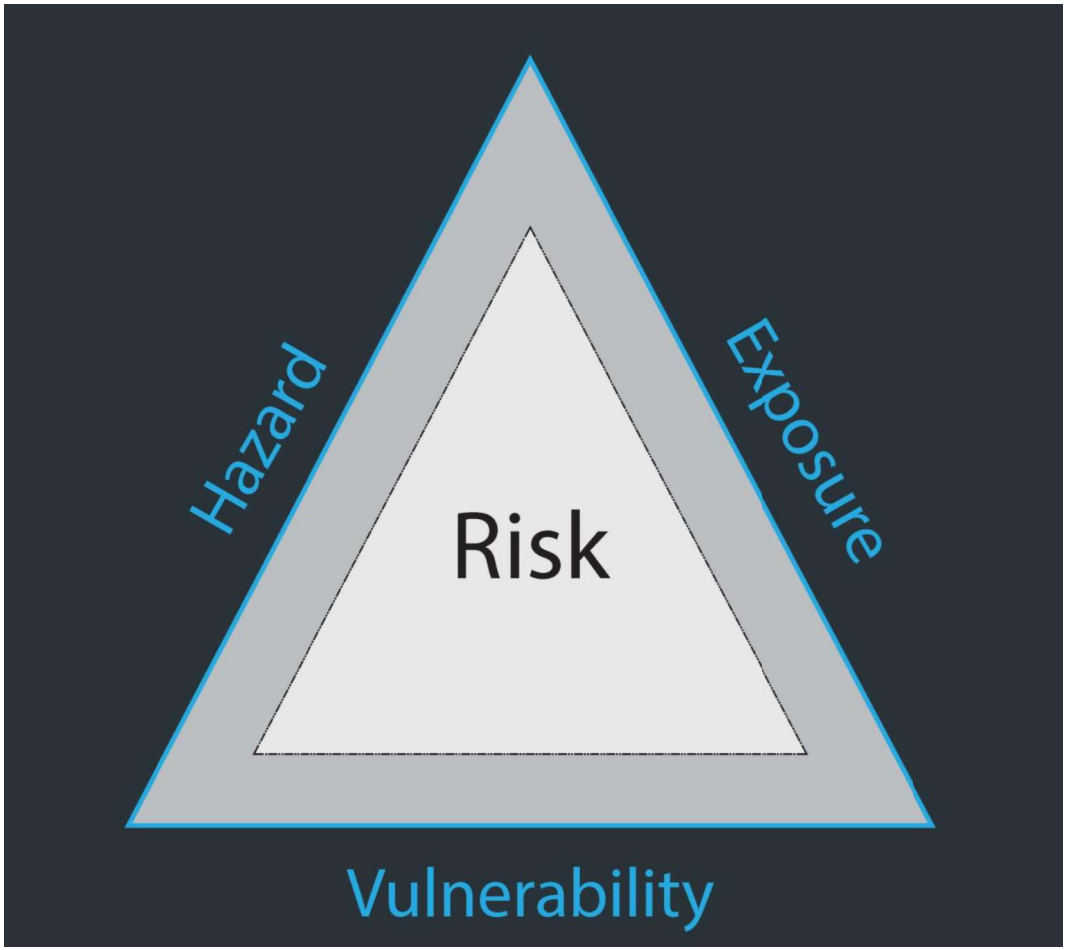


Water isn't the problem

*Risk is the* ***intersection*** *of hazard and the things we care about*

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# *Flood risks are wide ranging*

## *Wicked and Systemic*


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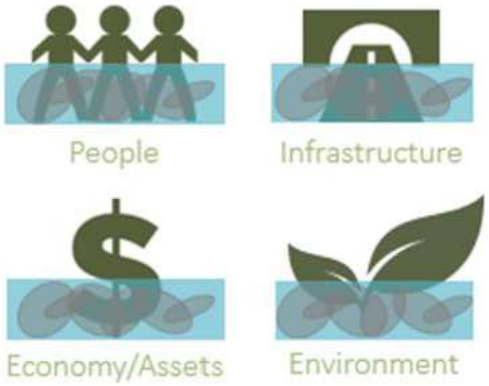
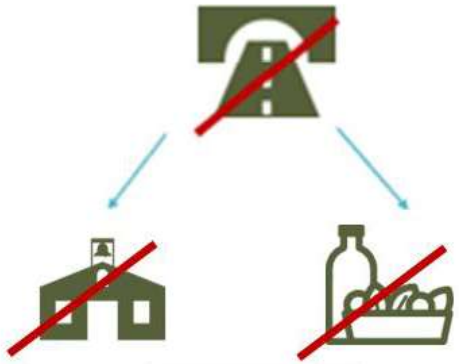
# *Flood risks are variable in space and time*

## *Thinking beyond the flood hazard area*

Direct Impacts




Indirect (Cascading) Impacts



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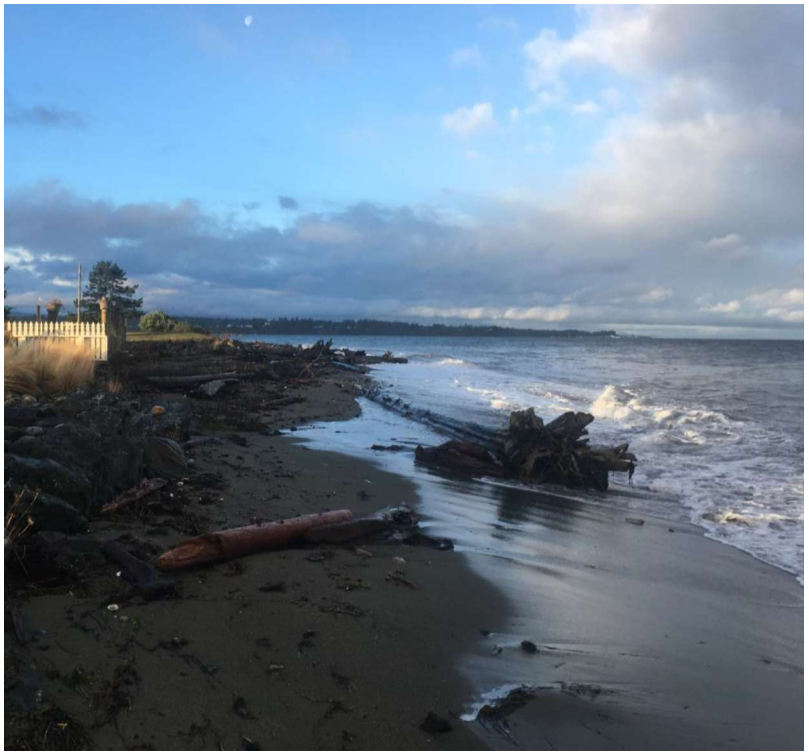
# *Damages and consequences are what matter*

## *Key message and best practice response*



Key message #3: It's RISK that matters. Risk is messy and complex.

Action #3: Use risk as the basis for analysis. Acknowledge the messiness and uncertainty. Apply a decision process that does too.

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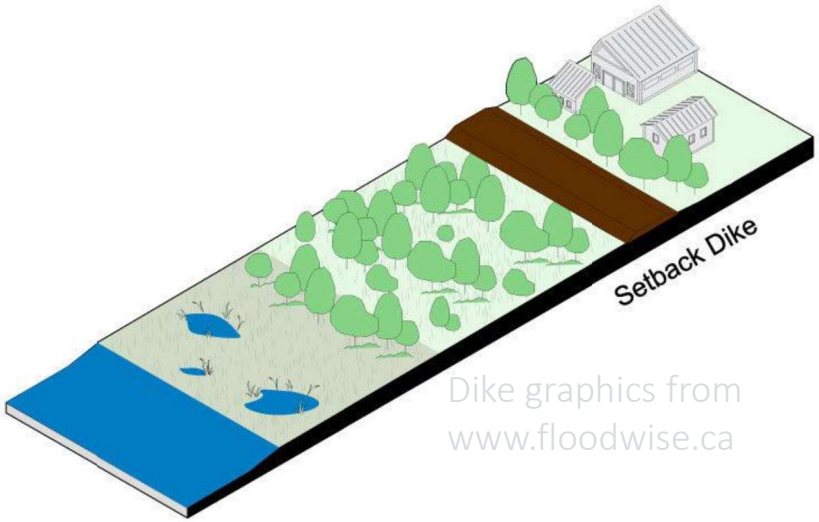
# Adaptation Strategies

# Protect

Building “green” or artificial barriers to maintain the current location of existing developed areas (e.g. houses, settlements, infrastructure)




Dike graphics from www.floodwise.ca

# Avoid

Prevent new building, infrastructure or some land uses from happening in areas at risk of future flooding and erosion impacts

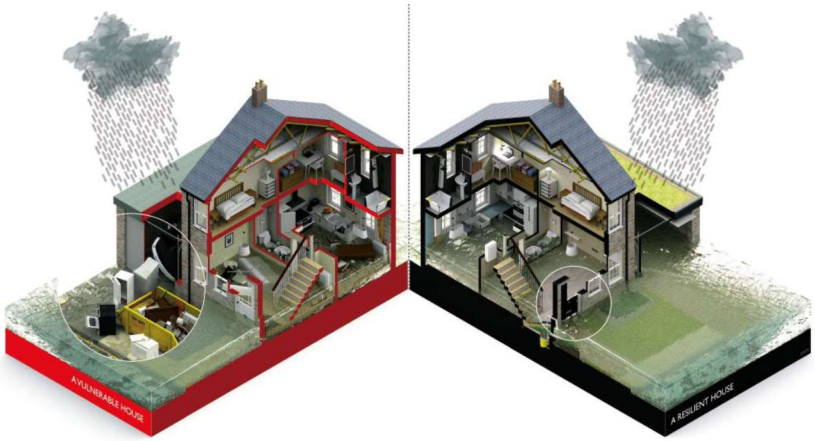
# Managed Retreat

Exploring alternative locations to move homes and infrastructure back from affected shoreline areas


Graphics from Thistletwaite, Henstra and Ziolecki 2020

# Accom-modate

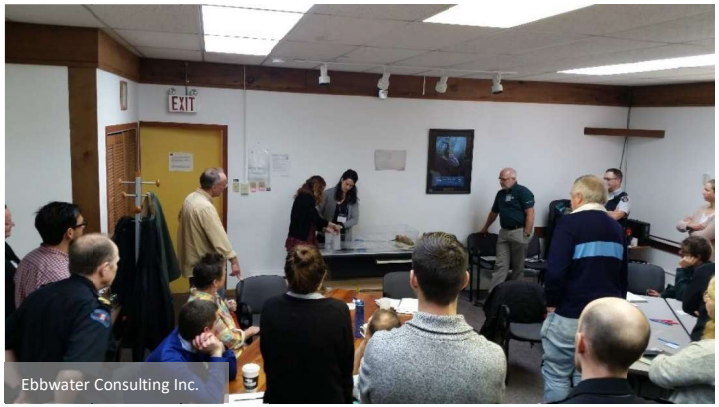
Adapt buildings, infrastructure and land uses to allow coastal areas to flood over time without causing negative impacts




Graphic from Retrofitting for Flood Resilience (Barsley 2020)

# Resilience-building

Investing in awareness, preparedness and response as a community, so that we can work together well to respond to challenges and bounce back from negative impacts

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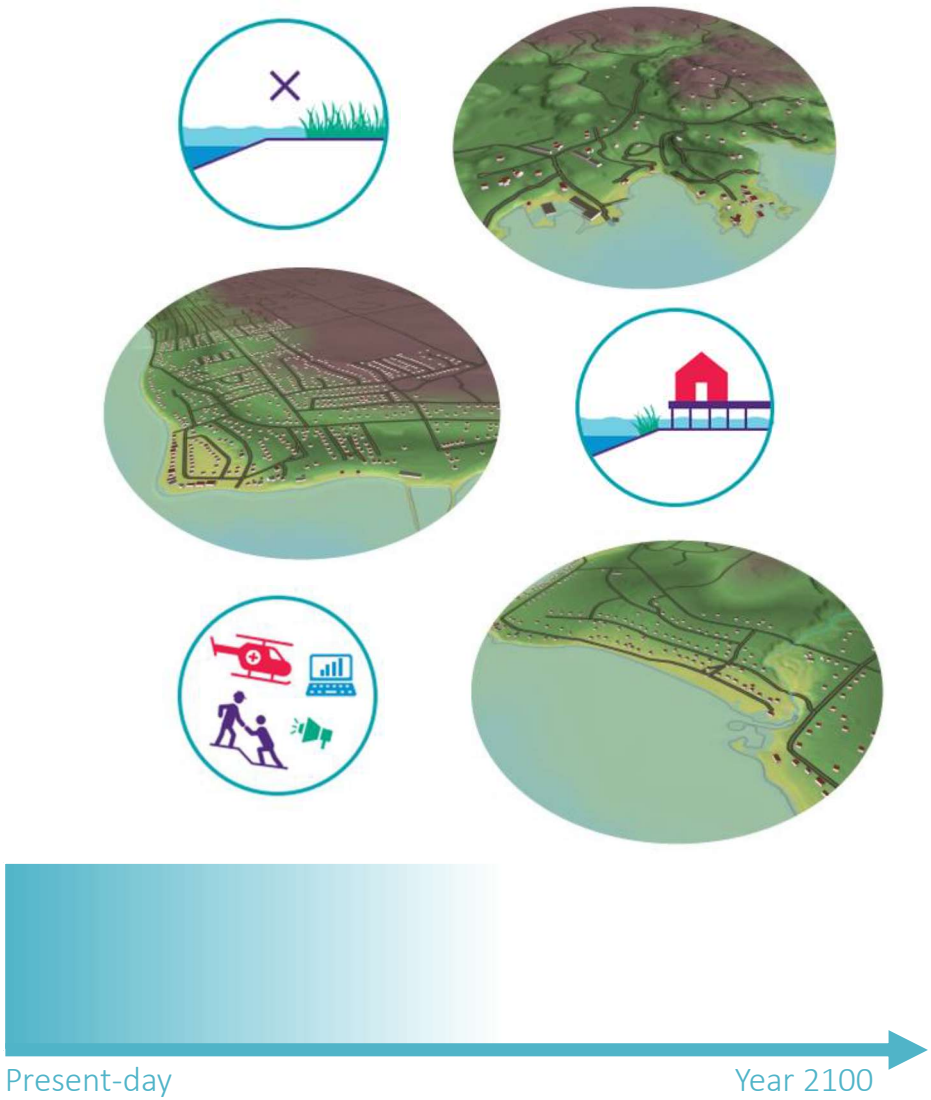
# A Mix of Strategies is Required…

Diverse geographic settings

- Archetype areas
- Region as a whole

Timelines for implementation

- Short-term (present-day to 2050)
- Long term (2050 to 2100)



# “What We Heard”

# Community Engagement

- **41** Information session participants
- **67** Survey responses
- **21** Stakeholder and partner workshop participants

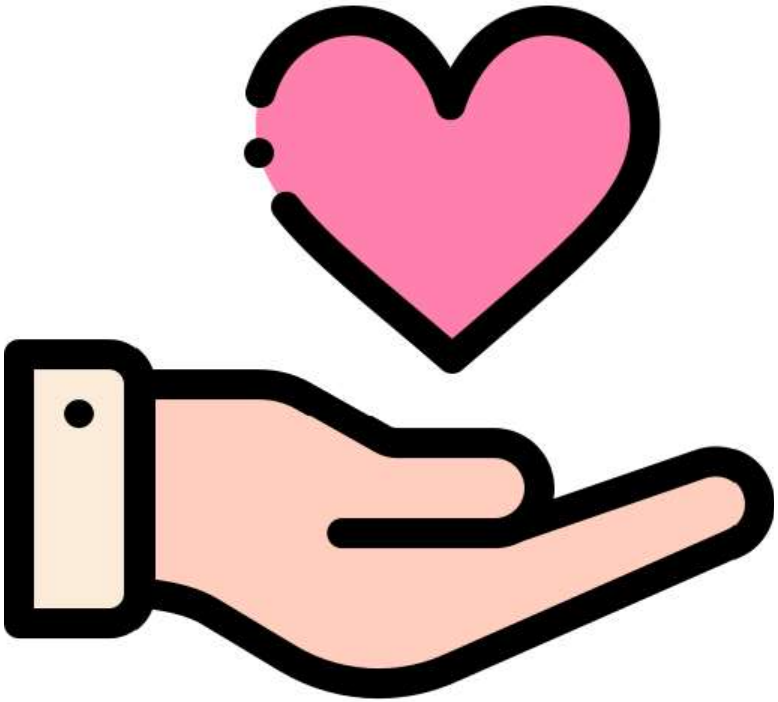

# Community Values

- Environment, nature & biodiversity
- Lifestyle, recreation & access to nature
- Beauty & aesthetics
- Traditional territory & culture

WHAT BIOPHYSICAL COASTAL CHANGES HAVE YOU SEEN?


# BEACH EROSION + SHORELINE CHANGES


Road & Highway Damage
More frequent major storms... particularly in the winter
Sanitary sewer outfall blockage
Marina and Beach Infrastructure damage
More frequent ferry cancellations due to weather
BC Ferries
INFRASTRUCTURE DAMAGE / DESTRUCTION



Source: Freepik

# Priorities…

- Protect Infrastructure
- Maintain healthy ecosystems, water, habitat, harvesting
- Protect cultural sites
- Maintain public access to waterfront
- Build economic security
- Maintain supply lines & access routes
- Opportunity & well-being for future generations

# Tensions & Tradeoffs

| | | |
|---|---|---|
| Protect what can't be replaced | ---------- | Protect whatever is most important now |
| Take a coordinated, consistent approach | ---------- | Maintain individual freedom |
| Prioritize funding to protect things that benefit the most people or greatest good | ---------- | Prioritize funding to benefit individual choice and benefit |
| Emphasize collective responsibility and action | ---------- | Emphasize personal responsibility and action |
| Learn to live with water and adapt to change | ---------- | Resist change at all costs |

# Draft Guiding Principles (1 of 2)

1. Take a coordinated, consistent approach as a region
2. Prioritize funding for things that benefit the most people or greatest good
3. Emphasize and support taking personal responsibility for private property
4. Enable individual and collective action… use rules or regulations where that is the best tool
5. Provide clear guidance that maintains some flexibility / choice

# Draft Guiding Principles (2 of 2)

6. Preserve what can't be replaced

7. Learn to live with water, accept some losses and adapt to change

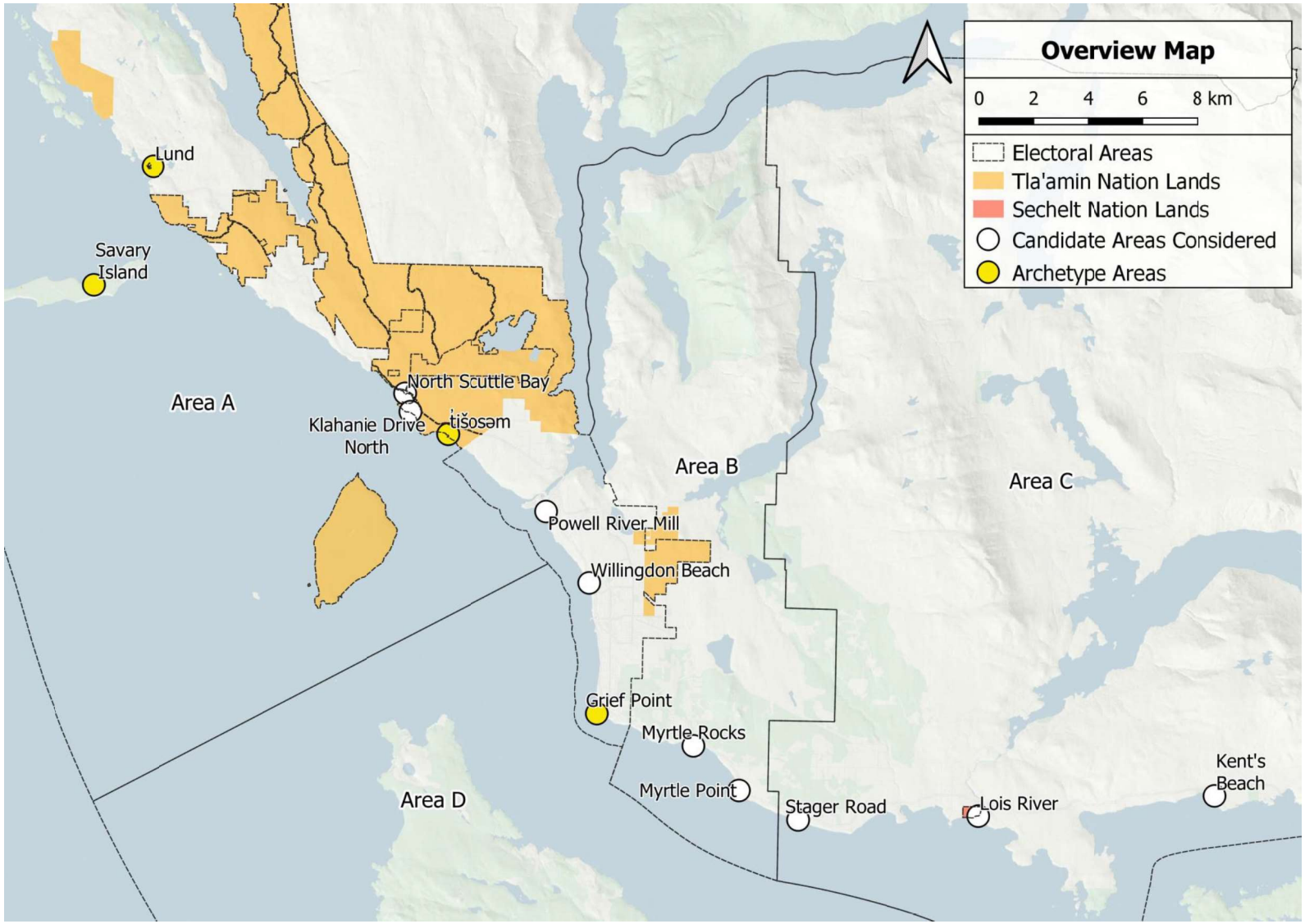
8. Act in the best interests of future generations

9. Maintain options & flexibility over time

10. Take a phased approach over time

- emphasize Accommodate, Avoid and Resilience-Building in early phases.
- use Protect only where necessary, and with an emphasis on soft, low impact, green options.
- work towards Retreat later in time, where / as needed.

# Archetype Areas

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# Archetype Areas – Illustrative Only!

**Representative Characteristics**

- Range of Partner lands.
- Island and mainland areas.
- More rural and more urban settings.
- Varied coastal flood and erosion hazards.
- Exposed elements (dwellings, infrastructure, environmentally sensitive areas, archaeology).


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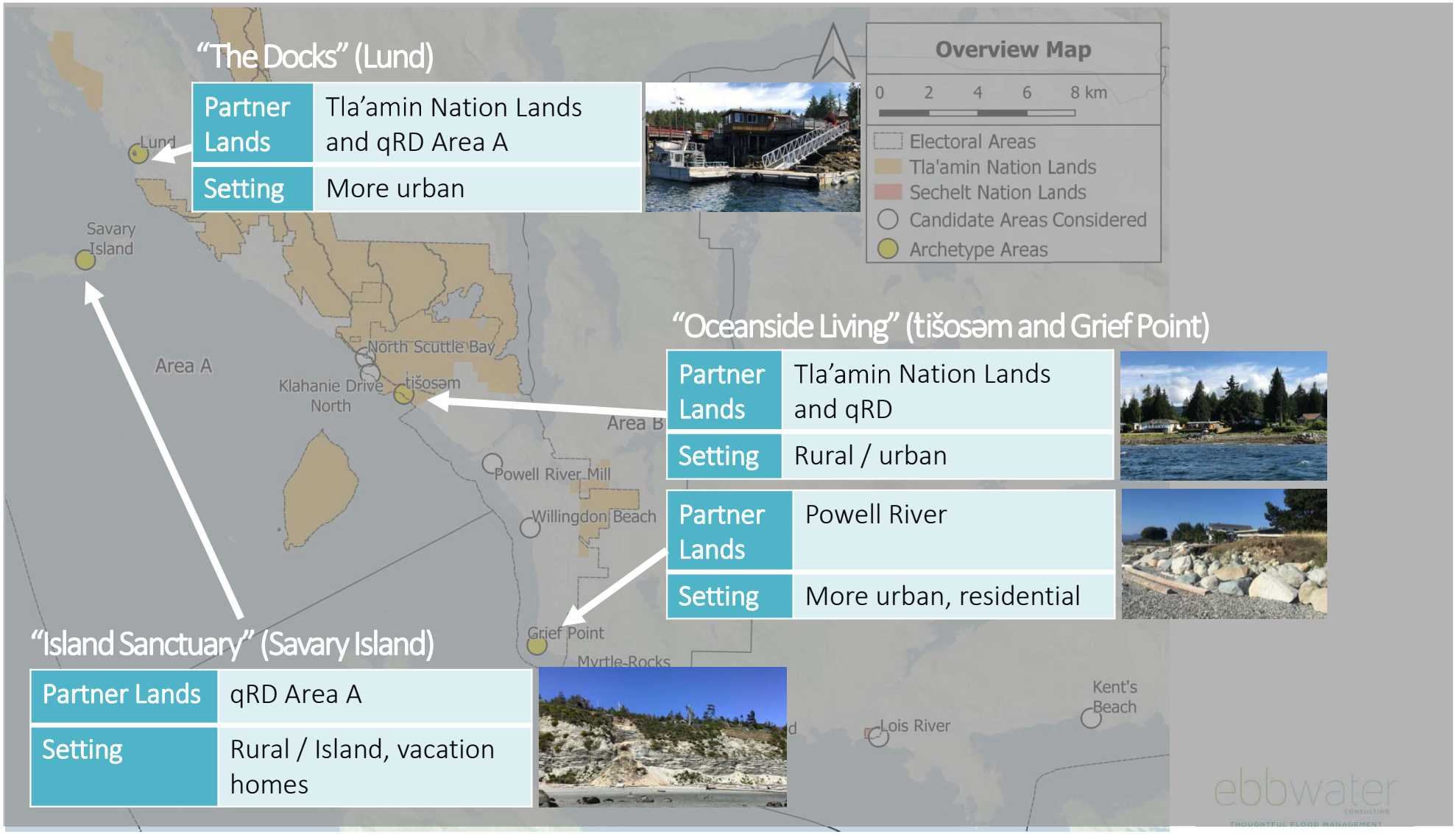


## "The Docks" (Lund)

| | |
|---|---|
| Partner Lands | Tla'amin Nation Lands and qRD Area A |
| Setting | More urban |

## "Oceanside Living" (tišosəm and Grief Point)

| | |
|---|---|
| Partner Lands | Tla'amin Nation Lands and qRD |
| Setting | Rural / urban |

| | |
|---|---|
| Partner Lands | Powell River |
| Setting | More urban, residential |

## "Island Sanctuary" (Savary Island)

| | |
|---|---|
| Partner Lands | qRD Area A |
| Setting | Rural / Island, vacation homes |

# Activity Stations

# Wander Through…

## Overview Information

- Project Background and Fly-through video
- Coastal Flood and Erosion Risk and Impacts
- Range of Adaptation Strategies and Planning Scenarios

## What We Heard

- What Matters When Building Coastal Resilience
- Looking Ahead… and Looking Back

## Adaptation Strategies

- Archetype Areas – Hazards and Impacts
- Adaptation Options – Short-Term
- Adaptation Options – Long-Term (and Region-Wide Actions)

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# … And Give Us Your Feedback!

- Tell us what matters to you, and what you think about the proposed adaptation strategies.
- Have questions about coastal flood and erosion risk? Ask us!

Source: Freepik

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# Thank You!

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