Project:	CVRD Coastal Flood Adaptation Strategy Phase 2 – Flood Risk and Options Assessment		
Meeting:	Engagement Round 1	**Original Document Date:**	17 June 2021
Subject:	Pre-Meeting Information Package – Focus Area Profiles		

Note: *The original version of this document was prepared as a pre-meeting information package for the project's engagement Round 1 (the main session was held on 17 June 2021). The format and contents have been modified slightly compared to the original for clarity and consistency with information presented in the main report.*

Project Background

In coastal areas of the CVRD, sea levels are expected to rise as a result of climate change, which will exacerbate flooding from coastal storms. Planning for coastal changes now can help reduce costs and impacts in the future. In 2018, the Province directed local governments to plan for 1 m of sea level rise. To address this and other climate-related coastal flood issues the CVRD is developing a Coastal Flood Adaptation Strategy (CFAS).

What coastal hazards are being assessed?

Coastal storm hazard arises when water levels are higher than normal as a result of surge, wind, wave, and tidal conditions.

Sea-level rise (SLR), caused by expanding water and melting ice caps from climate change, slowly and steadily compounds coastal flood hazards.

The CVRD has approximately 200 km of coastline. Phase 1 of the project (coastal flood mapping) is now complete, and the **high-level takeaways** are as follows:

- An extreme coastal storm would be expected to inundate (flood) over 1,800 hectares of land in the CVRD under current conditions. By 2100, with 1 m of sea level rise, this same type of storm would be expected to flood over 2,200 hectares.
- There are a number of communities and agricultural lands in low-lying areas that are exposed to coastal flooding from an extreme storm, even under current conditions. These areas include a significant portion of lands in the Electoral Area B and K'ómoks First Nation reserve lands (IR#1, IR#2, IR#3).
- The topography of the land (i.e., the shape and height of coastal areas) limits the inland extent of flooding along most of the coast in the CVRD. The largest encroachments are seen in flatter areas.
- Flood hazard is significant in the lower and flatter areas in the present day. Sea level rise means that some areas that would currently only see flooding very rarely will be flooded more frequently. And that some areas that would currently be outside the flood hazard zone, will be inundated in future.

What is an extreme storm?

An *extreme* coastal storm in the context of this work is considered to be one that has a 0.5% chance of being exceeded in any given year. This storm is said to have an annual exceedance probability (AEP) of 0.5%. Sometimes this is also called a "1 in 200 year" (200-year indicative return period) flood.

With climate change, storms are expected to become larger and more frequent over time. As a result, what is considered an extreme storm in 2100 (0.5% AEP) will be greater than what we experience as an extreme storm today.

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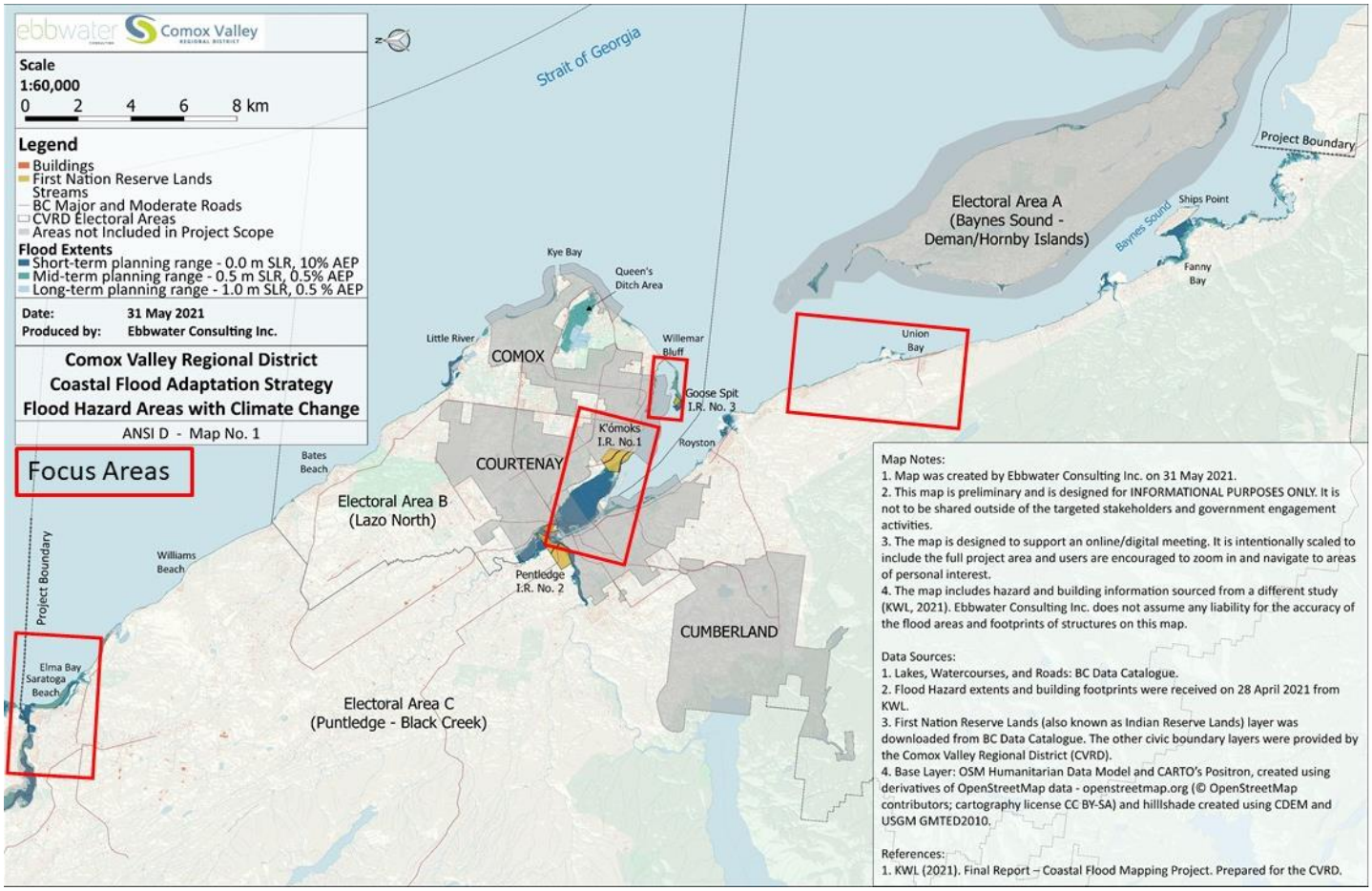
Focus Areas

Four focus area profiles have been developed to provide **illustrative examples** of a range of coastal flood hazards—and their potential consequences—that the CVRD must consider in adapting to coastal changes. The choice of areas does not indicate prioritization of these areas for planning purposes. They have been developed to inform and support discussions during the Stakeholder Engagement Process in the project's Phase 2 (Flood Risk and Options Assessment). **The focus area profiles are described for illustrative purposes only, for use during the stakeholder and partner engagement session.** Their locations are shown in red in the figure below:



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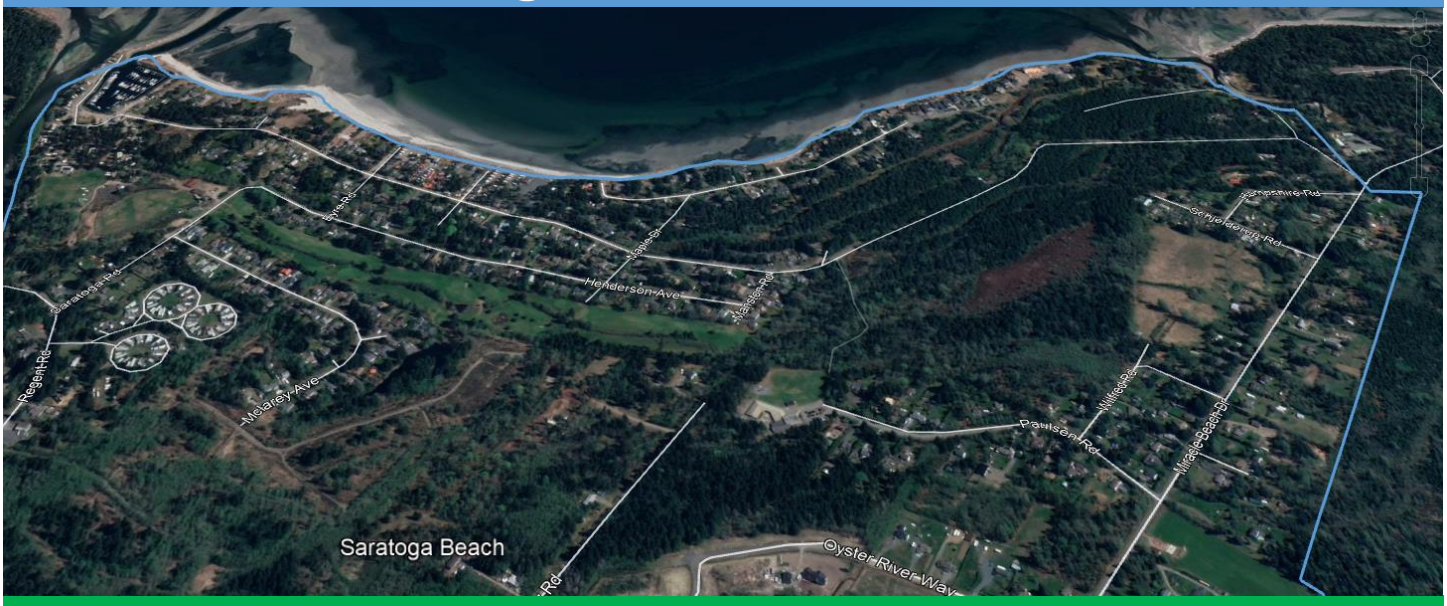
The following pages describe each focus area, including high-level results of a consequence assessment. The assessment is based on the modelled flood extent for three scenarios, with different combinations of AEP and SLR (see table below). Consequences are presented in terms of flooded area, as well as the estimated number of buildings and number of people affected.

Planning Range Scenario	Annual Exceedance Probability	Indicative Return Period	Sea Level Rise
Short-term	10%	10-year	0 m
Mid-term	0.5%	200-year	0.5 m
Long-term	0.5%	200-year	1.0 m

Focus Area Profile Notes:

- Descriptions are informed by the Rural Comox Valley Official Community Plan (OCP) and the CVRD Regional Growth Strategy (RGS). Areal imagery is from Google.
- Saratoga and Union Bay areas are CVRD Settlement Nodes. These are areas that have been designated to accommodate compact forms of development for future growth but they are not contiguous with Municipal Areas.

Focus Area: Saratoga



Description

- Exposed coastline: 3.7 km
- Located in Puntledge-Black Creek (Electoral Area C) and includes rural and cottage residences.
- Waterfront tourist commercial properties include resorts, marinas, and beach recreation facilities, campgrounds.
- Contains a large sandy beach, which attracts summer tourists.
- The estuary creates river flood hazard in addition to coastal storm surge hazard.
- Not currently serviced by sewer but this is being explored by a developer (with piping and conveyance by CVRD).
- The Watutco private water system services most properties (130 residential and two commercial).
- Has been designated as a CVRD “Settlement Node” (future growth area).
- Growth will be geared toward coastal tourism and residential housing (143 new residential lots).

Preliminary Consequence Assessment

Planning Scenario	Flood Area (ha)	Building Value ($M)	People (#)
Short-term	93	57	305
Mid-term	111	64	361
Long-term	119	68	384

Photo: Tamsin Lyle

Focus Area: Comox Road

Description

- Exposed coastline: 2.1 km.
- Also referred to as the "Dike Road", it is located within CVRD Electoral Area B.
- The road is multi-jurisdictional and passes through the City of Courtenay, The City of Comox, and K'ómoks First Nation lands.
- The CVRD owns parks space along the road.
- The area contains agricultural lands and residential buildings.
- The Kus-kus-sum remediation and restoration project involves regional collaboration and construction will begin in June 2021.
- There are other major capital works for a sewer line to an outfall at Willemar Bluff in the near future.
- Some buildings along the road have been adapted for flooding.

Preliminary Consequence Assessment		Flood Area (ha)	Building Value ($M)	People (#)
Planning Scenario	Short-term	144	6	53
	Mid-term	191	11	145
	Long-term	198	13	169

Note: The features assessed are those that are within the CVRD and K'ómoks I.R. No.1. only.


Photo: Rick Ward

Focus Area: Goose Spit

Description

- Exposed coastline: 5.2 km.
- Located south of Courtenay-Comox (Electoral Area B).
- Unique coastal sand ecosystem that is fed by the Willemar Bluffs to the north.
- Habitat for protected migratory birds and plants.
- The sheltered lagoon is valued by water-based recreationalists.
- CVRD parks department uses log piles and other means for shoreline protection; however, it is not regarded as a long-term solution.
- Ministry of Transportation owns road in this key corridor that is shared with the Canadian Forces base and a K'ómoks First Nation reserve.
- All the area is impacted by flooding starting in the short-term.

Preliminary Consequence Assessment		Flood Area (ha)	Building Value ($M)	People (#)
Planning Scenario	Short-term	32	11	17
	Mid-term	32	11	17
	Long-term	32	11	17

Note: The features assessed are those corresponding to the Canadian Forces base.

Photo: CVRD

Focus Area: Union Bay

Site Description

- Exposed coastline: 3.6 km.
- Located in Baynes Sound (Electoral Area A).
- Current economy is focused on shellfish industry and tourism.
- The area is a designated CVRD “Settlement Node” (future growth area).
- Water, street lighting, and fire services will be under CVRD as of July 1.
- Includes the planned development of Union Bay Estates (3,000 mixed residential / commercial lots).
- Park land is proposed for development along the shore.
- A new sewage line is planned to be constructed.

Preliminary Consequence Assessment		Flood Area (ha)	Building Value ($M)	People (#)
Planning Scenario	Short-term	12	4	27
	Mid-term	17	7	31
	Long-term	19	8	41


Photo: Google