

The Sumas River Watershed Flood Mitigation Plan

Partners

Sumas First Nation (Semá:th)



Leq'á:mel First Nation



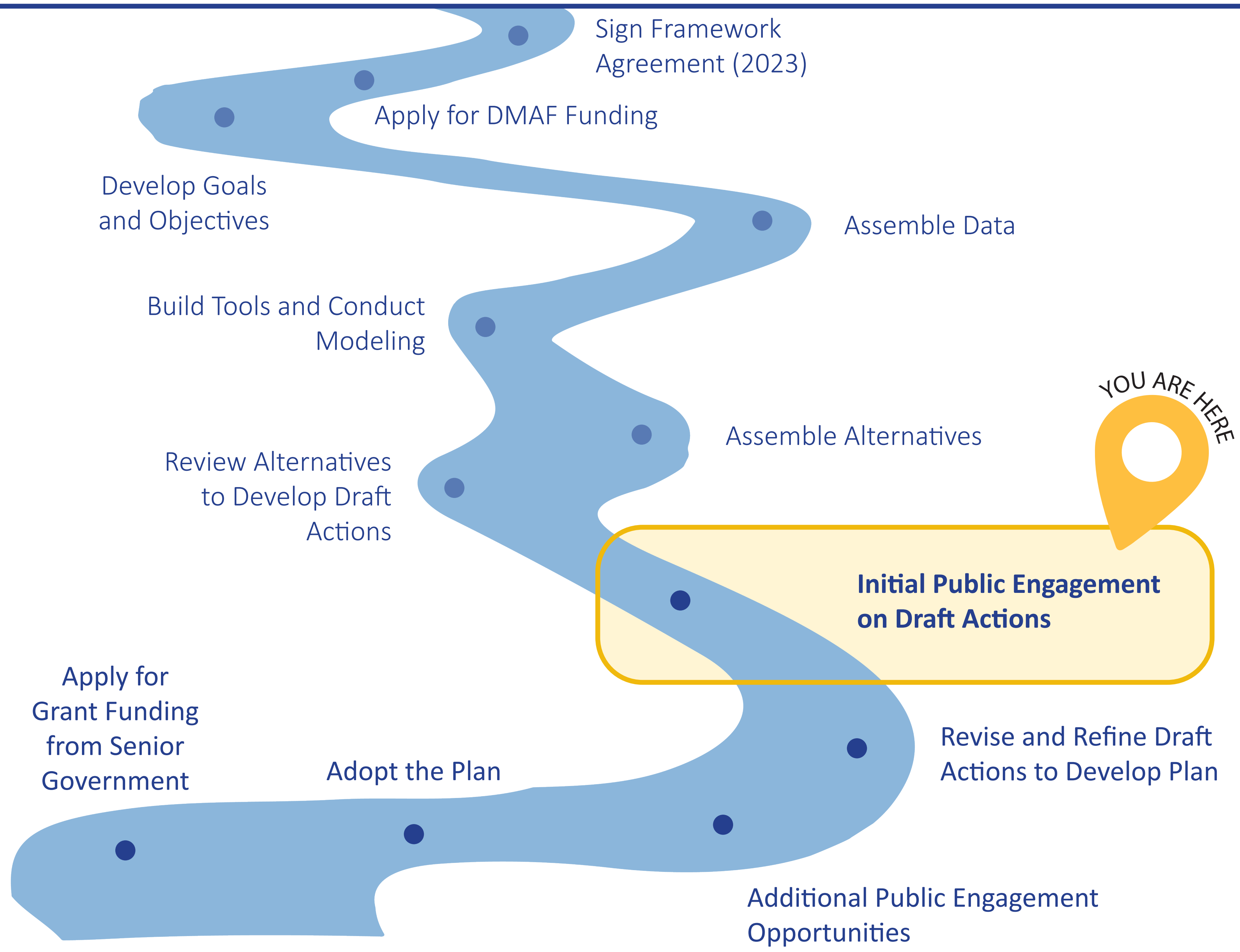
City of Abbotsford



City of Chilliwack



Province of British Columbia

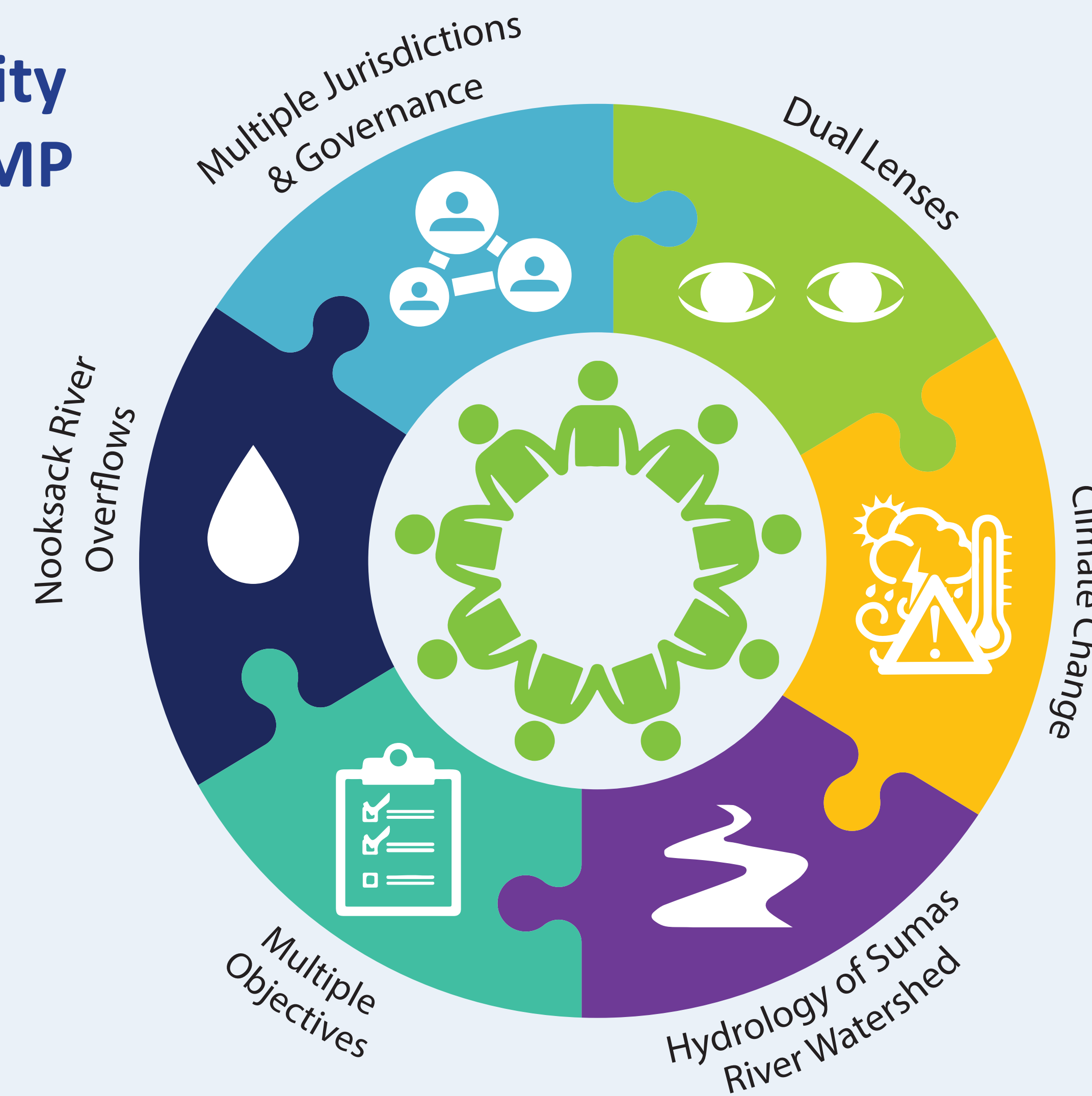


Vision

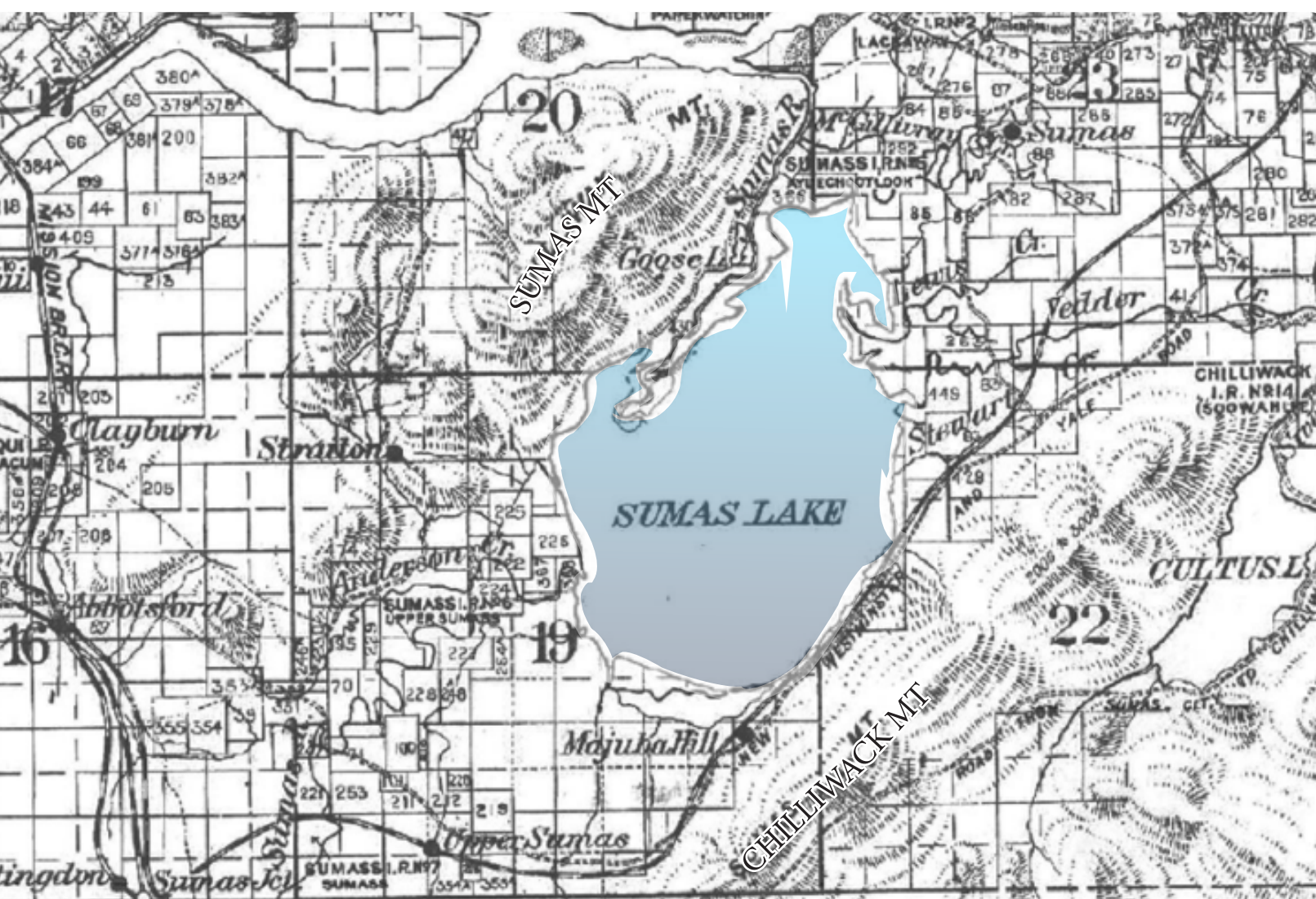
The Sumas River watershed is a beautiful and verdant landscape where agriculture, traditional practices, and other human activities coexist with healthy waterbodies and thriving ecosystems that support fish, wildlife, and native vegetation.

Risks to people, infrastructure, and the use of land are reduced by respecting water and its cycles, anticipating the effects of climate change, and accommodating nature.

Complexity of SRWFMP



History of Sumas River Watershed



The low-lying portions of the Sumas River watershed within British Columbia have experienced seasonal flooding for thousands of years.

The area was once a biodiverse wetland ecosystem that included Semá:th Xó:tša (Sumas Lake). Semá:th Xó:tša was formed about 8,000 years ago as glaciers receded.

The lake and wetlands were vital to the Stó:lō people, who lived around the lake and were sustained by the bounty it provided.

In the 1920s, Xwelítem (“newcomers” of European and American descent) convinced the government to drain the lake so they could farm the lake bottom.

Alongside cultural impacts to First Nations, the draining of the lake and confinement of the river to a narrow channel, disconnected from its natural floodplains, has resulted in catastrophic ecological challenges such as major obstructions to fish passage, destruction of aquatic and riparian habitat, severely degraded water quality, and bottlenecks in the river where flood waters have nowhere to go except into nearby agricultural lands.

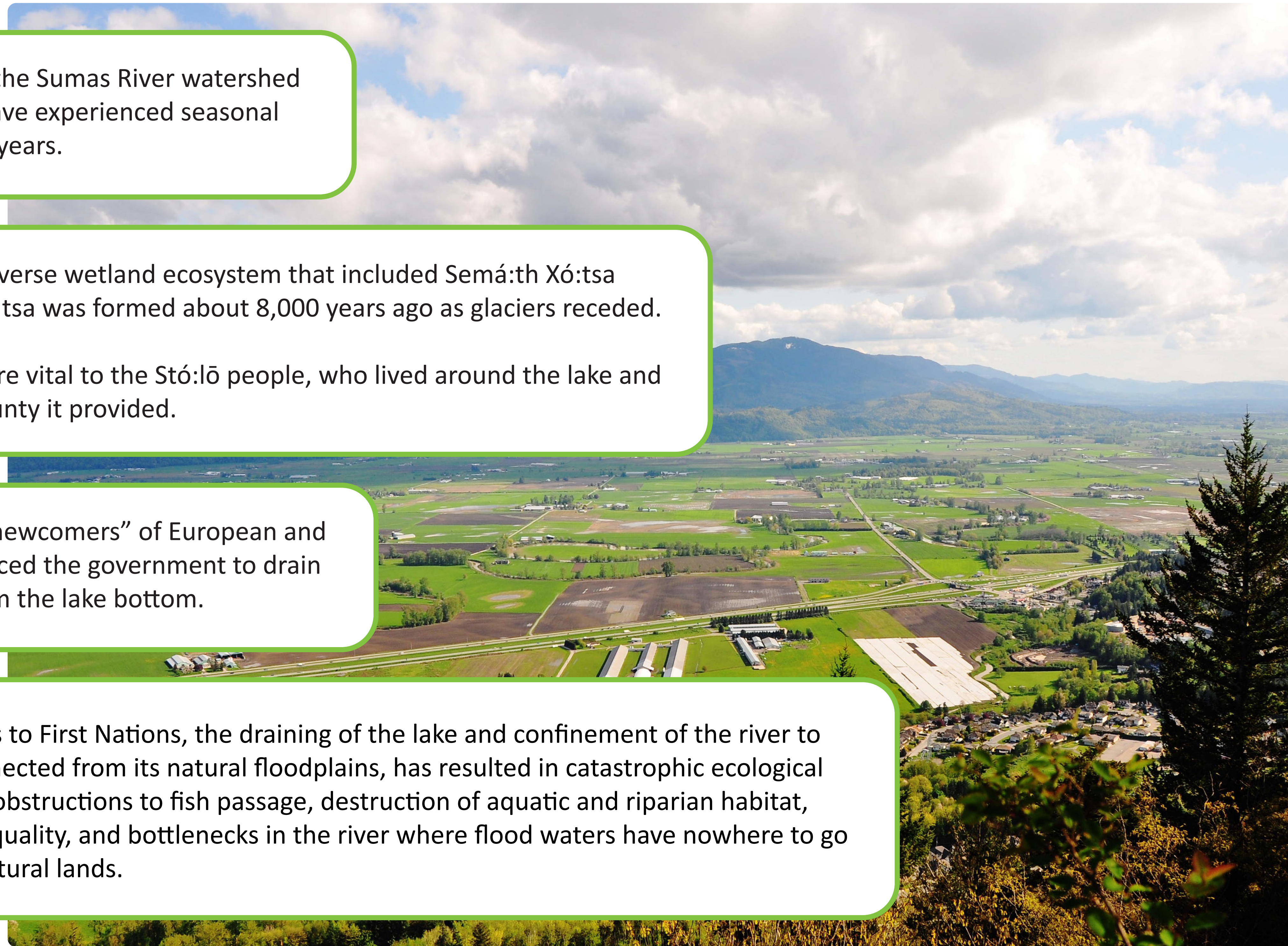


Photo: "Sumas Prairie from McKee Hill, BC Canada" by Jordan Oram (2011), licenced under CC by 2.0.

Top photo: "Sumas Lake in flood - from Vedder Mountain Road" by James Crookall (1960), licenced under CC by 2.0
Middle photo: "British Columbia. Port Moody" from Canada, Surveyor General's Office (1913), licenced under CC by 2.0
Bottom photo: "Sockeye Salmon Run" by Wilson Hui (2014), licenced under CC by 2.0

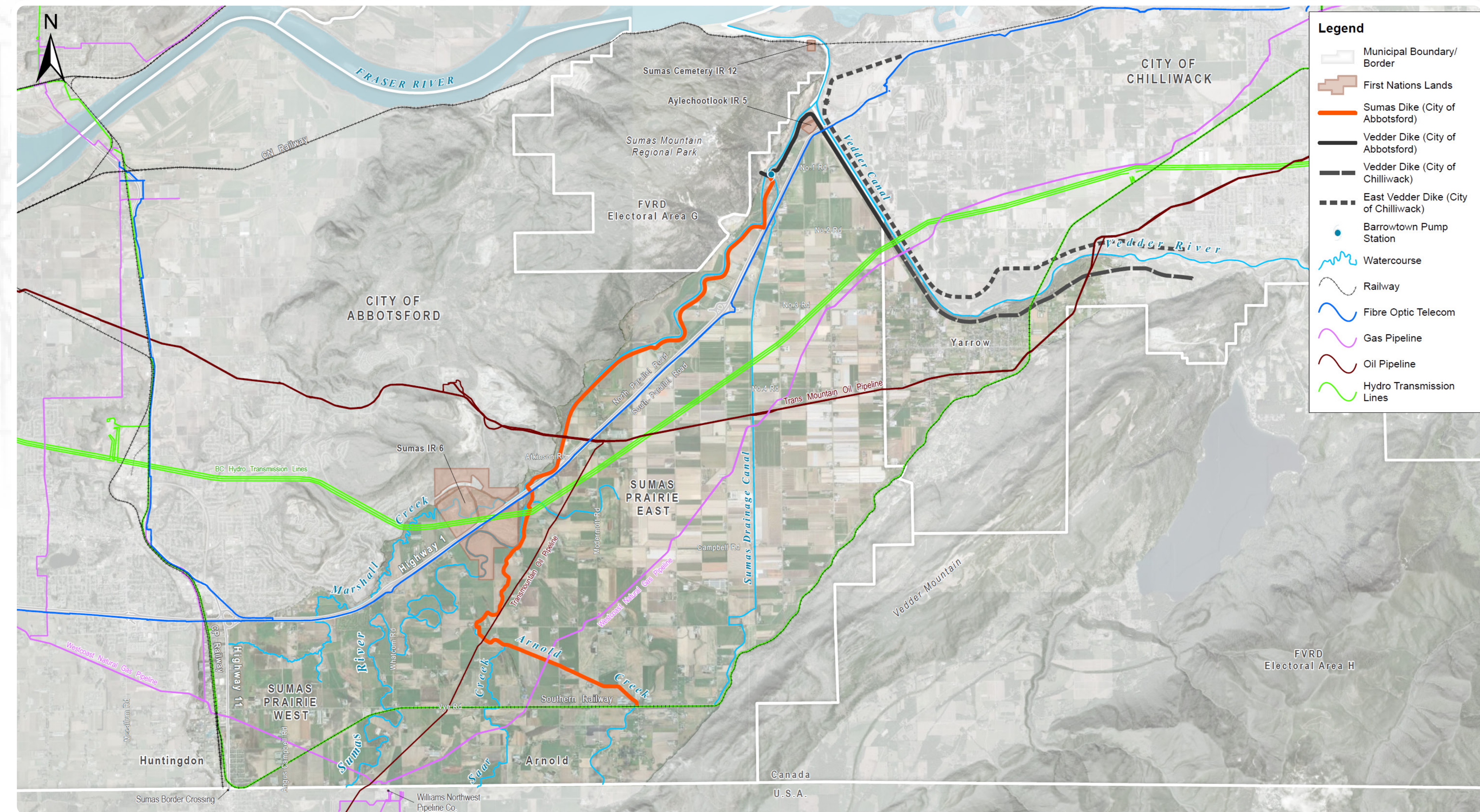


Sumas Prairie Today

Throughout the past century, Sumas Prairie has developed into some of Canada's most productive agricultural land. This narrow part of the Fraser Valley is crossed by critical infrastructure including highways, natural gas and oil pipelines, railways, power transmission lines and telecommunications lines. Sumas Prairie is a major transportation, trade, and energy corridor in close proximity to the U.S. border and Port of Vancouver.

Disruptions to these key pieces of infrastructure connecting Canada to the Western U.S. and Pacific trading partners, can threaten vital supply chains, energy and food security, and economic well-being for all Canadians. Further, the region is of significant ecological importance, supporting habitat for spawning and rearing salmon, migrating birds, and many other species.

While the drainage of the lake removed access to traditional harvesting areas and impacted cultural practices of First Nations long before settler development, Semá:th and Leq'á:mel peoples continue to maintain deep cultural, spiritual, and ancestral connections to the watershed.



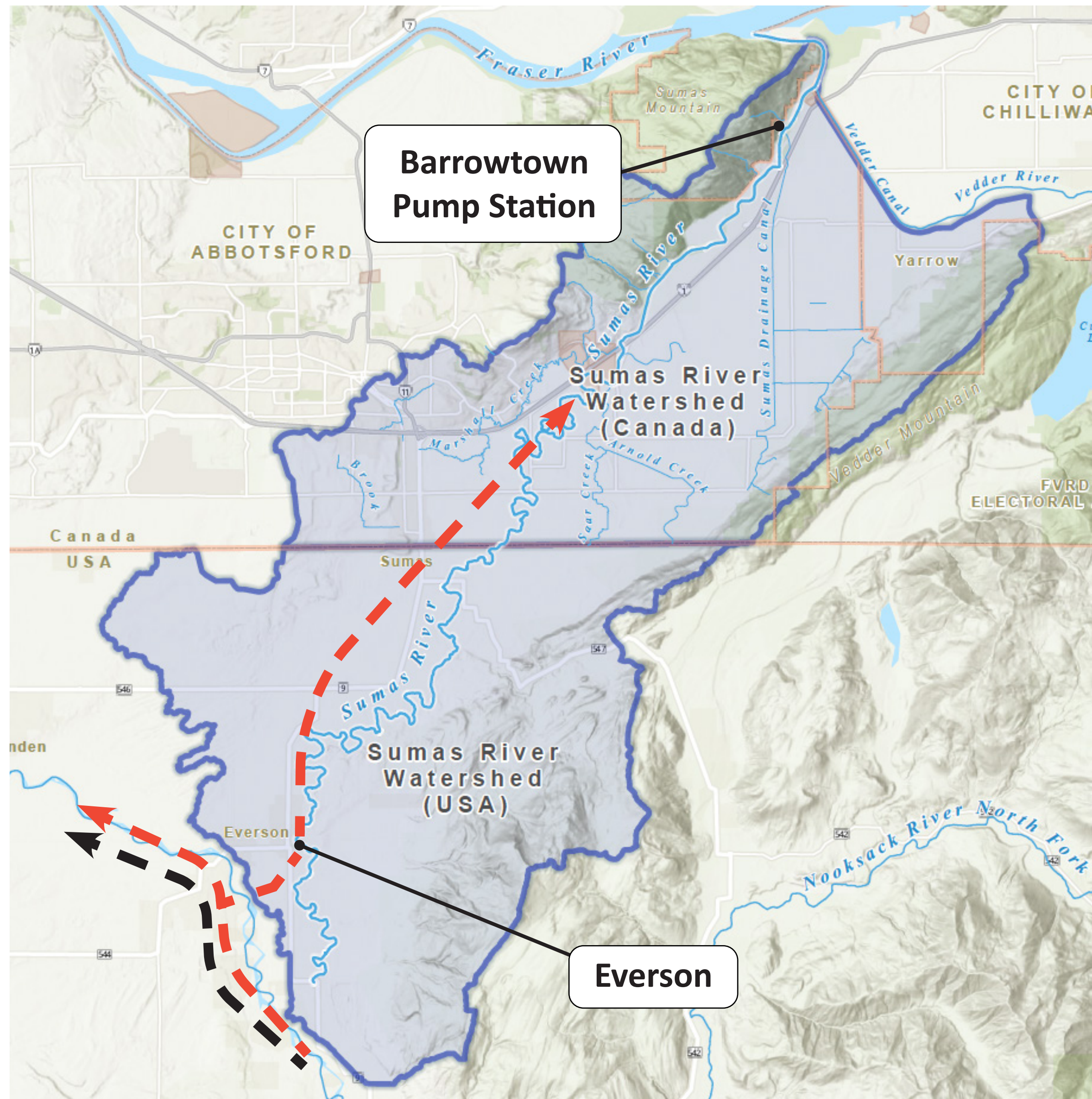
Critical infrastructure in the Sumas Prairie

Sumas Prairie at a Glance

- 80,000 average daily vehicles on Highway 1 through Abbotsford
- Gateway to foreign ports: over \$65 billion in goods move along Highway 1 corridor annually
- Over 1,200 farms on more than 60,000 acres of the most productive farmland in Canada
- Generates over \$1 billion in farm gate sales annually, which is the highest per hectare in Canada, and 23% of B.C.'s total farm gate sales
- Responsible for roughly half the dairy, chicken, turkeys and eggs consumed province wide
- Farm economy supports more than 16,000 local jobs
- Over 1.3M border crossing (2024) 24-hour truck and rail crossing



How the Water Flows



Dikes along the northeast side of Sumas Prairie protect homes and businesses from Fraser River and Vedder River floods. However, during periods of heavy rain, the Nooksack River can overtop its banks at Everson, with overflow waters flowing north and across the Canada-U.S. border and into Sumas Prairie.

Downstream of Everson, there is already substantial flooding during high flows, so redirecting all flood waters downstream is not considered a viable solution by Washington State.

This cross-border overflow has resulted in major flooding events, most notably in 1990, 2021 and again in 2025, flooding farmland, infrastructure and residential areas, and prompting large-scale evacuations, loss of farm animals and operations, and extensive clean up, recovery, and rebuilding.

Flooding events occurred regularly in the distant past, but human modifications of the river corridor and the draining of Semá:th Xó:tsa (Sumas Lake) and subsequent development in the floodplain have exacerbated those impacts.

- ← - - - Non-Flood Nooksack River Path
- ← - - - Nooksack River in Overflow Event (Large Flood)

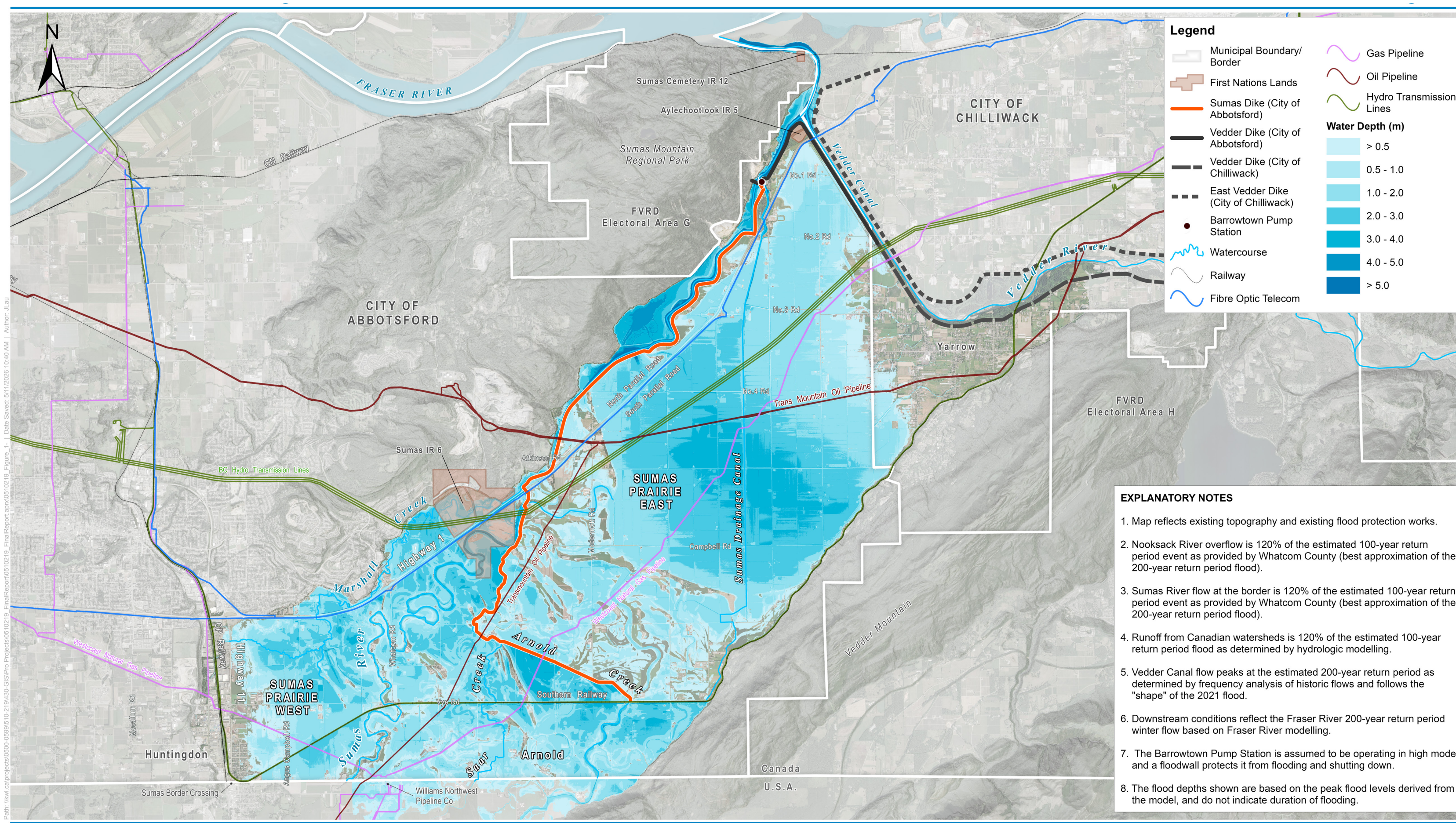


Flood Hazard Projections

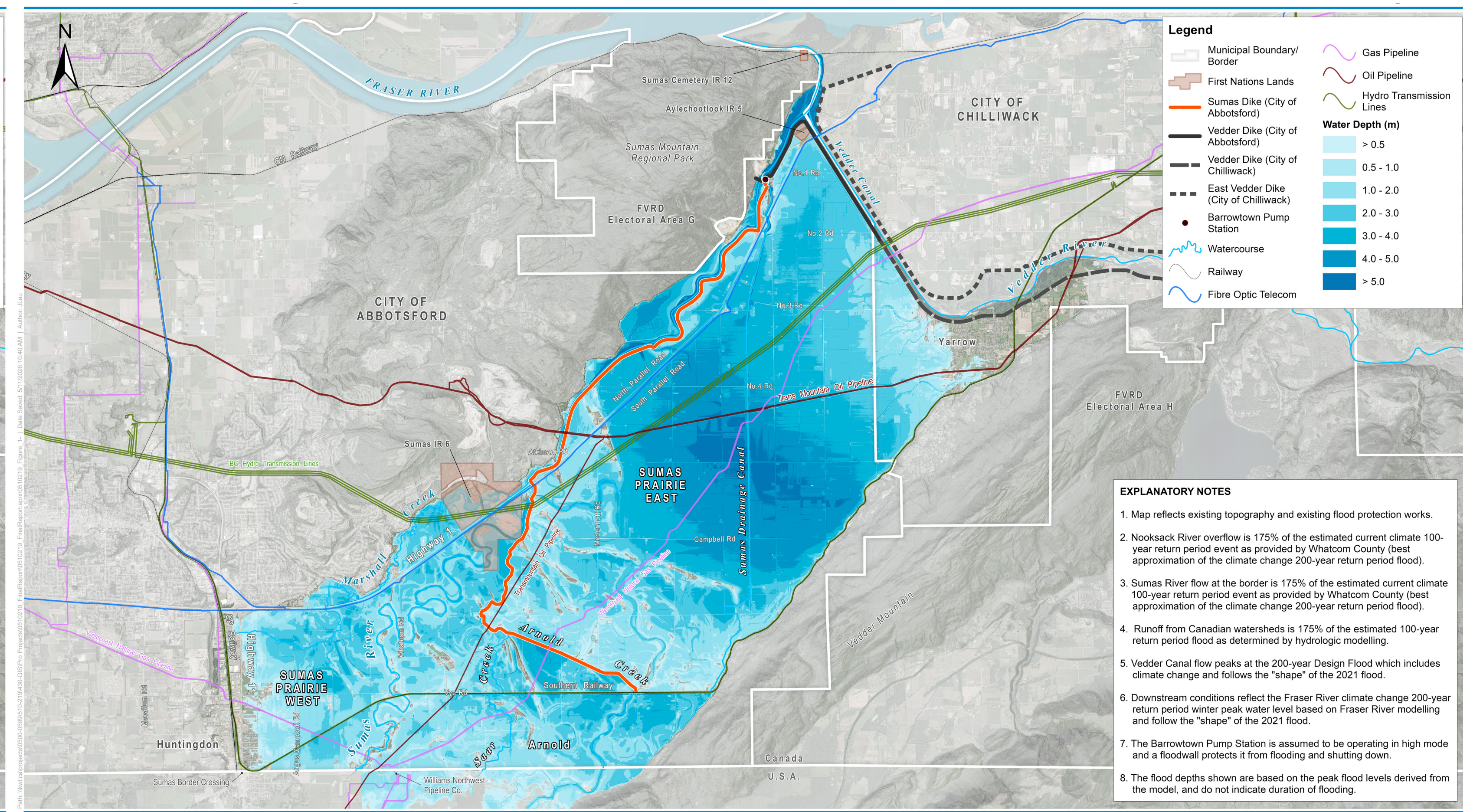
Future Nooksack River overflow flood events are expected to be much more significant than we've previously experienced (the 2021 flood was a 1-in-100-year event with current climate). This is why this plan includes the minimum Provincial standard of a 1-in-200 year event with climate change and closed floodgates.

Through studies by technical experts and in-depth modeling projections, we have a better understanding how much water can be expected when the Nooksack River overtops its banks and how quickly it will arrive in Sumas Prairie.

Flood depth map for existing conditions with 200-year flood event and current climate



Flood depth map for existing conditions with 200-year flood event and future climate

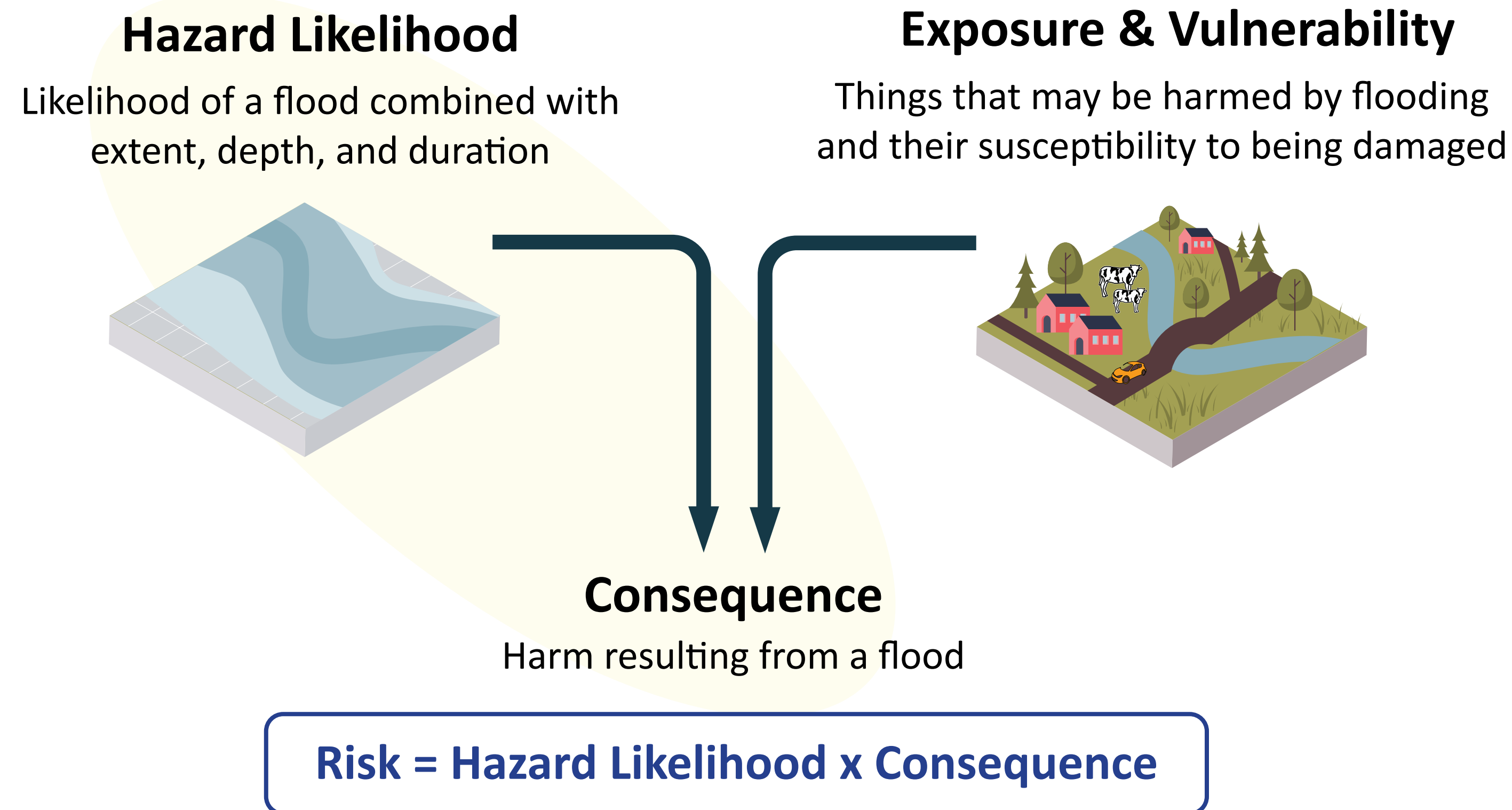


In the case of a 1-in-200-year event, taking no action would result in up to two and half months of flooding, and over five metres of water in the lowest-lying areas on the prairie.

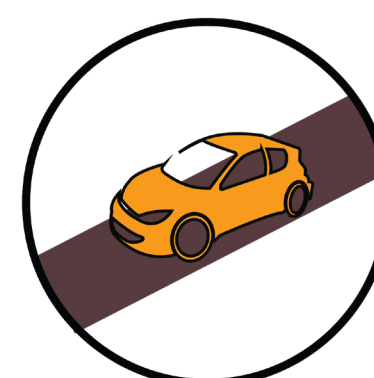


Assessing Risk to Things We Care About

Risk is the combination of hazard likelihood and its consequences. It can be thought of as **the intersection of flood waters and things we care about** on the flood plain.



Harm is a function of where people are in relation to the water, how deep it is and how vulnerable they are.

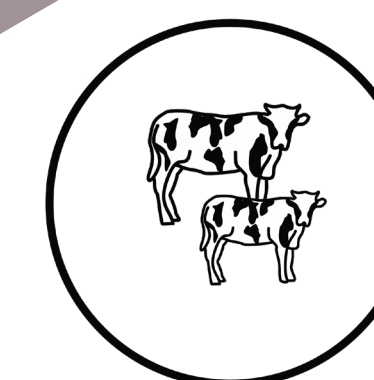


Harm is a function of how long water disrupts traffic.

Harm is a function of where the buildings are, what they are made of, how they are being used, and how deep the water is.



ebbwater

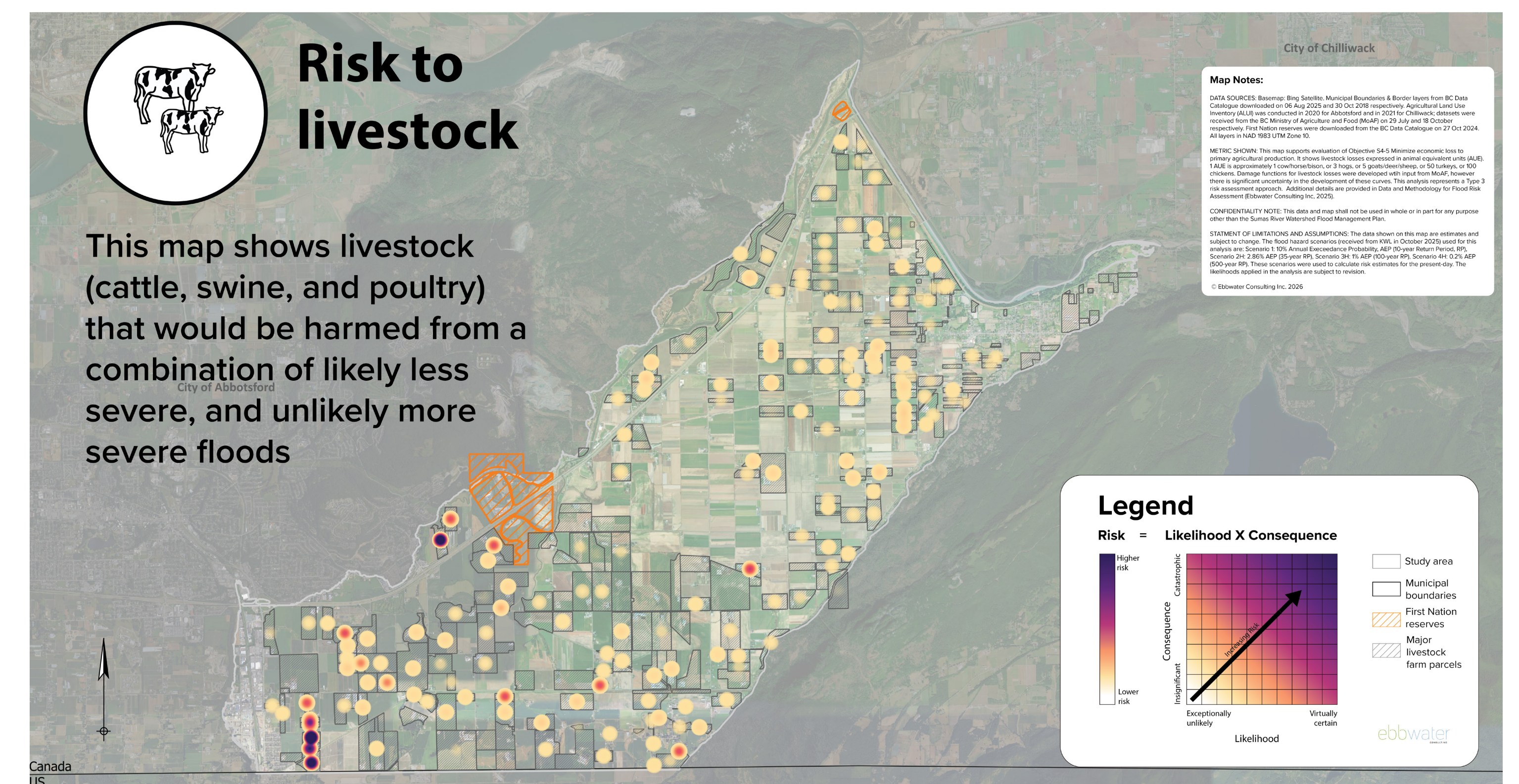
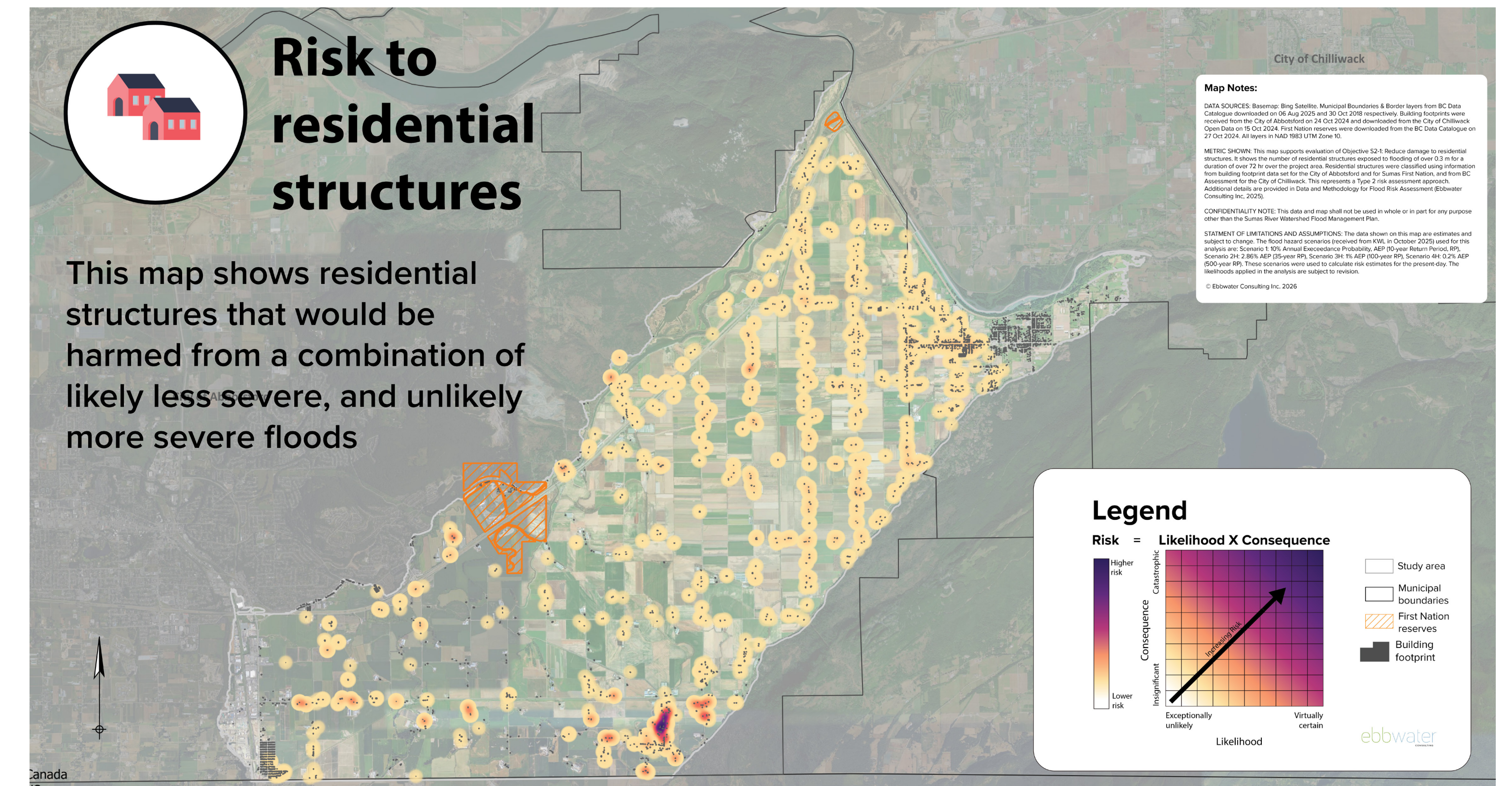


Harm is a function of where agricultural operations are, how deep the water is, how long it is there and depends on operation type.

The flood risk assessment helps us understand where the risk is, what is driving the risk, and how flood mitigation actions will reduce it.

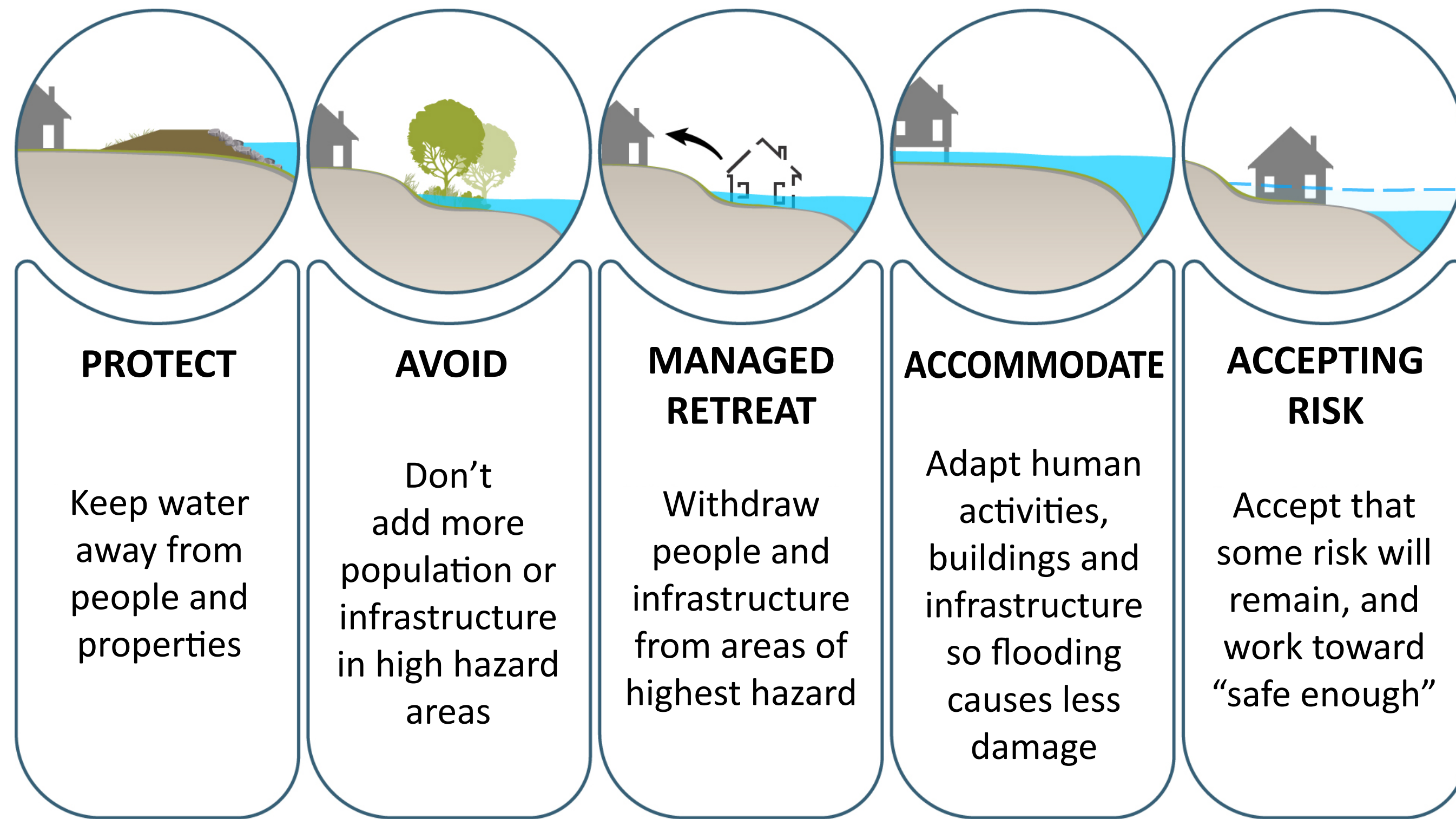
The figures and maps on this page were produced by ebbwater Consulting

These maps show present-day risk for residential structures and livestock. They represent two of over thirty risks that are being considered as part of the planning process. The maps represent the risk if no action is taken to reduce the risk.



Key Components of the Plan

Ways of responding to flood risk:



This figure was produced by KWL

The reality and challenge are that Sumas Prairie gets caught between two flood hazards - the overflowing floodwater from the Nooksack, and the high downstream water levels from the Vedder and Fraser Rivers.

Therefore, the flood mitigation plan needs to apply a combination of adaptation strategies, like **accepting** some risk, **protecting** what we can, **retreating** structures where needed, **avoiding** developments in high hazard areas, and **accommodating** flood waters, in order to significantly reduce flood risk.

This means exploring actions like building berms, raising dikes, establishing floodway corridors, purchasing the right to flood, removing, floodproofing, or raising vulnerable structures, and learning to live with some water. Actions under consideration are in alignment with the BC Flood Strategy.

Actions under consideration:

Public Safety

- Enhance flood forecasting and warning systems
- Raise, floodproof, or remove vulnerable structures
- Identify farm refuge areas
- Raise roads

Conveyance

- Construct new pump station at Sumas Drainage Canal
- Implement spillways and controlled overflow systems
- Upgrade road crossings for better water flow
- Rebuild and setback dikes to modern engineering standards

Restoration

- Renaturalize area between lower Sumas River and Sumas Mountain
- Establish riparian areas, and protect cold water streams

First Nations Development Opportunities

- Semá:th First Nation will continue to make flood risk mitigation decisions for their reserve lands

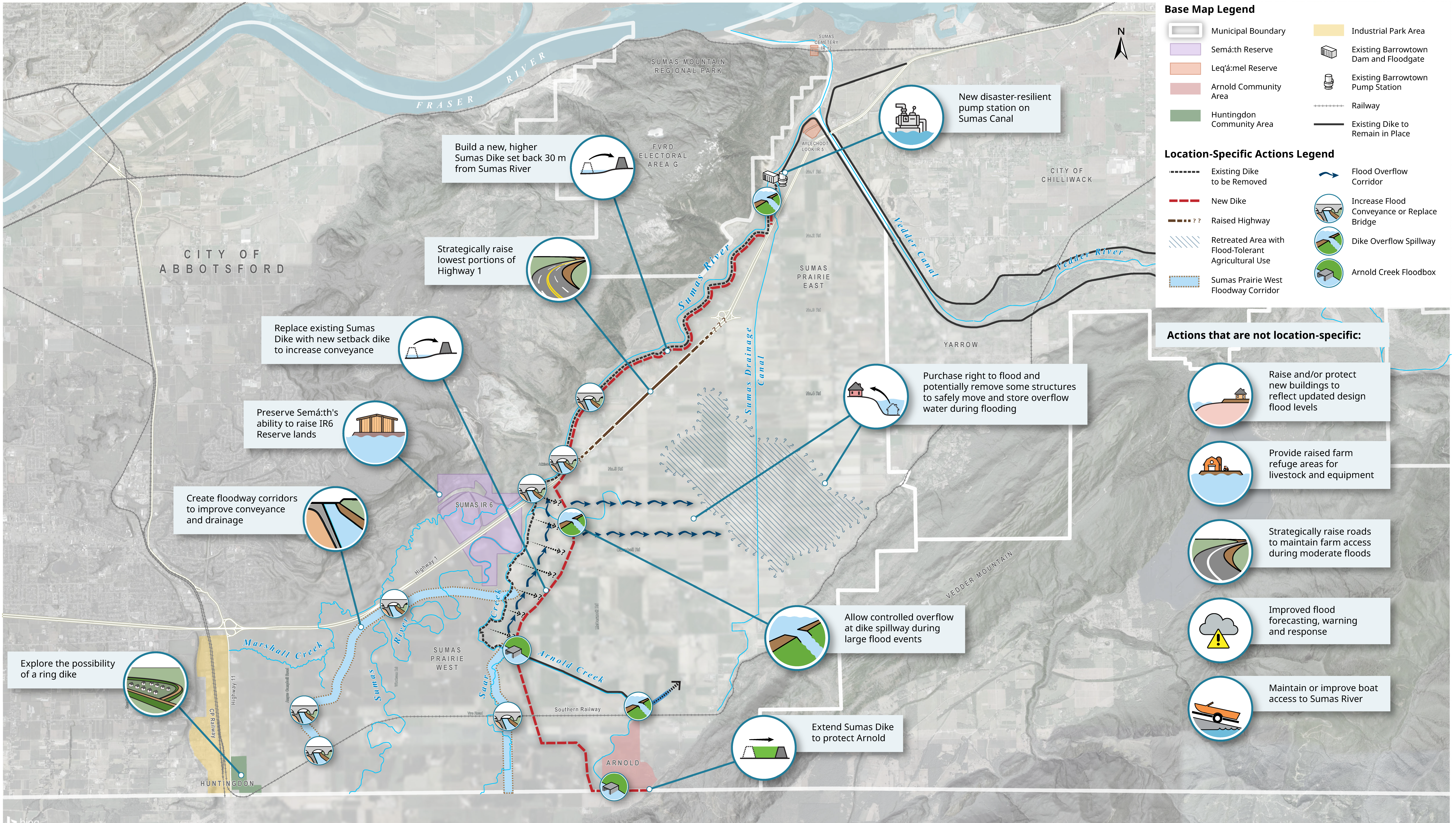
Fish Passage

- Operate floodgates to allow for fish passage
- Ensure pump station design minimizes fish mortality and allows for two-way fish passage

Farm Practices

- Explore opportunities for improved nutrient runoff regulations and management
- Explore fencing and buffering to reduce encroachment into riparian areas
- Increase irrigation system efficiency
- Promote cover cropping to reduce soil loss and erosion





Base Map Legend

- Municipal Boundary
- Semá:th Reserve
- Leqá:mel Reserve
- Arnold Community Area
- Huntingdon Community Area
- Industrial Park Area
- Existing Barrowtown Dam and Floodgate
- Existing Barrowtown Pump Station
- Railway
- Existing Dike to Remain in Place

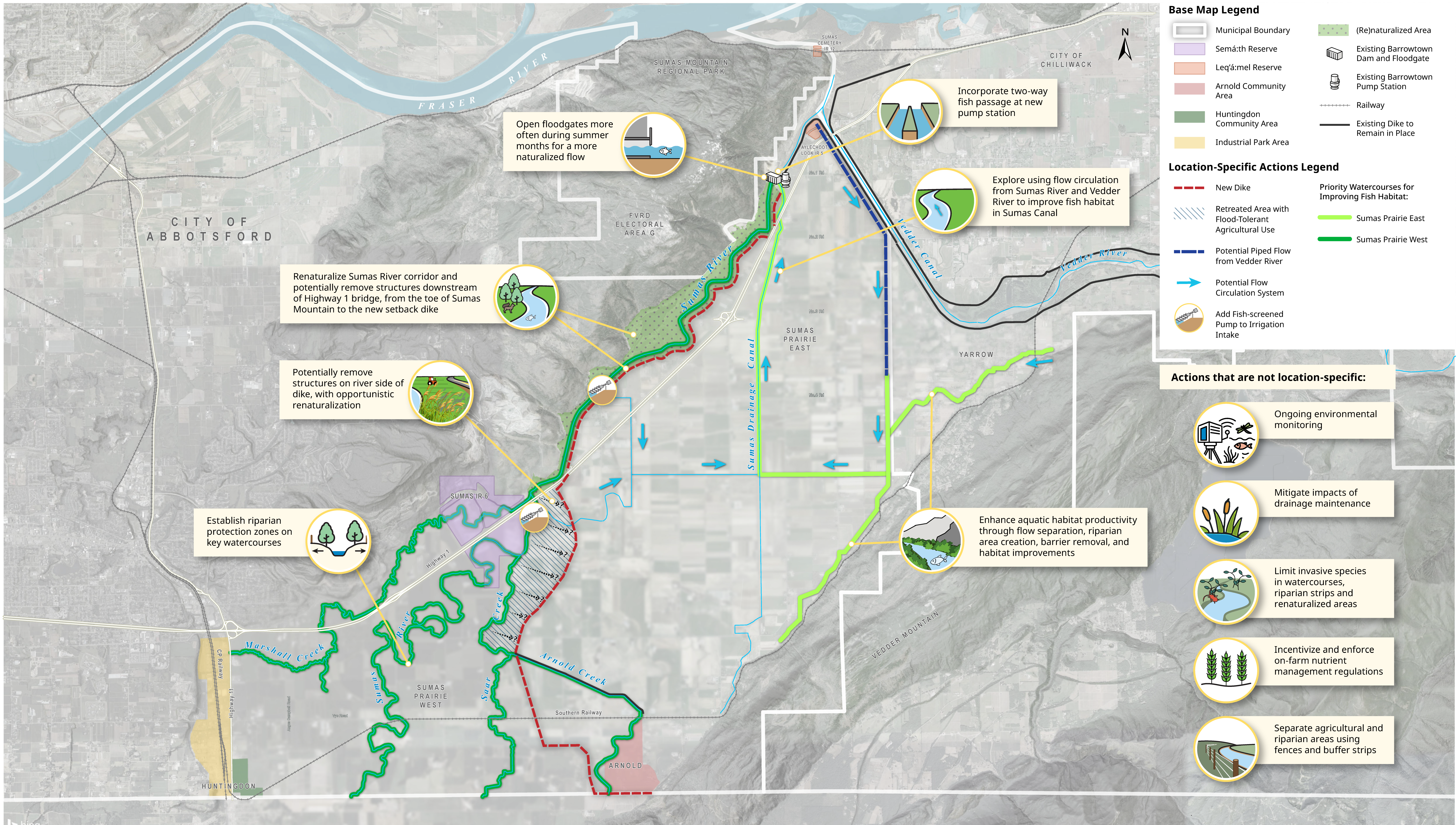
Location-Specific Actions Legend

- Existing Dike to be Removed
- New Dike
- Raised Highway
- Retreated Area with Flood-Tolerant Agricultural Use
- Sumas Prairie West Floodway Corridor
- Flood Overflow Corridor
- Increase Flood Conveyance or Replace Bridge
- Dike Overflow Spillway
- Arnold Creek Floodbox

Actions that are not location-specific:

- Raise and/or protect new buildings to reflect updated design flood levels
- Provide raised farm refuge areas for livestock and equipment
- Strategically raise roads to maintain farm access during moderate floods
- Improved flood forecasting, warning and response
- Maintain or improve boat access to Sumas River

This map was produced by KWL



We Want to Hear From You

Your participation matters!

Sharing your knowledge, experience and ideas can help inform the Draft Plan

Please fill out the survey handout in the room

The survey is also available online at:
www.surveymonkey.com/r/2CLYLP9



For more information, please visit:



Semá:th website:
sumasfirstnation.com/departments/governance-and-natural-resources/sumas-river-watershed-flood-mitigation-planning/



Abbotsford:
letstalkabbotsford.ca/SumasRiverWatershedFloodMitigationPlan

What's Next?

Knowledge, experiences, values, perspectives, and feedback shared will be brought back to the Steering Committee and will inform the development of the final plan

