

Changing Climate, Rising Costs

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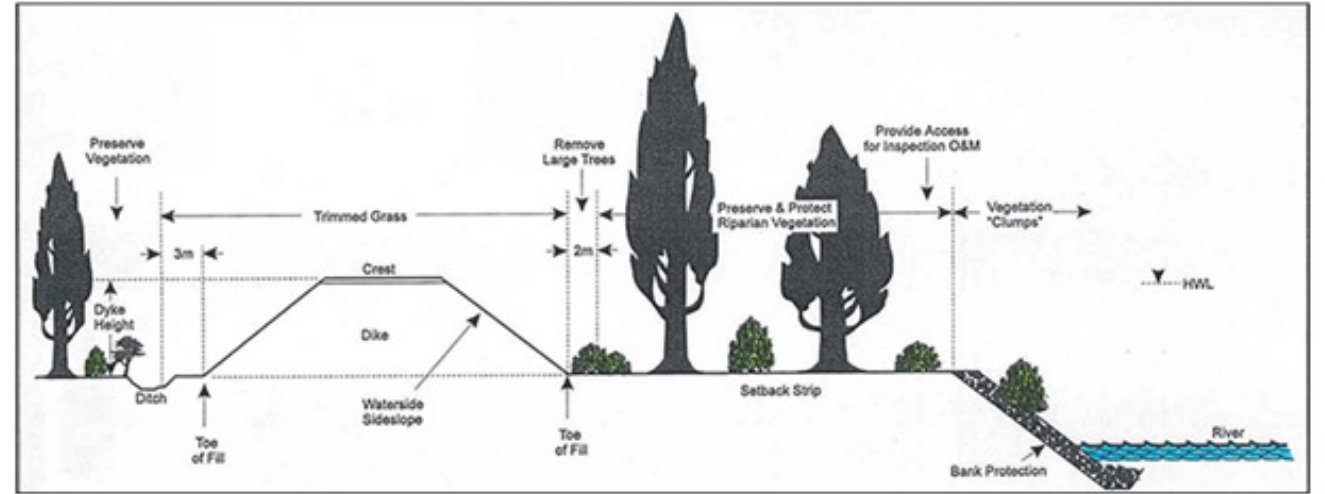
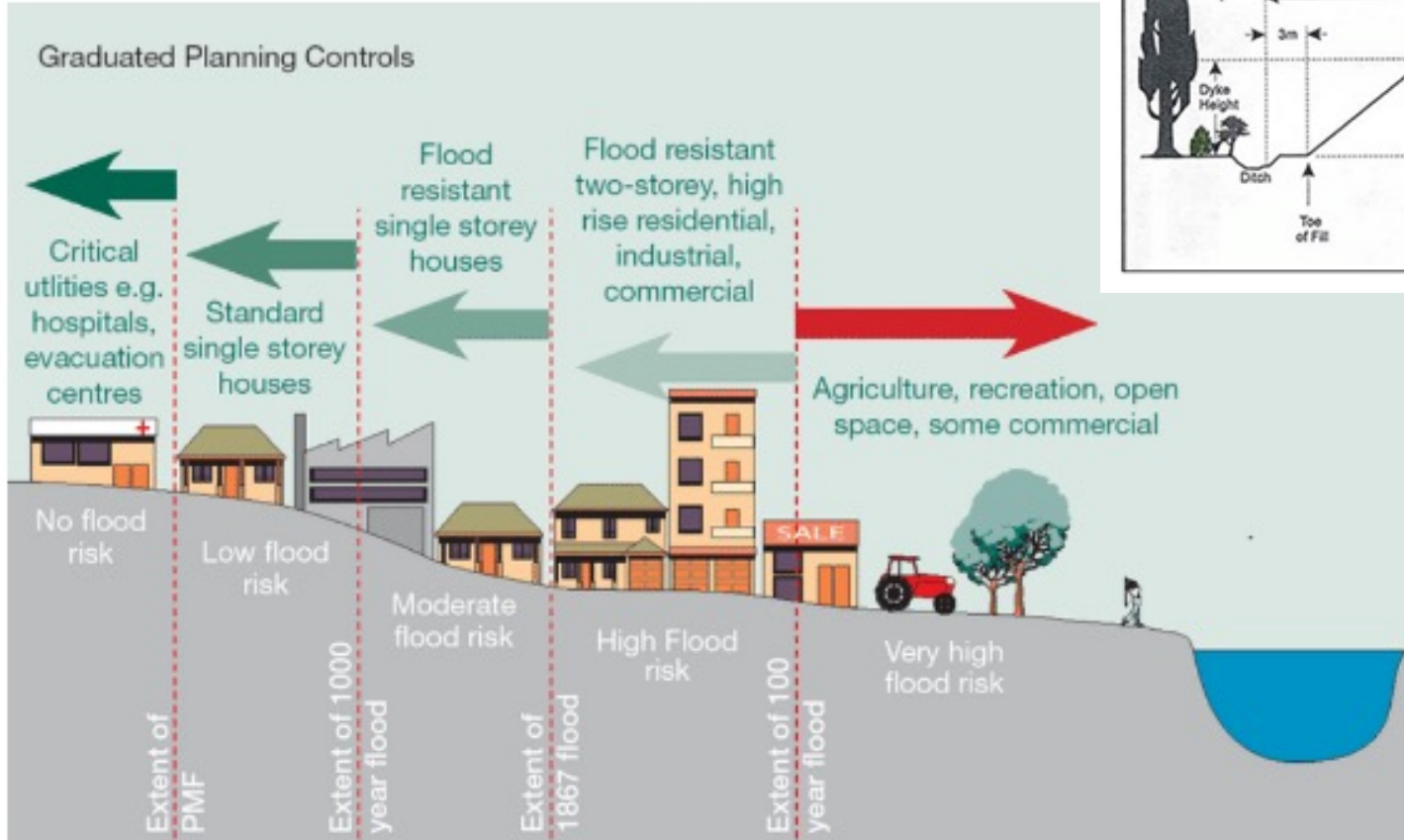
Changing Climate, Rising Costs



Financial impacts of climate change on local government. How are local governments currently experiencing financial pressure as a result of climate change impacts, and the need to prepare and build resilience to those impacts?



Balancing resilience and resource allocation. What are some emerging strategies or innovations that local governments can adopt to build climate resilience without straining limited resources



Collaboration and risk management. Given that climate change affects multiple sectors (e.g., insurance, infrastructure, emergency management), how can local governments collaborate effectively with other governments, organizations and sectors to reduce climate risk?



Thank you





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THE
WAVE**
UBCM 2024



City of Richmond

FLOOD PROTECTION

Jason Ho, P.Eng.

Manager, Engineering Planning

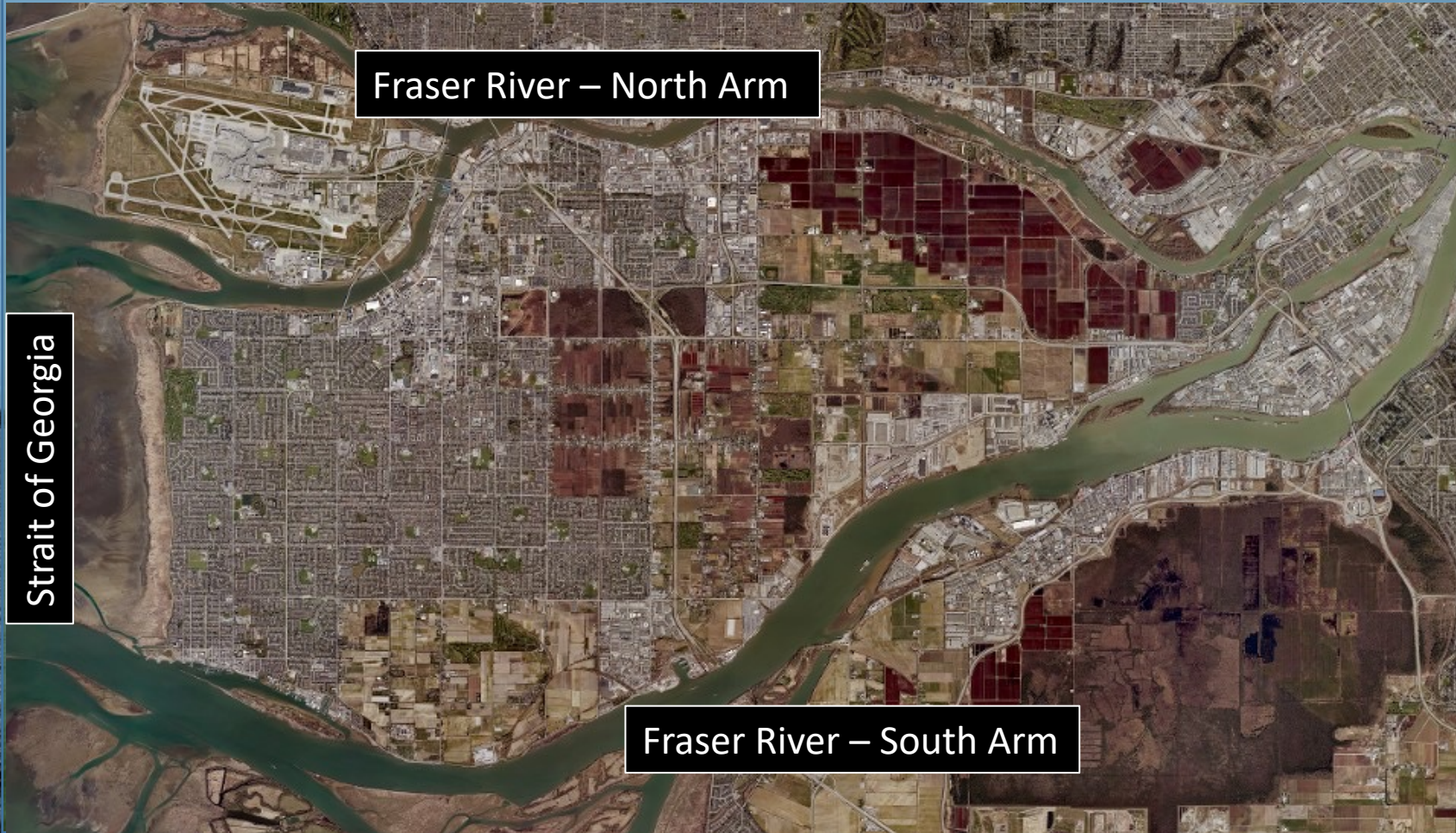
Topics

- Richmond's Flood Risk and Flood Protection Infrastructure
- Challenges
- Strategies
- Need for Collaboration



Flood Risks in Richmond

Geography





Flood Risks

- Richmond is subject to flood hazards from:
 - Coastal storm surge & king tide
 - Snowmelt flooding (Freshet)
 - Rainfall
- Flood hazards are changing with climate change



What's Keeping Richmond Safe?

Flood Protection System



49 km of dikes



39 drainage
pump stations



61 km of
culverts



165 km of
watercourses



585 km of
drainage pipes



Numerous flood
protection
sensors



Planning for Change

Flood Protection Management Strategy

- Dike upgrades
- Drainage system upgrades
- Land raising
- Funding



Challenges

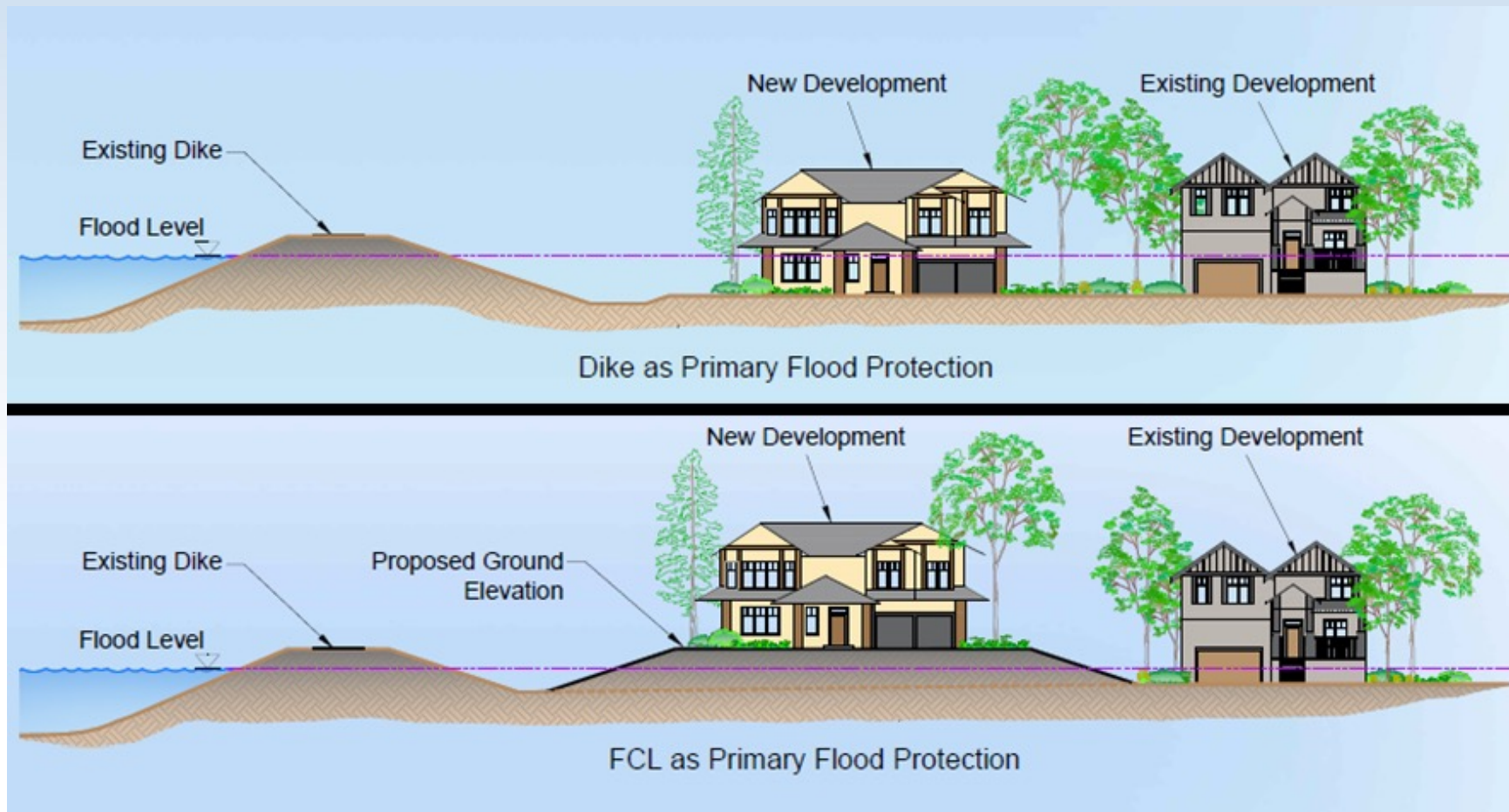
- Cost
 - Capital cost
 - Construction inflation
 - Land acquisition and rising land values
 - Habitat compensation
- Regulatory Permitting
 - WSA – 18-24 months
 - DFO – 12 months
- Land Tenure
- Resource Availability



Strategies

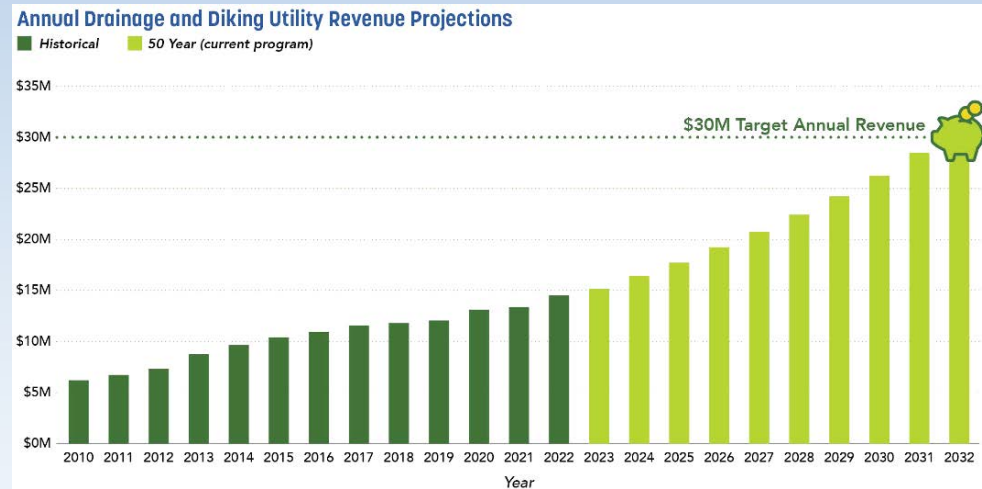
Strategies - Land Raising

Flood Construction Levels



Funding Strategies

- Funding
 - Flood Protection Utility
 - Asset management
 - Flood Protection Management Strategy, Dike Master Plan
 - Development
 - Superdikes
 - DCCs
 - Senior government grant funding



Other Strategies

- Resources
 - Developed in-house expertise
- Looking Ahead
 - Sea level rise, dike height flexibility
 - Strategic land acquisition



Seismic Resilience

- Provincial guidelines
 - 2475-year seismic event – enormous cost
 - 10-year high water event
 - Combined probability
 - Acceptable level of risk
- More than one way to achieve this level of risk acceptance
- Need holistic approach
- Goal is to achieve greatest value of flood protection

Collaboration

- Insurance sector
- Senior government
 - Funding
 - Minimizing delays in regulatory permitting and land tenure reviews

A person in a light-colored jacket and dark pants is walking on a gravel path that runs along a rocky shoreline of a lake. The path is bordered by a low wooden fence on the right. In the background, there are trees, a house, and a pier extending into the water. The entire image is overlaid with a semi-transparent blue filter.

Thank You



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Changing Climate, Rising Costs



*Samantha Boyce, Manager of Strategic Innovation and
Assistant General Counsel*

September 16, 2024

The Municipal Insurance Association of BC

A self-insured pool of 170+ local governments

Liability coverage

- Bodily Injury
- Property Damage
- Errors & Omissions

Property coverage

Ancillary coverages

- Course of Construction
- Cyber



What We Do

1 Respond to liability and property claims

2 Identify member risks

3 Offer risk management advice and education

4 Provide risk management tools and resources







How does this influence insurance costs?









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Natural Asset Management:

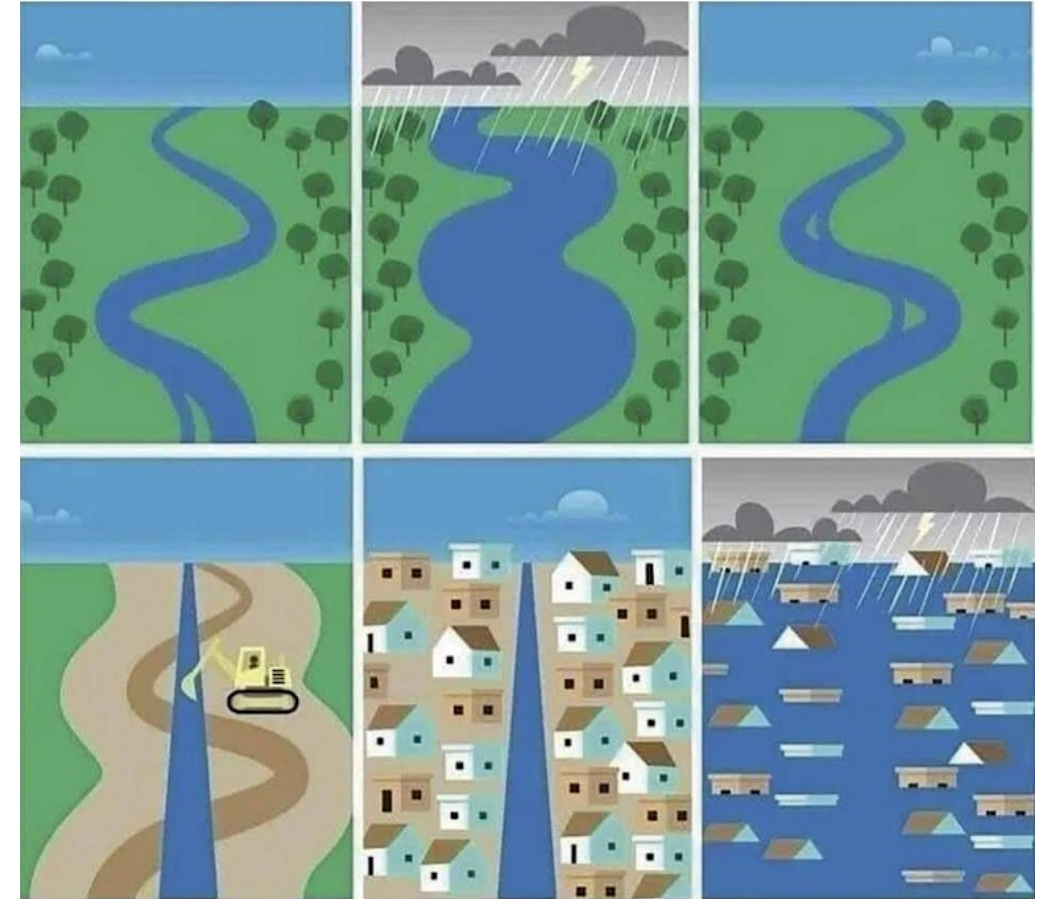
Containing costs in a changing climate



September 2024

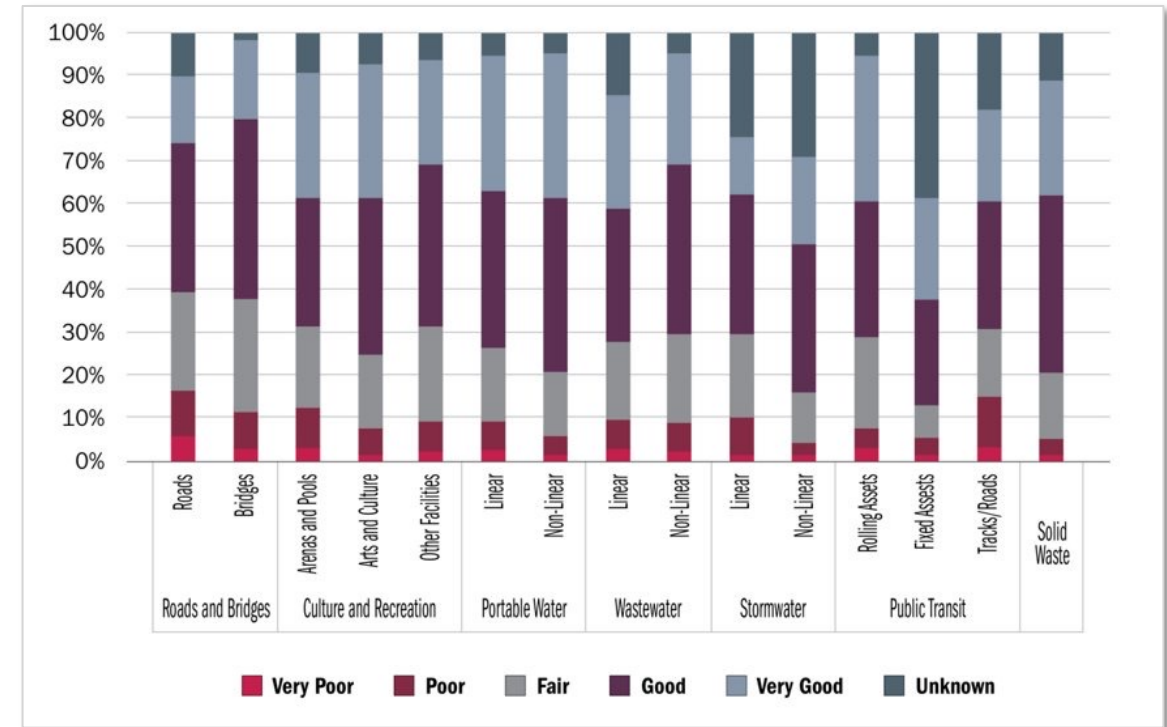
Bottom line

1. Nature provides many vital services to local governments (and others)
2. Natural asset management is a no-regrets approach to bring nature into decision-making
3. Nature has no end of useful life; provides many not singular benefit/service (including climate-related)



Via [Reddit](#) (original source not found)

Example & urgency



1/3 of Canada's infrastructure is in poor to fair condition
(Federation of Canadian Municipalities)

Example & urgency

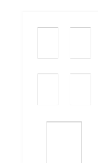


Dockside Green, Victoria. Photo by NAI

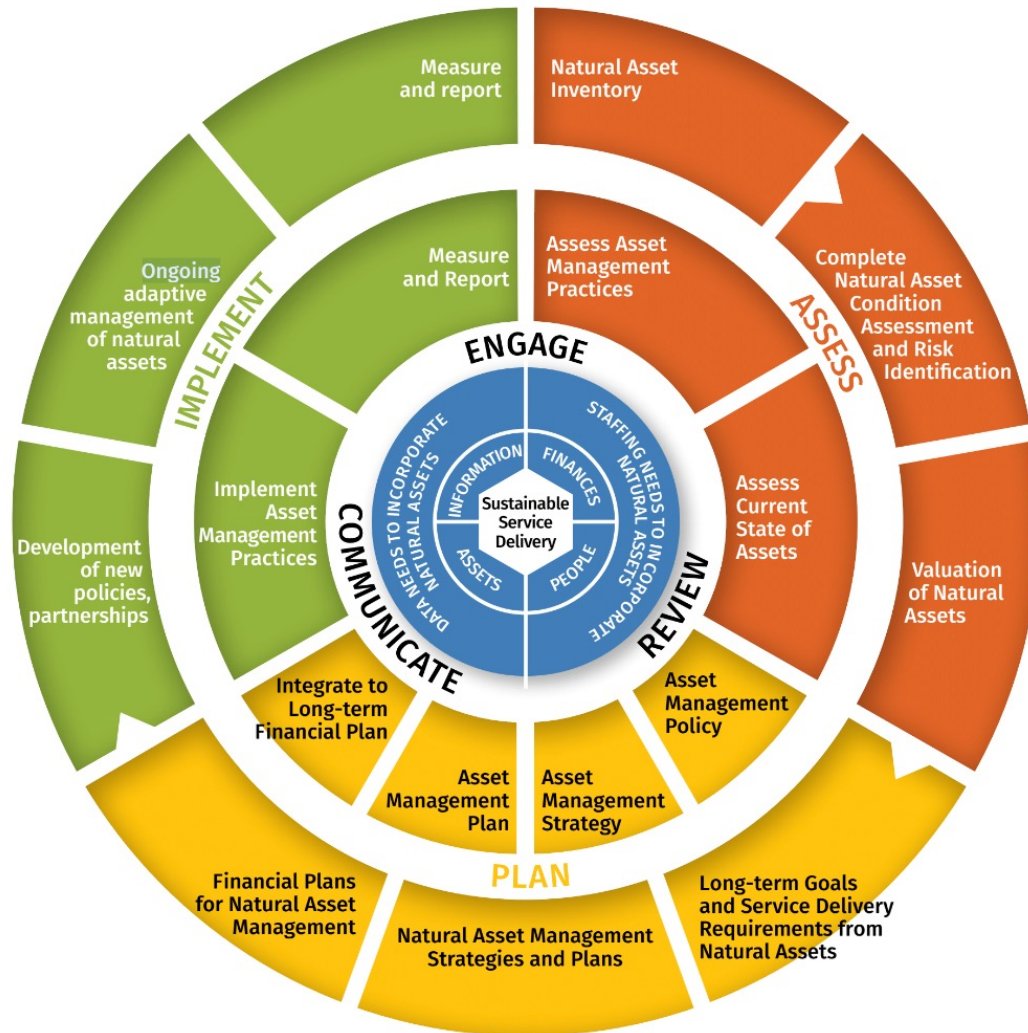
Both/And:
Integrating Natural
Asset Management
into Federal Housing
Supply Policymaking

Ultimately, natural asset management considerations can:

- Strengthen decision making
- Maximize infrastructure \$
- Improve climate resilience
- Avoid risk and consequences of removing existing natural features



Asset management: common platform



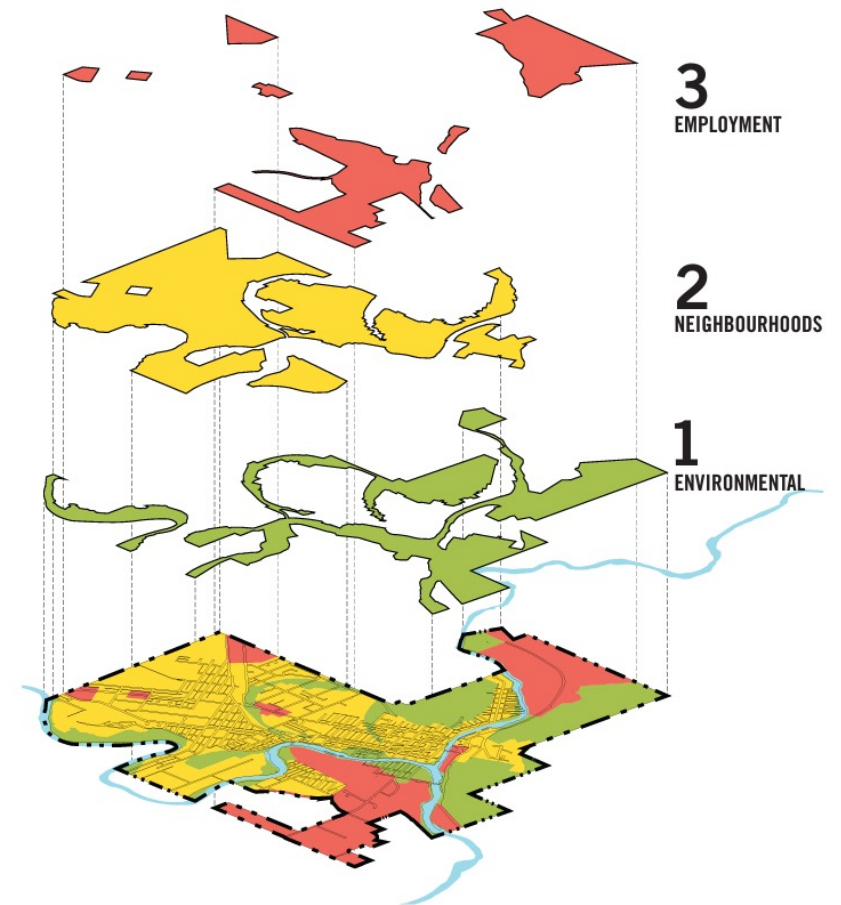
Resulting actions span aquisition, rehabilitation, restoration, HR, planning, development charges...

Avoiding dead ends: Grand Forks example & beyond

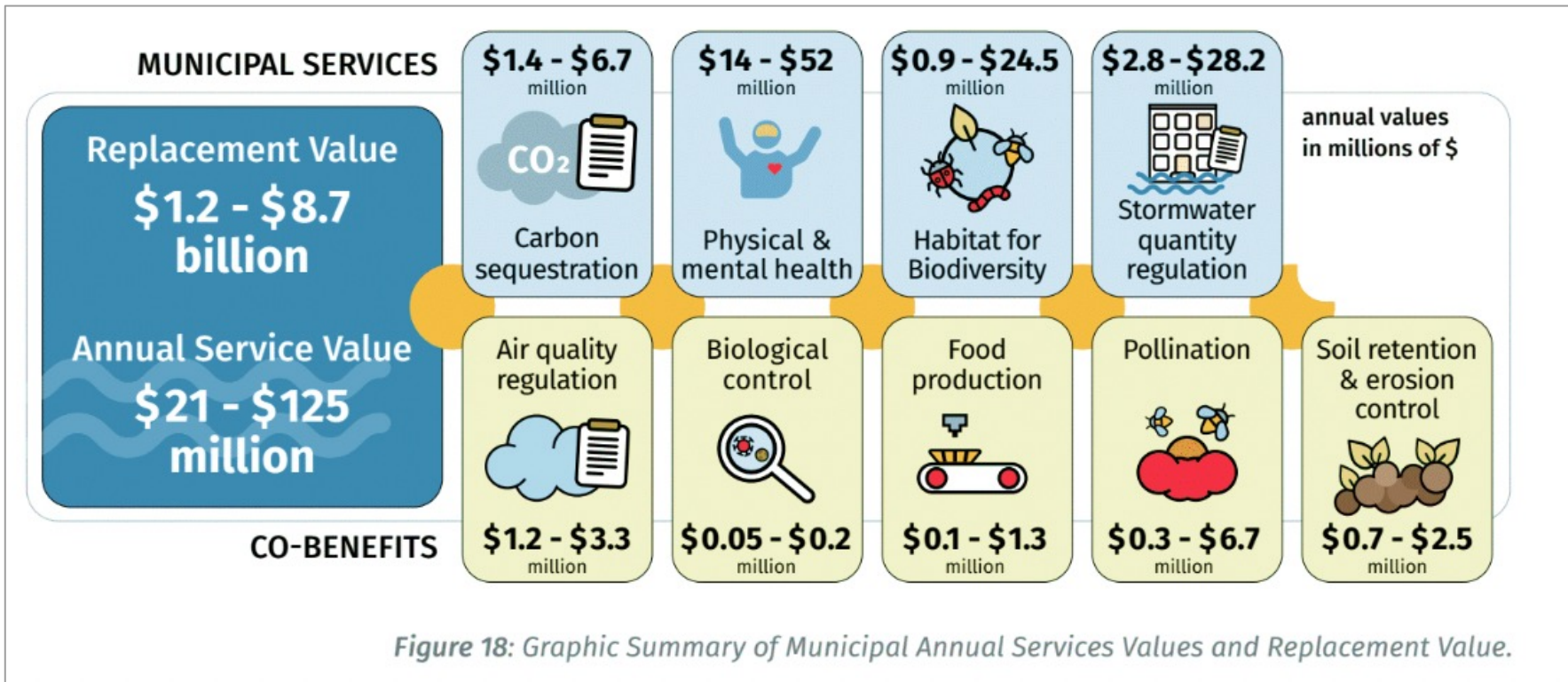


NBS – can have lower cost, more benefits, greater “plasticity”, no end of useful life.

Land Use Strategy – updates to the Official Community Plan



Emerging efforts in Saanich



Report – Saanich Natural Asset Inventory Project



The original NAI project has made natural assets a mainstream part of the discussion and decision-making. OR NAI **project supports creation of Saanich's NAM Plan, making natural assets a part of mainstream decision-making**

Intact Public Entities (?)

Baking NAM into DNA: Selkirk

“No one can afford climate action as a standalone item. It is not about additional dollars, but rather, using existing dollars better.”
Duane Nicol, CAO




Article - ‘Revolutionary Evolution’ in Selkirk, MB




Barriers & Opportunities for NI

Natural Asset Infrastructure in British Columbia: Barriers and Opportunities



January 2023

Municipal Natural Assets Initiative



6 Possible Solutions

Solutions are organized according to general considerations, followed by the categories of Deely (2020) used above. In some cases, the solutions can be readily inferred from the barrier; in other cases, it is less straightforward.

General Considerations

Foundational Priorities

While items in this section should be considered holistically, there are several items that could be considered foundation priorities, that is, initial steps that would set the stage for long term success. These are noted as such.

WAYS TO APPROACH CHANGE

It is important at the outset to consider not only the content of possible solutions but also of how changes are made. Based on the research for this Project, optimal results, defined as the widespread or mainstream adoption of effective natural infrastructure solutions across all B.C. local governments, are unlikely to be achieved if potential solutions are simply assigned to individual Ministries without considering the linkage between efforts and the effectiveness of the whole. Effective solutions will require a systemic approach, which in turn could have several components.

First	Second	Third	Fourth
The solutions below should be approached within the context of a cross-Ministry effort with senior leadership, clear accountabilitys, goals and timelines.	Solutions should be considered in their entirety, including interdependencies between them, as part of a single, integrated roadmap or plan that is committed to all. For example, the level of a Speech from the Throne. This roadmap could be developed through the cross-Ministry effort.	Accountabilities could be considered within the context of Ministerial mandate letters, with an obligation for several Ministers to collaborate to achieve results.	Before embarking upon specific changes, the Province of British Columbia could establish internal, foundational principles related to nature and natural asset infrastructure (see box 1).

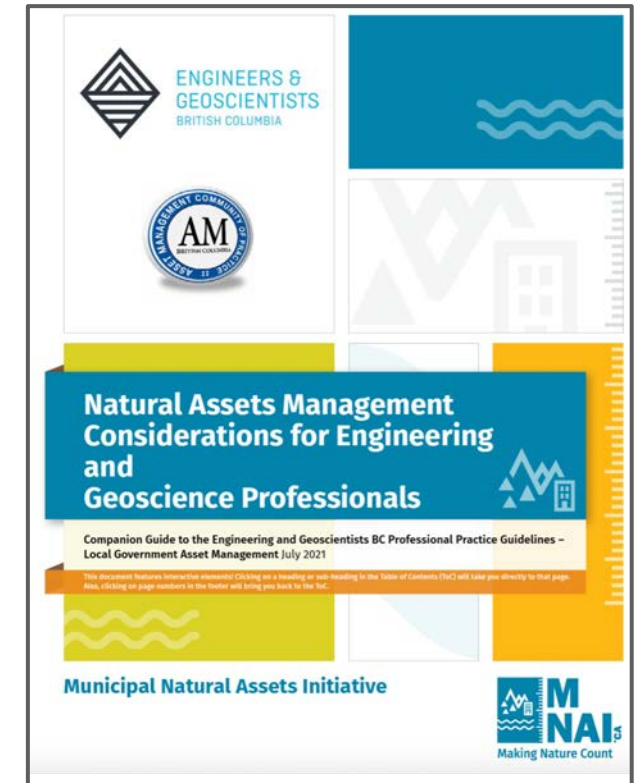
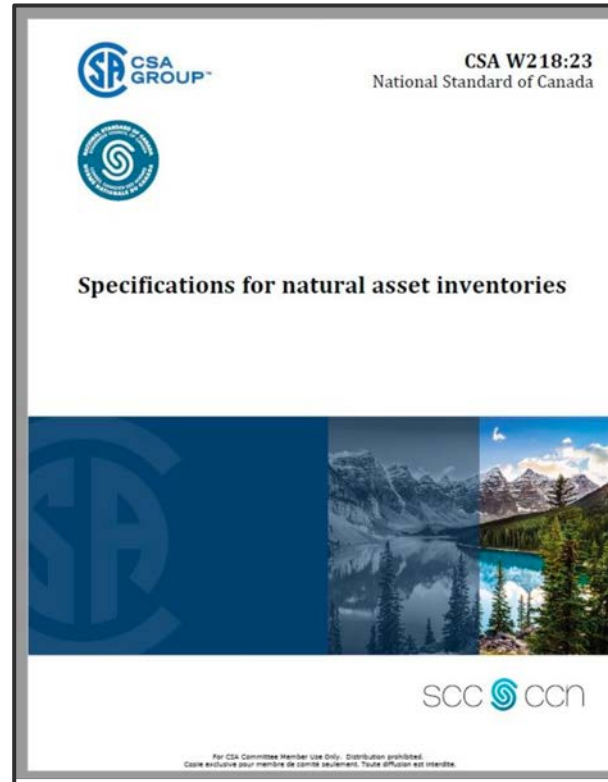
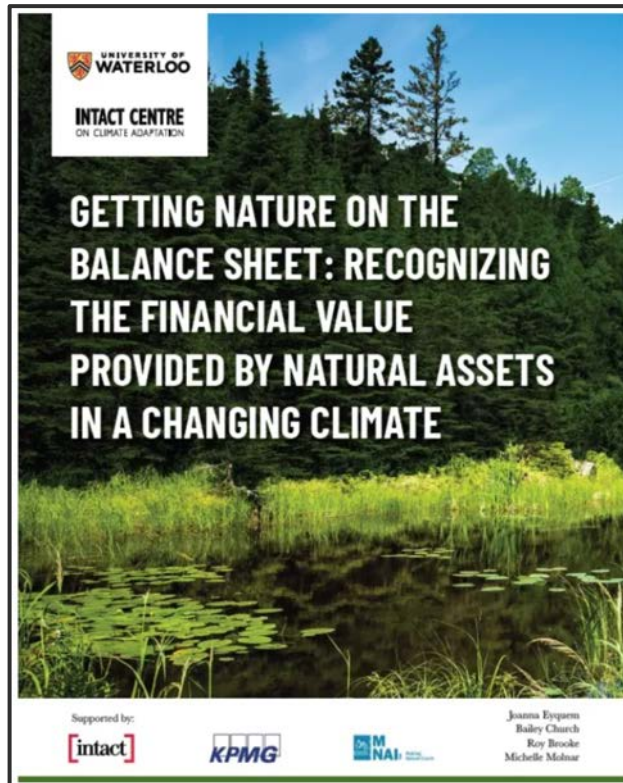
Case Example 2: Coxox Lake Watershed

The Coxox Lake watershed is located in the City of Courtenay, the Town of Courtenay, and the Village of Courtenay. The watershed is a significant natural asset at a watershed scale. The watershed is a significant natural asset at a watershed scale. The watershed is a significant natural asset at a watershed scale.

Extracted from 2018 Internal report on an MNA project in the Coxox Valley



“Rules for the game”



Recognizing natural assets in public accounting standards



CSA W218 - 1st National Standard for natural asset inventories

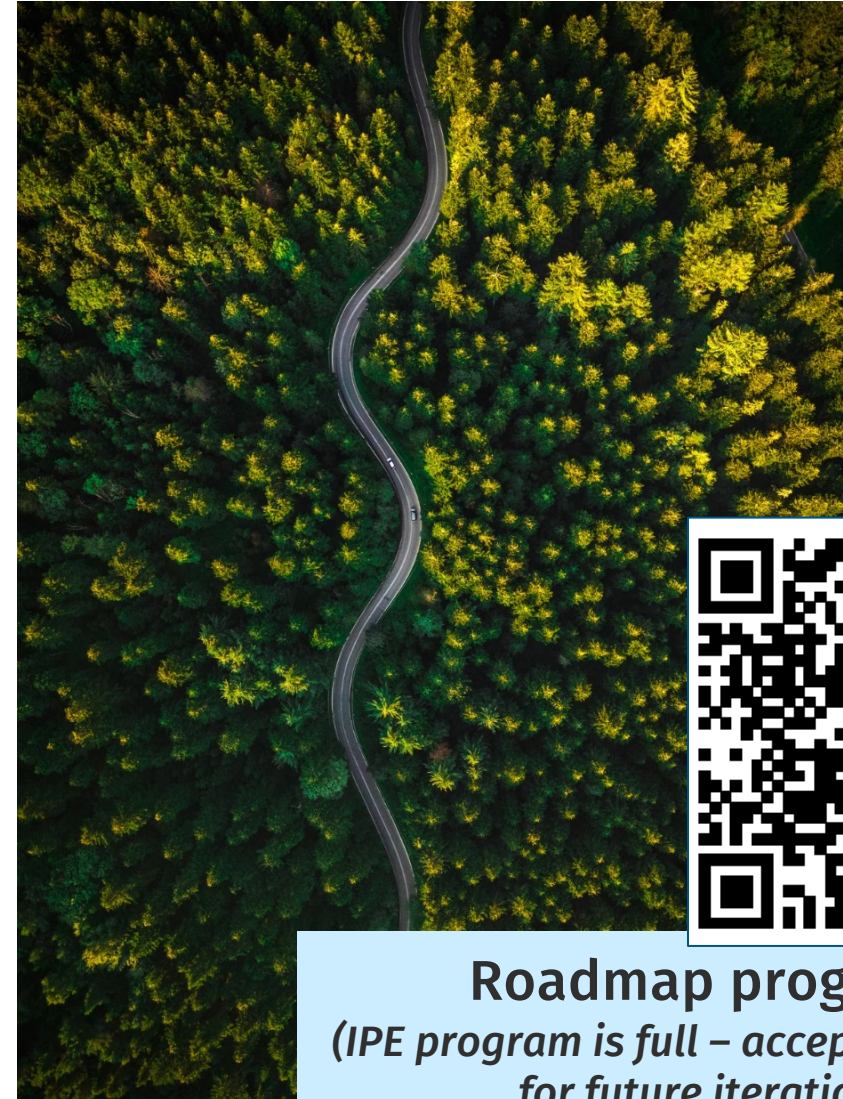


Strengthening professional guidance & practice

Starting points

MAKING NATURE COUNT

1. No “right” place
2. Roadmaps are low-barrier, high yield
3. Hard to progress to far without an inventory as a basis
4. Point is to keep making progress

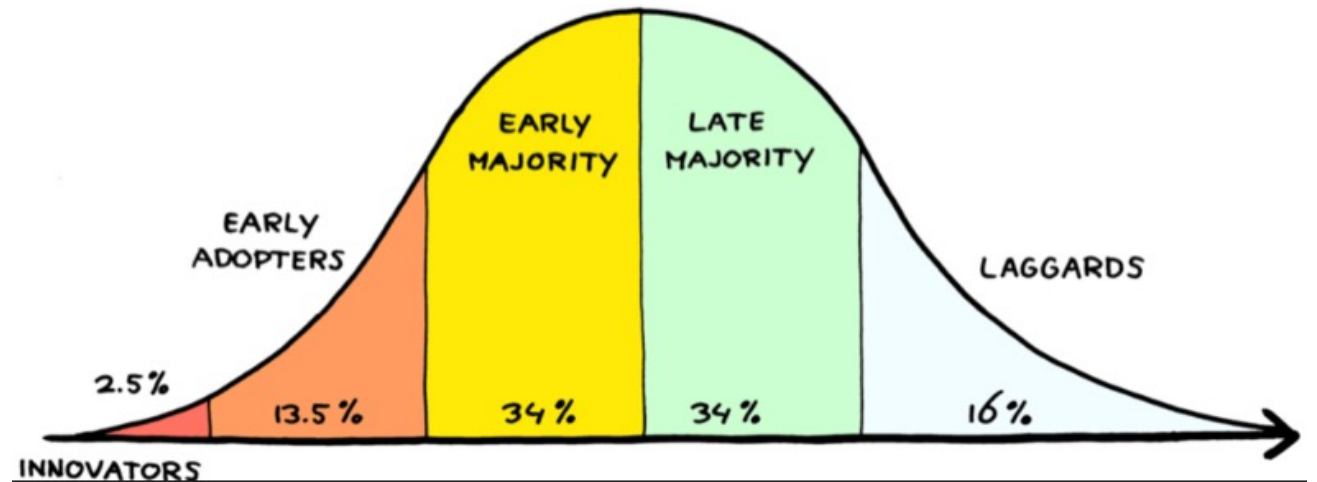


Roadmap program
(IPE program is full – accepting interest for future iteration)

A few funding windows

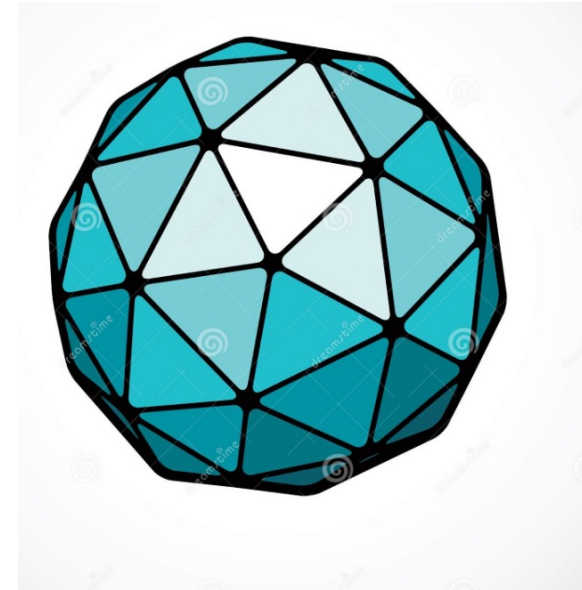
MAKING NATURE COUNT

- LGCAP funds
- BC Community Climate Funding Guide
- Upcoming FCM funding (recapitalized GMF)



Conclusion

Whether your starting point is nature, climate change mitigation, adaptation, lowering infrastructure costs or something else, nature probably plays an important role ... if you let it.



Discussion & Contacts

MAKING NATURE COUNT

Roy Brooke,
Executive Director, NAI
RoyB@naturalassetsinitiative.ca

naturalassetsinitiative.ca





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ADDRESSING COSTS BY UNDERSTANDING & MITIGATING DISASTER RISK

Tina Neale

Executive Director, Disaster Mitigation and Adaptation

Ministry of Emergency Management and Climate Readiness (EMCR)

Ministry of
Emergency Management
and Climate Readiness



Ministry of
Environment and
Climate Change Strategy

Climate and disaster risk management is a shared responsibility

- The financial and social costs of disasters and climate change are increasing as events become more severe and more frequent.
- There are disproportionate impacts on First Nations and equity-deserving populations.
- Climate change is ‘locked-in’ but our risk doesn’t have to be.
- We can proactively:
 - Prevent new risks
 - Reduce existing risks
 - Mitigate remaining risk

Presentation overview



Disaster and Climate Risk
and Resilience Assessment



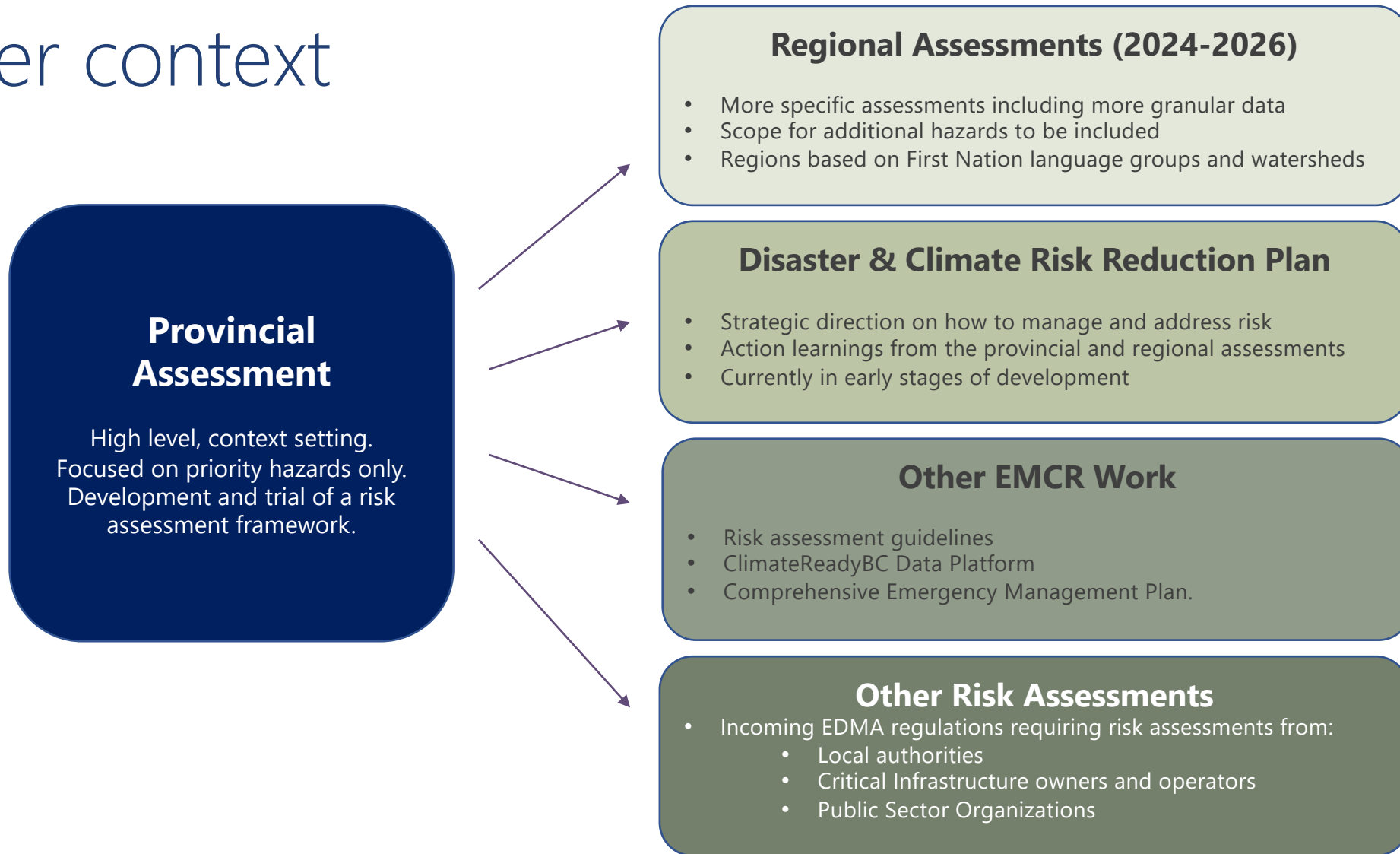
Disaster Mitigation
Funding Programs

Dec 2022: New ministry & mandate

EMCR and ENV to collaborate on a provincial hazard risk vulnerability assessment that:

- Is developed in consultation with communities and Indigenous Peoples.
- Builds on B.C.'s Preliminary Strategic Climate Risk Assessment and integrates climate and disaster risk.
- Advances B.C.'s commitments to the Sendai Framework.
- Will support development of a subsequent province-wide disaster and climate risk reduction plan.

Wider context



Provincial risk assessment objectives

- Inform a provincial strategy and investments in disaster and climate risk reduction and management in B.C.
- Provide information, analysis tools and guidance for use by ministries, local authorities and others to meet risk assessment requirements under the *Emergency and Disaster Management Act*

Earthquake

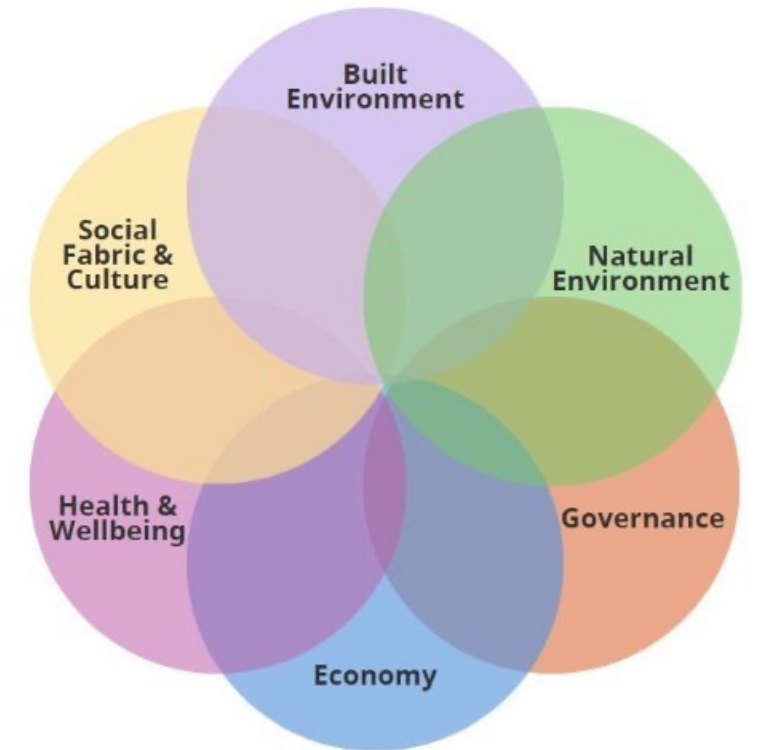
Wildfire

Flood

Extreme heat

Water scarcity

Multi-hazard event



Provincial risk assessment products

Report

- Hazard and value overviews at the provincial scale
- Extreme event scenarios that consider the impact of hazards on the things we value
- Climate change influence on disasters
- Disproportionate impacts on equity-denied populations

Geospatial analysis and dashboard

- Maps showing hazards and exposed populations and assets
- Downloadable data and reports
- Story maps

More Info: ClimateReadyBC@gov.bc.ca



Geospatial analysis and dashboard

This site and data are in beta | Your [feedback](#) will help to improve it.

BRITISH COLUMBIA [Beta] DCRRA Pro Explore Hazard Exposures Search Data Catalogue Learn More

Riverine Flooding Navigation Tips Data Info Disclaimer

Specify an area to populate exposure values in the dashboard → Step 1 - Select Area Type Municipalities Step 2 - Specify Area City of Kamloops

Explore Hazard Exposure Analysis Results

Use the dashboard to explore the results of the Provincial DCRRA geospatial analysis. The information is intended to be used at a screening level and represents one part of the larger Provincial DCRRA project.

Read the [geospatial analysis documentation](#) to learn more.

Quick Start Guide

- Select Area:** Choose the area for which you want to generate exposure hazard information (top-right filters).
- View Results:** Check the exposure hazard values displayed on the right panel.
- Generate Report (Optional):** To generate a detailed report for your selected area, fill in the required fields. Please note that report generation may take some time. Avoid refreshing the page during this process.

Generate Report

Export the exposure data for this location using the link below.

[Generate Report](#)

Exposure Summary

Percentage Population Exposed (%)

Areas Below Hazard Exposure Threshold

Riverine Flooding - Exposure

Grid cells approximating: City of Kamloops

9%	Total Population 6,900 of 79,900
3%	Businesses 100 of 3,400
2%	Total Annual Revenue \$200,000,000 of \$8,800,000,000
6%	Residential Assessed Value \$820,000,000 of \$12,820,000,000
2%	Commercial Assessed Value \$35,000,000 of \$1,835,000,000
1%	Replacement Cost \$3,100,000 of \$543,100,000. Only applies to First Nations reserve lands.

Overview

Values above represent grid cells shown on the map and will include data for more than the selected area.

Dashboard for planners and other professionals

Story maps for the public

e.g., Capital Region
Extreme Heat Information Portal
prepareyourself.ca

Risk assessment timeline



Disaster Mitigation Funding

- For every \$1 invested in mitigation, \$7 to \$10 can be avoided in post-disaster recovery costs (Public Safety Canada).
- Since 2017, EMCR's Disaster Mitigation and Adaptation Program's team has funded approximately 2,180 disaster risk reduction projects totalling more than \$408 million in Provincial funds.
- Investing in mitigation requires:
 - an accurate foundational knowledge of the natural hazards a community faces, and the risks associated with B.C.'s changing climate,
 - a thorough understanding of mitigation options available and their relative benefits and costs, and
 - engagement with impacted and affected parties, including First Nations, local governments, and equity-denied populations.



Lumby Dike Construction with
Riparian Restoration

Ministry of
Emergency Management
and Climate Readiness



Ministry of
Environment and
Climate Change Strategy

Community Emergency Preparedness Fund

- Funding streams to enhance the resiliency of First Nations & local governments in preparing for and mitigating natural hazards and climate-driven risks.
- Since 2017, the Province has provided \$369 million to the UBCM to administer the fund.
- To date, the fund has contributed more than \$223 million towards more than 2,020 First Nation and local government projects.



CEPF DRR-CA Intake 2: Kanaka Bar Indian Bank, water Servicing for Climate Adaptation and Drought Resiliency

CEPF Funding Streams – Next Intakes



**Public Notification
& Evacuation Route
Planning**

April 25, 2025



**Disaster Risk
Reduction-Climate
Adaptation**

October 4, 2024



**Volunteer &
Composite Fire
Departments
Equipment &
Training**

October 18, 2024



**Indigenous Cultural
Safety & Cultural
Humility Training**

November 1, 2024



**Emergency Support
Services**

January 31, 2025



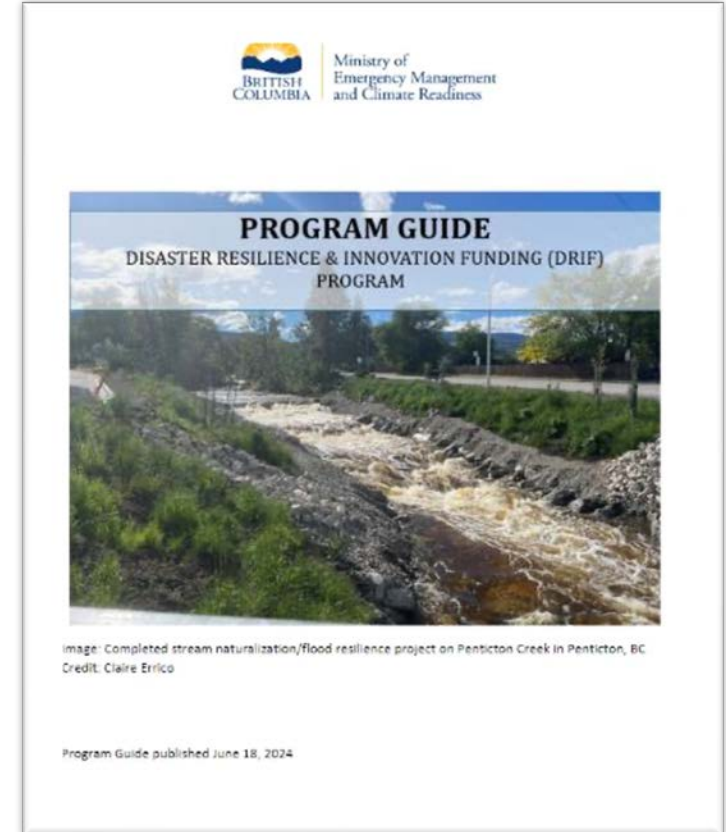
**Emergency
Operations Centres
& Training**

February 28, 2025

Disaster Resilience and Innovation Funding (DRIF) Program

First Nations and local governments improve their resilience to natural and climate-driven disasters through:

- ✓ Improved understanding of risks, vulnerabilities, and risk reduction options
- ✓ The development and implementation of structural and non-structural risk reduction projects



DRIF program – streams & process

Stream 1: Foundational and Non-Structural Projects

\$400,000 per partner proponent per expression of interest (EOI)

Stream 2: Structural Projects

\$5 million per partner proponent per EOI, maximum of \$15 million per EOI

First program based on expressions of interest (EOIs)

Can be submitted on an ongoing basis through:
on-line portal
video / audio files
interview process

Other funding for climate adaptation & disaster mitigation

- Local Government Climate Action Program (ENV)
- Community Resilience Investment program (wildfire mitigation funding) (FOR/UBCM)
- Canada Community Building Fund (UBCM)
- Infrastructure Planning Grant Program (MUNI)
- Search the Community Climate Funding Guide (MUNI/EMLI)



Penticton deputy mayor Helena Konanz, seen middle right, cutting ceremonial ribbon at Norton Street and Wade Avenue East, the site of the latest completed section of the Penticton Creek restoration project. (Logan Lockhart/Black Press)

ClimateReadyBC – your one-stop-shop



- ClimateReadyBC is an online resource that serves as a "one-stop-shop" disaster and climate risk reduction tool for Nations, local governments, public and private sector
- Virtual platform featuring data, tools, and resources to help communities understand and reduce disaster and climate risks
- A hub for information on climate resilience funding and supports for communities

Questions?

Canada

MUNICIPALITY OF
NORTH
Cowichan



BRITISH
COLUMBIA



Beverly Street Wetland Restoration

Investing in Canada Infrastructure
Program: \$110,000



Contact:

Risk Assessments: ClimateReadyBC@gov.bc.ca

Funding Programs: EMCR.DisasterMitigation@gov.bc.ca

The Spirit of the North Healthcare Foundation

In appreciation of our speakers today and with thanks for your contribution, UBCM has made a donation to The Spirit of the North Healthcare Foundation. The Foundation works collaboratively with its Donors, Healthcare Partners and has been instrumental in contributing over \$40 million towards essential equipment, enhancing facilities, and supporting the ongoing education of healthcare professionals and medical staff.