Investigations in Support of Flood Strategy Development in British Columbia

The Investigations in Support of Flood Strategy Development in British Columbia is a province-wide initiative to develop a comprehensive understanding of the issues, gaps, challenges and opportunities relating to flood management across BC. It will result in recommendations to inform flood strategy development and improve flood management for the provincial government, local authorities and First Nations.

The BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development has retained the Fraser Basin Council to manage and coordinate investigations across twelve interconnected issues relating to flood governance, hazard and risk management, forecasting and emergency response and recovery in BC. Consultants have been retained to undertake research and analysis with input from experts, practitioners and stakeholders.

This initiative responds to recent studies, such as the 2018 Auditor General report and the Abbott/Chapman review of the 2017 wildfire and flood seasons, that highlight the need for changes to the current flood management approach in BC to reduce the flood risk faced by communities, particularly in light of a changing climate. Engagement with experts and stakeholders will help this work align with current initiatives, such as BC's Climate Preparedness and Adaptation Strategy and Emergency Program Act modernization and the Federal Flood Mapping Guidelines, advancements in methods and technologies and lessons learned from local, regional and First Nations flood mapping, planning and mitigation projects.

Developing improved flood risk strategies is part of building a sustainable BC. These investigations will support development of a path forward for flood management that best serves communities in BC.

AT A GLANCE

Scope	Investigations are being undertaken across 12 issues under 4 themes.
Timeline	Late 2019 to early 2021. **Six sets of investigations are currently underway. The remaining investigations will begin in Summer 2020.**
Study area	Province-wide, focusing on areas with existing or future flood risk
Floods covered	Riverine, coastal and ice jam floods. Pluvial (local rainfall generated) and debris flow floods are not a focus but may be included where appropriate.
Engagement	Engagement is being undertaken in phases through surveys, workshops and interviews with experts and practitioners from First Nations, local, provincial and federal governments, diking authorities, the private sector and academia. • **July 2020: Engagement on flood hazard and risk management** • Late summer – Fall 2020: Engagement on flood governance, flood forecasting, emergency response and recovery

ENGAGEMENT ON THEME B: FLOOD HAZARD & RISK MANAGEMENT

This phase of engagement (July 2020) is focused on the following issues:

Impacts of Climate Change	Climate change is likely to change the frequency and magnitude of river and coastal flooding in BC, and there is a need to improve the capacity of provincial and local authorities to integrate climate change in flood planning and management. What is the current state of the art in climate change integration into flood projections? What sources of guidance are currently being used? What new tools and information could be applied to support authorities and other practitioners?
Flood Hazard Information	Effective flood management begins with having accurate, up-to-date information about flood hazards. BC's floodplain mapping, much of which was completed prior to 2000, is largely outdated and does not cover all flood-prone areas in the province. There is also a need to improve information about dike deficiencies. These investigations will recommend ways to fill current gaps in flood mapping and manage and maintain information about flood hazards and dike deficiencies.
Flood Risk Assessment	There is a growing awareness of the benefits of a risk-based approach to flood management that accounts for the probability and potential consequences of flood events. This set of investigations examines approaches to completing a province-wide flood risk assessment as well as risk assessments and mapping at a local scale. It will make recommendations on preferred approaches to assess flood risk and a framework for prioritizing flood risk reduction projects.
Flood Planning	Planning is a key part of an integrated flood management program as it helps define a set of measures to manage flood risk within a community. Integrated flood management plans can serve as the vehicle for delivering a community's entire suite of flood management actions in a coordinated way. What tools, resources and guidance are needed for a local authority to complete such a plan? Do communities in BC have sufficient capacity to undertake integrated planning, especially in a way that accounts for climate change?
Structural Flood Management Approaches	BC's diking authorities vary in their ability to maintain their flood protection infrastructure and plan for future hazards. These investigations examine current challenges and opportunities to incentivize or require diking authorities to improve dike management. How can we improve the capacity of and coordination among diking authorities and advance innovative structural approaches to flood risk reduction?
Non-Structural Flood Management Approaches	The Province transferred floodplain management responsibilities to local governments in 2003. Since then, development has continued in floodplains, increasing flood risk. What alternative approaches to land use and development on floodplains are needed? How can we increase the uptake and effectiveness of non-structural flood management approaches such as land use and development regulation and floodproofing? How can we improve awareness of flood risk and promote responsible decisions?

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ALL INVESTIGATION THEMES AND ISSUES

Theme A – Governance	
A-1 **Improving Collaboration and Coordination**	Review existing flood management governance in BC (including federal, provincial, First Nations and local governments, and the private sector), identify challenges, and recommend changes to improve effectiveness
A-2 **Consolidating Flood Management Responsibilities**	Analyze options for consolidating flood management responsibilities among authorities

Theme B – Flood Hazard and Risk Management	
B-1 **Impacts of Climate Change**	Investigate the state of climate change information and the capacity of authorities to integrate climate change impacts in flood management
B-2 **Flood Hazard Information**	Examine the state of flood mapping and knowledge of dike deficiencies in BC and recommend approaches to address knowledge and mapping gaps
B-3 **Flood Risk Assessment**	Explore approaches to completing flood risk assessments at various scales and methods for prioritizing risk reduction actions
B-4 **Flood Planning**	Examine the ability of local authorities to undertake integrated flood planning and opportunities to improve their capacity
B-5 **Structural Flood Management Approaches**	Assess opportunities to incentivize or require better dike management, improve the capacity of diking authorities and implement innovative structural flood risk reduction measures
B-6 **Non-Structural Flood Management Approaches**	Investigate options for managing development in floodplains and opportunities for implementing non-structural flood risk reduction actions

Theme C – Flood Forecasting, Emergency Response and Recovery	
C-1 **River and Flood Forecasting Services**	Investigate the province's hydrometric and snow survey networks and flood forecasting services and opportunities to address gaps
C-2 **Emergency Response**	Investigate roles, plans, and capabilities for flood response in the province and opportunities for improving emergency response
C-3 **Flood Recovery**	Examine approaches that would support recovery efforts and help reduce future flood risk

Theme D – Resources and Funding	
D-1 **Resources and Funding**	Analyze resource and funding needs associated with the actions proposed in the above investigations

BRITISH COLUMBIA
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Fraser Basin Council

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