

LOWER MAINLAND FLOOD MANAGEMENT STRATEGY
PHASE 2

Flood Strategy Briefing

Bulletin 1: September 2017



A Phase 2 Update

Lower Mainland Flood Management Strategy

This *Flood Strategy Briefing* is the first in a series of update bulletins on Phase 2 of the Lower Mainland Flood Management Strategy (LMFMS) – an initiative aimed at better protecting communities along the lower Fraser River and south coast from a major flood.

The *Flood Strategy Briefing* is distributed to LMFMS funders and other entities participating in the Strategy development and is available online at floodstrategy.ca.



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Fraser Basin Council

ABOUT THE FLOOD STRATEGY

The Lower Mainland Flood Management Strategy (LMFMS) is a collaborative initiative that has the participation of 50 governmental and non-governmental agencies working together to better protect Lower Mainland communities from major Fraser River and coastal flooding. The Fraser Basin Council (FBC) serves as project manager.

Phase 1

(2014-2016)

UNDERSTANDING
FLOOD RISKS
AND QUANTIFYING
FLOOD IMPACTS

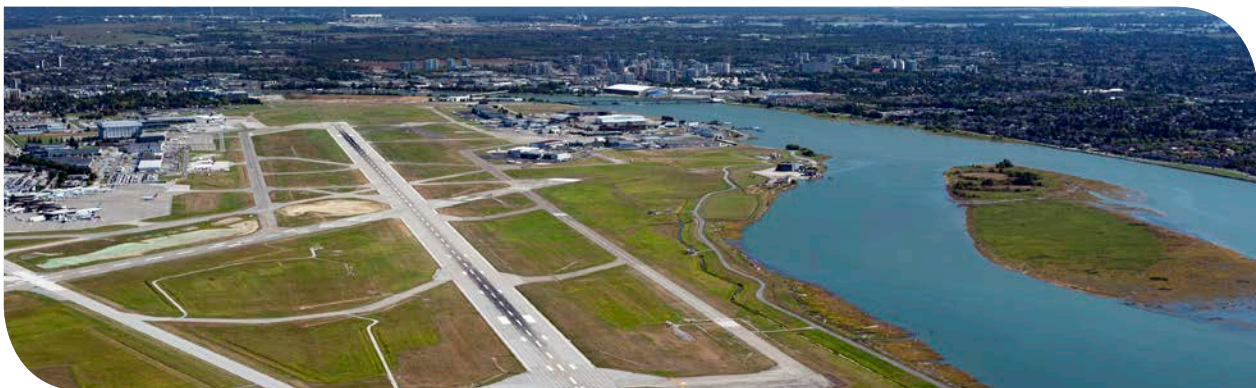
Phase 1 of the LMFMS was completed in 2016. The key outcome was an analysis of Fraser River and coastal flood scenarios – both present day and year 2100 – taking into account sea level rise and other projected impacts of climate change. The analysis focused on the:

- frequency and severity of major Lower Mainland floods
- economic losses related to four major flood scenarios
- current state of flood protection infrastructure, policies and practices in the region.

Phase 1 results clarify that there is a significant risk of a large-magnitude flood in the region, and this risk is expected to increase over the next 85 years. Most Lower Mainland dikes were built in the 1970s and 1980s. They were not designed to withstand the level of floods now projected and they are vulnerable to failure under the flood scenarios studied.

Phase 1 results confirm the importance of a regional strategy and a major investment in Lower Mainland flood mitigation to prevent what could be the largest natural disaster in Canadian history. A major flood in this region could have direct and indirect losses estimated at \$20-30+ billion, which is four to five times the losses from the Alberta floods of 2013.

To learn more, see the Phase 1 Summary Report and full technical reports at floodstrategy.ca.



Phase 2 (2016-2019)

BUILDING A REGION-WIDE STRATEGY

Phase 2 — now underway — is aimed at developing a regional flood strategy report and recommendations for action, including cost-sharing options.

LMFMS participants play a key role in the leadership and advisory processes for the initiative and will be invited to provide feedback at key junctures. There will be opportunities for input from all orders of government, those with specific interests in floodplain management and the general public.

The expected completion date for Phase 2 is late 2019. This timeline allows for: 1) confirmation of partner funding contributions and the Phase 2 budget (2017), 2) consultation and feedback by all partners and participants on an interim report (2018), 3) comprehensive technical assessment of priorities and recommended flood mitigation approaches, using a flood scenario analysis tool (2018-2019), and 4) steps to secure consensus among the partners about final priorities, cost-sharing, and funding commitments (2019).

As of September 2017, the Phase 2 groundwork has been laid:

- Multi-government funding has been secured and other funding is being confirmed
- A leadership and advisory structure is being established
- A work plan is drafted.

Work is underway to:

- Finalize appointments to a Leadership Committee
- Identify each Lower Mainland community's local and regional flood mitigation priorities
- Analyze traditional and emerging flood mitigation options
- Develop a flood scenario analysis tool
- Analyze decision-making models and cost-sharing options.

For more on Phase 2 work in progress, see pages 5 to 6.

Phase 3 (2020 forward)

IMPLEMENTING THE ACTION PLAN

In **Phase 3 (2020-)**, the Phase 2 Final Report and Recommendations will be implemented. It is anticipated that each community will make specific commitments for local action within the region-wide plan and that a cost-sharing formula will support implementation.

PHASE 2 FUNDING AND STRUCTURE

Funding for Phase 2

The LMFMS remains a broad-based, multi-partner initiative in Phase 2. Here are the confirmed and anticipated Phase 2 funding commitments, as of September 2017. Updates will be posted at floodstrategy.ca.

Funder	Department/Ministry	Anticipated Commitment over Three Years
Government of Canada	Public Safety Canada: National Disaster Mitigation Fund	\$500 K
	Indigenous and Northern Affairs Canada	\$100 K
Province of British Columbia ¹	Ministry of Transportation and Infrastructure – Emergency Management BC	\$1 M
Lower Mainland local governments		\$250 K
Other regional entities		\$250 K
Total		\$2.1 million

¹ The Province has committed \$1 million for work on the Strategy. A further \$2.4 million has been committed to other flood projects from 2017-2021; of this amount, \$1.4 million will support projects relevant to the flood strategy.

Project Leadership and Structure

A Leadership Committee is being established to offer high-level guidance on the Phase 2 framework, goals and objectives, work plan, evaluation criteria and approaches to flood mitigation.

The Leadership Committee will be supported by several advisory committees, the Fraser Basin Council and technical experts. Once the Committee roster is complete, members will be listed on the floodstrategy.ca website.

Leadership Committee	Advisory Committees
<ul style="list-style-type: none"> • Two provincial government senior officials • Two federal government senior officials • Four elected local government leaders (Metro Vancouver and the Fraser Valley regions) • Four elected First Nations government leaders (Fraser Valley and BC South Coast) • One infrastructure / private sector representative 	<ul style="list-style-type: none"> • Joint Program Committee for Integrated Flood Hazard Management (JPC) • Project-Specific Technical Advisory Committees • Environmental Advisory Committee • Communications Committee
Program Manager: Fraser Basin Council	

PHASE 2 WORK IN PROGRESS

Key Phase 2 Projects

2017 SURVEY

Regional Flood Mitigation Priorities

The Fraser Basin Council is inviting local governments, First Nations and a number of public, private and non-governmental organizations in the Lower Mainland to participate in an online survey to identify local and regional priorities for flood mitigation. The purpose of the survey is to ensure that the priorities of communities are taken into account in the development of the regional strategy.

The survey asks respondents to identify:

- Priority values and goals for flood mitigation
- Priorities based on urgency
- Priorities based on location
- Priorities based on approaches to flood mitigation.

Survey responses are requested by October 16, 2017.
For more information, contact Program Manager Steve Litke.



Assessment of Regional Flood Mitigation Options

Phase 2 includes an analysis of traditional and emerging approaches to flood mitigation in Canada, the United States and abroad. The goal is to evaluate the effectiveness of different approaches to flood mitigation and which are suitable for use in the Lower Mainland. The suitability of a given approach will vary by location. Each approach will be assessed according to a standardized set of criteria, such as effectiveness, feasibility, cost and regional benefits.

Examples of Flood Mitigation Options

Flood mitigation options being analyzed in Phase 2 cover hard-engineered infrastructure, bio-engineered approaches and policies for floodplain development and management.

Examples of flood mitigation options include:

- Diking systems (examples: dike upgrades, new dikes, new alignments of dikes)
- Sediment management strategies (examples: dredging, gravel extraction, beach/shoreline nourishment)
- Nature-based strategies (examples: living shorelines, Green Shores, living dikes, barrier islands)
- Zoning policies to direct development away from floodplain areas
- Flood construction levels and floodproofing standards for development in floodplain areas
- Other land use policies and practices
- Flood insurance
- Floodwater storage and diversion
- Flood response and recovery planning.

A future *Flood Strategy Briefing* bulletin will describe the range of approaches. These will also be addressed in terms of applicability to the Lower Mainland in a draft Phase 2 Interim Report. The draft will be discussed and refined by the Strategy partners in 2018.

Assessment of Decision-Making Models and Cost-Sharing Options

The success of the LMFMS depends on different orders of government and agencies working together to make decisions, confirm commitments and take coordinated action.

Key issues to be explored include: What approaches may be most effective in Phase 3 for making final decisions about flood mitigation with region-wide benefits? What cost-sharing models are possible and which are feasible?

A report on these issues will be part of the draft Phase 2 Interim Report, for discussion and refinement in 2018.

Testing Options: Flood Scenario Analysis Tool

A dynamic **Fraser River and Coastal Flood Scenario Analysis Tool** is being developed in Phase 2.

The analysis tool will use new LiDAR data (2016) and bathymetric survey data (2017) for flood modelling and mapping. The tool will help refine current estimates on the extent and depth of flooding in Lower Mainland floodplain areas during major flood events. The tool is important for testing the effectiveness of recommended flood mitigation approaches under selected flood scenarios.

The intent is to use the analysis tool in 2018-2019 to test and refine regional priorities and recommended approaches in the Interim Report. The analysis will be taken into account in the Final report, which is expected in late 2019.

Other Flood Projects

In addition to providing \$1 million for the Strategy development, the Province of British Columbia is funding complementary flood projects between 2017 and 2021. These include:

- Update of Lower Fraser River channel surveys and river modelling
- Assessment of BC “orphan” dikes – those having no local management authority
- Seismic vulnerability and guidelines for dikes.

Phase 2 Reports

The work of Phase 2 will be reflected in two key documents:

- **Phase 2 Interim Report and Recommendations**
- **Phase 2 Final Report and Recommendations**





What Consultations and Participation are Planned?

Strategy Participants

Strategy participants include strategy funders and those governmental and non-governmental organizations having participants on the Leadership Committee and in advisory processes. All will be updated over the course of Phase 2.

FBC is currently taking part in a dialogue with First Nations in the Lower Mainland respecting representation on the Leadership Committee and additional opportunities to participate and provide input.

During Phase 2, FBC will also to brief and consult critical infrastructure agencies in the region on the initiative.

Opportunities for Phase 2 participation include:

- Project advisory committees
- Joint Program Committee on Integrated Flood Hazard Management
- 2017 Survey on Regional Flood Mitigation Priorities
- Meetings of the Lower Mainland Local Government Association (Flood Committee)
- Meetings of the Union of BC Municipalities
(A workshop session at the 2017 UBCM Conference is scheduled for September 28 at 2:30 pm)*
- 2018 Flood Forum for Strategy participants to discuss the draft Interim Report.
- 2019 Flood Forum for Strategy participants to discuss the draft Final Report

To learn more, contact Program Manager Steve Litke.

Lower Mainland Residents

At various times, Lower Mainland local governments may engage their residents on local flood management issues. Public engagement on region-wide flood mitigation is also important.

Once the Phase 2 Interim Report is complete, it will be publicly available. Public information sessions and opportunities for input on the report are planned for early 2019.

Flood Strategy Timeline

Fall-Winter 2017

- Survey and preliminary list of flood mitigation priorities completes
- Engagement with local governments, First Nations and others continues
- Leadership Committee finalizes Project Vision and Work Plan
- Technical analysis underway: flood mitigation priorities, modelling and mapping flood scenarios, flood mitigation options, decision-making and cost-sharing models and environmental analysis

Spring-Summer 2018

- Initial assessment of Regional Flood Mitigation Options completes
- Initial assessment of Decision-Making Models and Cost-Sharing Options completes
- Working Draft of Interim Report completes
- Flood Forum 2018: Strategy participants meet to review draft Interim Report

Fall-Winter 2018

- Interim Report completes (based on consultations & technical analysis to date)
- Strategy participants briefed, media briefed
- Public engagement and information meetings
- Opportunities for input on Interim Report

Spring-Summer 2019

- Technical analysis completes

Fall-Winter 2019

- Working Draft of Final Report (incorporating technical results) completes
- Flood Forum 2019: Strategy participants meet to review draft Final Report
- Final Report completes
- Strategy participants briefed, media briefed



Connect With Us

The Lower Mainland Flood Management Strategy is managed by the Fraser Basin Council on behalf of the funding partners and participants in the Strategy development. We invite your questions and feedback.

Lower Mainland Flood Management Strategy
c/o Steve Litke, Senior Program Manager
E slitke@fraserbasin.bc.ca | T 604 488-5358

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