



**To:** Public Works and Transportation Committee      **Date:** February 19, 2021  
**From:** Milton Chan, P.Eng      **File:** 10-6060-01/2021-Vol  
Director, Engineering      01  
**Re:** Lower Mainland Flood Management Strategy Update

**Staff Recommendation**

That the staff report titled “Lower Mainland Flood Management Strategy Update”, dated February 19, 2021, from the Director, Engineering, be received for information.

Milton Chan, P.Eng  
Director, Engineering  
(604-276-4377)

Att. 1

REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Roads & Construction	<input checked="" type="checkbox"/>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b>	<b>APPROVED BY CAO</b>

## Staff Report

### Origin

In 2014, the Fraser Basin Council started the development of a Lower Mainland Flood Management Strategy (LMFMS) with the purpose of providing a better understanding of regional flood hazards, flood vulnerabilities and the state of flood protection infrastructure, policies and practices across the region. The City of Richmond has been a funding partner supporting the LMFMS along with most local governments and agencies in the region.

The Fraser Basin Council released draft 1 of a region-wide strategy (Flood Strategy) to member organizations on January 29, 2021, and has asked for comments to be returned to them by March 29, 2021. A major component of this draft is the establishment of a provincially-mandated regional entity to oversee implementation and funding of the works included in the Flood Strategy.

This report provides Council with an update on the LMFMS and Flood Strategy and the related staff comments.

This report supports the following strategies within Council's Strategic Plan 2018-2022:

#### Strategy #1 A Safe and Resilient City:

*Enhance and protect the safety and well-being of Richmond.*

*1.2 Future-proof and maintain city infrastructure to keep the community safe.*

*1.3 Ensure Richmond is prepared for emergencies, both human-made and natural disasters.*

#### Strategy #2 A Sustainable and Environmentally Conscious City:

*Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.*

*2.1 Continued leadership in addressing climate change and promoting circular economic principles.*

#### Strategy #5 Sound Financial Management:

*Accountable, transparent, and responsible financial management that supports the needs of the community into the future.*

*5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.*

## Analysis

The City's primary rationale for participating in this initiative has been to remain engaged on this issue at the regional level. Independent of the Fraser Basin Council, the City has already completed extensive flood risk management planning and analysis over multiple decades. The most recent Council action on a strategic level was adoption of the updated Flood Protection Management Strategy in 2019. In addition, the City has advanced into the implementation phase over the last two decades with over \$13M being committed annually to physical infrastructure upgrades. The Fraser Basin Council work has not yet moved beyond the strategic planning phase, and the technical work completed to date has not significantly added to Richmond's existing plans and strategies.

The Fraser Basin Council's LMFMS is divided into three phases:

- Phase 1 – Understanding Lower Mainland Flood Risks (2014-2016)
  - Project 1 – Analysis of Future Flood Scenarios
  - Project 2 – Regional Assessment of Flood Vulnerabilities
  - Project 3 – Assessment of Flood Infrastructure, Policies & Practices
- Phase 2 – Building a Region-Wide Strategy (2016-2021)
- Phase 3 – Taking Action (2021 and beyond)

### Phase 1

Phase 1 of the LMFMS was completed in 2016 and focused on improving the region's understanding of flood scenarios, vulnerabilities and management actions.

As outlined in the staff report titled, "Fraser River Freshet and Flood Protection Update 2016," dated May 31, 2016 from the Director, Engineering, the City has completed Richmond specific analysis and assessments to a higher level of accuracy than Fraser Basin Council's work. Additionally, the City identified concerns with the Phase 1 results due to some inaccurate data and assumptions used by the Fraser Basin Council with respect to information on Richmond's dikes. These issues could have been avoided with improved partner engagement. In subsequent discussions with staff, Fraser Basin Council committed to improving partner engagement throughout the remainder of the Flood Strategy process.

### Phase 2

Phase 2 of the LMFMS is underway. This phase includes technical analysis that has fed into the development of a draft region-wide strategy (Flood Strategy).

#### *Technical Analysis*

As outlined in the staff memorandum titled, "Lower Mainland Flood Management Strategy – Phase 2 Update" dated August 27, 2020, the technical analysis completed as part of this phase assumed that no flood risk mitigation measures are taken across the region now or in the future. For example, Richmond's Flood Protection Management Strategy, Dike Master Plan, Emergency Response Plan, and Flood Protection Program that all have a much higher level of analysis and detail, have not been factored into their analysis. The mapping and modelling work, however, reinforces the importance of local and regional-scale planning and continued investment in flood risk reduction.

*Flood Strategy and Regional Flood Protection Management*

In the time since the August 2020 memorandum was provided to Council, Draft 1 of the Flood Strategy has been created. Two major components of Draft 1 of the Flood Strategy include:

1. Establishment of a provincially-mandated regional entity to oversee the implementation of the Flood Strategy. Proposed roles for the entity include delivering regional-scale flood-related technical analysis, communication and education services, establishing and providing funding decisions on the regional priorities.
2. Establishment of a regional funding program to be administered and utilized by the proposed regional flood entity with the intention to support implementation of the Flood Strategy. Priorities for the region would be ranked through a regional prioritization and evaluation framework.

The detailed discussion around these two major components were kept at the Leadership Committee level. The Leadership Committee is made up of representatives of partner organizations including two senior staff at the federal level, two senior staff at the provincial level, four senior staff at the local government level, four elected First Nations representatives and one representing regional entities. The City's request to be included on the Leadership Committee was not accepted.

Fraser Basin Council originally proposed options to change the current province-wide flood protection governance structure through a forum with a regional audience, including municipalities and senior government officials, held on October 8 and 9, 2019. Council subsequently endorsed the City's position on regional flood protection management at the January 27, 2020 Regular Council meeting, as follows:

- a. That flood protection continue to be evaluated and managed at the local government level, currently through the Diking Authority model, with additional support from senior levels of government;
- b. That dedicated funding for flood protection be established at the Provincial and Federal level, to be used by Diking Authorities, which include local governments, for flood management projects; and
- c. That the Province require Diking Authorities, which include local governments, to develop and maintain flood risk management plans and strategies for their respective areas so that regional objectives are met.

Following the January 27, 2020 Regular Council meeting, and as endorsed by Council, staff circulated the City's position on regional flood protection management through a letter to regional Diking Authorities, the Fraser Basin Council and the Province.

Fraser Basin Council has made the decision to include these two major components despite continued opposition expressed by the City of Richmond through the regional forum, several committee meetings and by way of written letter directly to Fraser Basin Council, regional Diking Authorities and the Province.

Adoption of a provincially-mandated regional entity would impact flood protection funding, planning and implementation by local governments. It would also impact the availability and allocation of future grants from senior government to individual local governments. Any reduction in grant funding for the City's flood protection works would result in an increase to utility fees or the requirement to borrow funds.

*Next Steps*

The Fraser Basin Council has completed valuable work and helped raise the profile of the flood protection challenge presented to the region by climate change and sea level rise. While this work highlights a collective regional risk, it does not present any compelling rationale for moving away from the existing governance structure. Local governments are in the best position to implement flood protection improvements and make associated land use decisions, with Provincial support and co-ordination. Creation of a new entity would add bureaucracy without any discernible benefit.

The Fraser Basin Council has requested review and input from partner organizations and participants by March 29, 2021. Input received will inform the development of a second draft expected to be distributed in May 2021. Public engagement is planned for September 2021, with finalization of the LMFMS by November 2021. A briefing note summarizing the major components and next steps from Fraser Basin Council is included as Attachment 1.

Staff will be providing comments to the Fraser Basin Council that are consistent with Council's previously endorsed position on regional flood protection management.

**Financial Impact**

None.

**Conclusion**

Under the existing governance structure, the City of Richmond has established one of the most advanced flood protection programs in the region. Adoption of a provincially-mandated regional entity would impact flood protection funding, planning and implementation. Staff recommend that the City's position on regional flood protection remain focused on being managed and evaluated at the local level, with support from senior government.



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Att. 1: Briefing Note

# Lower Mainland Flood Management Strategy | Draft 1



## Briefing Note for Entities with Flood Management Responsibilities in the Lower Mainland

### Purpose

To provide an overview of Draft 1 of the Lower Mainland Flood Management Strategy and the invitation by the Fraser Basin Council to review and comment on Draft 1.

### Background

The Lower Mainland Flood Management Strategy (LMFMS or Flood Strategy) is a region-wide strategy to reduce flood risk and improve the flood resilience of communities along British Columbia's lower Fraser River and south coast. It focuses on two regionally significant flood hazards: Fraser River flooding and coastal flooding.

The development of the LMFMS has been a collaborative, inter-jurisdictional, regional-scale and multi-year initiative. The Fraser Basin Council (FBC), a not-for-profit organization, is the manager and facilitator of this initiative on behalf of over 60 organizations with flood management responsibilities, including federal, provincial, First Nations and local governments, and other entities, such as infrastructure organizations. The initiative began in 2014 and has included a combination of technical analysis, information tool development and advisory and engagement processes. The aim of the LMFMS initiative is to build a base of knowledge and support for a common vision and set of actions that will work in concert to reduce flood risk across the Lower Mainland.

A key factor for success is to develop a Flood Strategy that has broad support among all orders of government and other organizations. Input from these organizations will strengthen the breadth and depth of support for the Flood Strategy. Government and other entities with flood management responsibilities, through their respective internal processes, have an important role in reviewing the initial drafts of the Flood Strategy, providing input and determining next steps, including Flood Strategy adoption and implementation. Many of these organizations have participated in and provided financial and in-kind support for the initiative to date.

FBC is inviting review and input on Draft 1<sup>1</sup> of the Flood Strategy over a two-month commenting period. Draft 1 was distributed by email in late January 2021 to partners and participants in the LMFMS development process.

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<sup>1</sup> A preliminary draft, named Draft 1A, was distributed in November 2020 for initial review by First Nations and those serving on LMFMS advisory groups (the Joint Program Committee and Leadership Committee). It is now available as Draft 1 for review and comment by all partner and participating organizations. For clarity, Draft 1 is the same as Draft 1A, with one addition, that being an addendum on governance, funding and implementation (Section 6 of Draft 1).

## Flood Strategy Goals and Scope

The draft LMFMS contains seventeen objectives under three overarching goals:

**1) Improve understanding of Lower Mainland flood risk and increase awareness**

*Objectives under this goal include improving understanding of flood risk and risk-based flood management as well as access to information.*

**2) Support investment and actions to reduce flood risk, avoid the creation of new risk, and build resilience of communities, ecosystems and critical infrastructure**

*Objectives emphasize integrated, innovative approaches to reducing flood risk in ways that support the resilience of ecosystems, society and critical infrastructure and account for climate change impacts.*

**3) Strengthen flood risk governance in the Lower Mainland**

*Objectives include furthering collaboration and coordination, reconciliation with First Nations, improving capacity and accounting for the inter-jurisdictional nature of flood.*

Together, the goals and objectives reflect the region's diverse challenges and opportunities and are intended to achieve the Flood Strategy's vision for the Lower Mainland as a flood-resilient region.

The Flood Strategy is focused on addressing Fraser River and coastal flood risks while recognizing that many communities also experience flooding from other sources. The Flood Strategy is not prescriptive in that it does not recommend specific flood risk reduction projects in specific locations. This scope recognizes the important role of existing and future flood management plans, decisions and initiatives at the local and sub-regional scales.

## Key Directions

Draft 1 of the LMFMS contains 68 recommended actions to advance the Flood Strategy's goals and objectives. The following is an overview of the major directions proposed. (Numbers in parentheses refer to Draft 1 sections that contain related recommendations.)

**Regional prioritization:** A core concept of the LMFMS is the prioritization of flood risk areas in the region for flood risk reduction. Current approaches to flood-related project funding tend to be based largely on the merit of applications. This can benefit communities with greater access to technical information and resources regardless of the relative need and urgency of the project compared with other jurisdictions. A process to determine the relative priority of flood risk areas in advance would ensure that areas with higher risk, need and urgency are identified and provide a shared understanding to inform where and how investments should be made. Draft 1 presents draft criteria that are intended to be refined and integrated into a prioritization framework that would ultimately be used to inform funding decisions for risk reduction initiatives. Equity is an important consideration in the proposed approach. (5.3.3)

**Holistic approach to flood risk reduction initiatives:** While regional prioritization considers where and when flood risk reduction actions are most needed, the Flood Strategy also addresses *how* flood risk could be reduced by recommending development of a framework to guide the

design and evaluation of flood risk reduction initiatives. The framework would ultimately inform funding and decision-making. Draft 1 presents draft criteria under four broad categories as the basis of this proposed framework: impacts on flood risk; alignment with existing frameworks; design for a range of positive impacts (e.g., ecosystem resilience); and the process of planning, design and implementation. The criteria support reducing flood risk in a way that minimizes negative impacts, produces positive co-benefits, can be adapted and sustained in the long term, and supports the values identified by LMFMS partners, while recognizing that the same approaches will not be appropriate in all circumstances. (5.2.2)

**Enabling and supporting integrated flood management measures:** The draft Flood Strategy contains recommendations designed to facilitate and widen the suite of flood risk reduction measures considered, including a range of structural (e.g., diking) and non-structural (e.g., land use) measures. Some recommendations propose changes to provincial legislation, standards and guidelines. Others consider incentives, guidance and further study to advance understanding and uptake of risk-based approaches and alternatives to conventional flood protection infrastructure, including land use regulation and nature-based approaches. These recommended actions are intended to support organizations in achieving their risk reduction objectives along with the objectives of the Flood Strategy and, more specifically, the risk reduction framework described above. (5.2.1, 5.2.3, 5.2.4)

**Enhancing First Nations capacity:** The LMFMS aims to support reconciliation with First Nations and address inequities in flood management, including but not limited to improving capacity and access to opportunities for flood risk reduction. Some draft recommendations include improving flood hazard and risk information in First Nations communities, as well as protocols for including Indigenous knowledge and values in flood planning. Others speak to enhancing First Nations capacity for emergency preparedness and response, flood planning and decision-making, and participation in flood initiatives of other jurisdictions. (5.2.5, 5.3.2)

**Improving collaboration and coordination:** Core to the LMFMS is the recognition that floods and their consequences extend across jurisdictional boundaries and that flood management activities in one jurisdiction can have (and have historically had) significant impacts on others. The draft Flood Strategy recommends actions to improve collaboration, coordination and communication among governments and non-governmental organizations across the region. Actions to improve collaboration with and the participation of First Nations in alignment with the BC Declaration on the Rights of Indigenous Peoples Act are emphasized. (5.3.1, 5.3.2)

**Regional technical services, information sharing and education:** Widespread understanding of flood risks along with access to and sharing of information are key to supporting flood risk reduction over the long-term. Draft 1 proposes programs and other actions to deliver regional-scale flood hazard and risk modelling and mapping, opportunities for sharing information among jurisdictions, and public education and communications. The Strategy recognizes the limited capacity of many communities and the value of undertaking some of these actions at the regional scale. (5.1.1, 5.1.2, 5.1.3)

To support implementation of the recommended actions, the LMFMS contains two key proposals:

- 1) **Establishment of a regional flood entity:** While some of the recommended actions could be led by existing organizations, no existing organization has the capacity or

responsibility to oversee the implementation of the Flood Strategy as a whole. The draft Flood Strategy recommends the establishment of a provincially mandated regional entity to implement and oversee implementation of the LMFMS. It would include a Board structure composed of First Nations, local, provincial and federal governments and infrastructure providers. Proposed roles for the entity include delivering regional-scale flood-related technical, communications and education services; establishing regional priorities for flood risk reduction; advising on or delivering funding decisions for regional, sub-regional and local initiatives pertaining to the Flood Strategy; and supporting collaborative flood planning within the Lower Mainland. It is currently proposed that the entity would not assume the responsibilities of existing jurisdictions. (6.1.1)

- 2) **Establishment of a regional funding program:** The draft Flood Strategy proposes the establishment of a long-term, stable regional funding program to a) support implementation of LMFMS recommendations; b) implement regional, sub-regional and local flood management initiatives aligned with the LMFMS; and c) support the operations of the proposed regional flood entity. Current funding arrangements are unpredictable, focus primarily on emergency response and recovery, and typically are available for a limited time period and for a relatively narrow set of eligible projects and activities. The proposed funding program, administered by the proposed regional entity and supported by the regional prioritization and evaluation frameworks, would provide greater predictability and would enhance capacity for a broader range of proactive flood risk management activities. (6.1.2)

## Next Steps

- **FBC will receive feedback on Draft 1 through Monday, March 29, 2021.** Organizations that are invited to provide feedback can email the completed PDF (and any accompanying documents, e.g., staff report, if available) to [floodstrategy@fraserbasin.bc.ca](mailto:floodstrategy@fraserbasin.bc.ca).
- FBC will host a webinar presentation on Draft 1 on February 16, 2021. The presentation will be recorded and shared for viewing by organizations invited to provide feedback. Additional engagement sessions and/or materials may be delivered during the commenting period.
- Input received by March 29 will inform the development of Draft 2. Draft 2 will be distributed in May 2021 for review by all organizations that were invited to comment on Draft 1. This allows for two rounds of review prior to a period of public comment.
- Public engagement on the LMFMS is planned for September 2021.
- The Flood Strategy will be finalized by November 2021.

## Contact

For more information, or to specify an alternative contact for your organization, email Steve Litke at [slitke@fraserbasin.bc.ca](mailto:slitke@fraserbasin.bc.ca).