

**METRO VANCOUVER REGIONAL DISTRICT
FLOOD RESILIENCY COMMITTEE**

MEETING

Friday, March 3, 2023

1:00 pm

**Meeting conducted both in-person and electronically pursuant to the Procedure Bylaw
28th Floor Committee room, 4515 Central Boulevard, Burnaby, British Columbia**

A G E N D A¹

1. ADOPTION OF THE AGENDA

1.1 March 3, 2023 Meeting Agenda

That the Flood Resiliency Committee adopt the agenda for its meeting scheduled for March 3, 2023 as circulated.

2. ADOPTION OF THE MINUTES

2.1 October 26, 2022 Meeting Minutes

Note: These minutes are from the previous term and are being presented to the Committee for information only.

That the Flood Resiliency Committee receive for information the minutes of its regular meeting held on October 26, 2022 as circulated.

3. DELEGATIONS

4. INVITED PRESENTATIONS

4.1 Chief Tyrone McNeil, Chair, Emergency Planning Secretariat

Subject: Hilekw Sq'eq'o (Coast Salish Regional Action Plan) and Build Back Better Together

4.2 Steve Litke, Director, Water Programs, Fraser Basin Council

Subject: Lower Mainland Flood Management Strategy Update

¹ Note: Recommendation is shown under each item, where applicable.

5. REPORTS FROM COMMITTEE OR STAFF

5.1 2023 Flood Resiliency Committee Meeting Schedule and Work Plan

That the Flood Resiliency Committee:

- a) receive for information the Flood Resiliency Committee Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated February 23, 2023, titled “2023 Flood Resiliency Committee Meeting Schedule and Work Plan”; and
- b) endorse the 2023 Work Plan, as presented in the report dated February 23, 2023, titled “2023 Flood Resiliency Committee Meeting Schedule and Work Plan”.

**5.2 Metro Vancouver – Fraser River Freshest Response 2022
Verbal Update**

Designated Speaker: Brant Arnold-Smith

5.3 Manager’s Report

That the Flood Resiliency Committee receive for information the report dated February 23, 2023, titled “Manager’s Report”.

6. INFORMATION ITEMS

7. OTHER BUSINESS

8. BUSINESS ARISING FROM DELEGATIONS

9. RESOLUTION TO CLOSE MEETING

10. ADJOURNMENT/CONCLUSION

That the Flood Resiliency Committee adjourn/conclude its meeting of March 3, 2023.

Membership:

Kruger, Dylan (C) – Delta

MacDonald, Nicole (VC) – Pitt Meadows

Bose, Mike – Surrey

Cassidy, Laura – Tsawwassen First Nation

Ferguson, Steve – Langley Township

Johnstone, Patrick – New Westminster

McCutcheon, Jen – Electoral Area A

McNulty, Bill – Richmond

West, Brad – Port Coquitlam

**METRO VANCOUVER REGIONAL DISTRICT
FLOOD RESILIENCY TASK FORCE**

Minutes of the Regular Meeting of the Metro Vancouver Regional District (MVRD) Flood Resiliency Task Force held at 1:00 p.m. on Wednesday, October 26, 2022 in the 28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:

Chair, Mayor Bill Dingwall*, Pitt Meadows
 Vice Chair, Councillor Craig Hodge*, Coquitlam (arrived at 1:01 p.m.)
 Mayor Brad West*, Port Coquitlam
 Mayor Mike Morden*, Maple Ridge
 Councillor Mike Hillman, Burnaby
 Councillor Mike Wiebe*, Vancouver (arrived at 1:01 p.m.)
 Councillor Harold Steves*, Richmond
 Councillor Laurie Guerra*, Surrey
 Councillor Kim Richter*, Township of Langley
 Director Jen McCutcheon*, Electoral Area A
 Mayor George Harvie*, Delta

MEMBERS ABSENT:

Councillor Chuck Puchmayr, New Westminster

STAFF PRESENT:

Neal Carley, General Manager, Parks and Environment
 Rapinder Khaira, Legislative Services Coordinator, Board and Information Services

1. ADOPTION OF THE AGENDA

1.1 October 26, 2022 Regular Meeting Agenda

It was MOVED and SECONDED

That the Flood Resiliency Task Force adopt the agenda for its regular meeting scheduled for October 26, 2022 as circulated.

CARRIED

1:01 p.m. Councillor Hodge and Councillor Wiebe arrived at the meeting.

*denotes electronic meeting participation as authorized by Section 3.6.2 of the *Procedure Bylaw*

2. ADOPTION OF THE MINUTES

2.1 June 22, 2022 Regular Meeting Minutes

It was MOVED and SECONDED

That the Flood Resiliency Task Force adopt the minutes of its regular meeting held June 22, 2022 as circulated.

CARRIED

3. DELEGATIONS

No Items presented.

4. INVITED PRESENTATIONS

4.1 Chief Tyrone McNeil, Chair, Emergency Planning Secretariat

Chief Tyrone McNeil, Chair, Emergency Planning Secretariat, provided the Flood Resiliency Task Force with a presentation on the Build Back Better Together Initiative, outlining its priorities and goals toward creating flood resilient communities.

It was MOVED and SECONDED

That the Flood Resiliency Task Force receive for information the presentation from Chief Tyrone McNeil, Chair, Emergency Planning Secretariat provided on October 26, 2022, titled "Build Back Better Together Initiative".

CARRIED

4.2 Steve Litke, Director, Water Programs, Fraser Basin Council

Steve Litke, Director, Water Programs, Fraser Basin Council, provided the Flood Resiliency Task Force with an update on the Lower Mainland Flood Management Strategy with an overview of the technical analysis and year-end deliverables.

Presentation material titled "Lower Mainland Flood Management Strategy Update" is retained with the October 26, 2022 Flood Resiliency Task Force agenda.

It was MOVED and SECONDED

That the Flood Resiliency Task Force receive for information the presentation from Steve Litke, Director, Water Programs, Fraser Basin Council provided on October 26, 2022, titled "Lower Mainland Flood Management Strategy Update".

CARRIED

5. REPORTS FROM COMMITTEE OR STAFF

5.1 Manager's Report

Report dated October 18, 2022, from Neal Carley, General Manager, Parks and Environment, providing updates on the Flood Resiliency Task Force 2022 Work Plan, 2022 UBCM Resolutions Related to Flood Resiliency, Lower Mainland Flood Management strategy, and the Build Back Better Together – July 14, 2022 Workshop.

It was MOVED and SECONDED

That the Flood Resiliency Task Force receive for information the report dated October 18, 2022 titled "Manager's Report".

CARRIED

6. OTHER BUSINESS

Members of the Task Force expressed a general consensus that the work of the Flood Resiliency Task Force should continue under the new MVRD Board.

7. BUSINESS ARISING FROM DELEGATIONS

No items presented.

8. RESOLUTION TO CLOSE MEETING

No items presented.

9. ADJOURNMENT/CONCLUSION

It was MOVED and SECONDED

That the Flood Resiliency Task Force conclude its regular meeting of October 26, 2022.

CARRIED

(Time: 2:00 p.m.)

Rapinder Khaira,
Legislative Services Coordinator

Bill Dingwall, Chair

56051809 FINAL

To: Flood Resiliency Committee

From: Neal Carley, General Manager, Parks & Environment

Date: February 23, 2023

Meeting Date: March 3, 2023

Subject: **2023 Flood Resiliency Committee Meeting Schedule and Work Plan**

RECOMMENDATION

That the Flood Resiliency Committee:

- a) receive for information the Flood Resiliency Committee Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated February 23, 2023 titled “2023 Flood Resiliency Committee Meeting Schedule and Work Plan”; and
 - b) endorse the 2023 Work Plan, as presented in the report dated February 23, 2023 titled “2023 Flood Resiliency Committee Meeting Schedule and Work Plan”.
-

EXECUTIVE SUMMARY

The Terms of Reference for the Flood Resiliency Committee sets out the task force responsibilities for providing advice and recommendations to the Metro Vancouver Board(s) on flood resiliency and related matters.

Work plan priorities for 2023 include updates on the Lower Mainland Flood Management Strategy, the BC Flood Strategy, and Metro Vancouver’s freshet planning and response.

Pursuant to the Terms of Reference, the meeting schedule proposes six meetings, which will be held in-person, with electronic participation made available.

PURPOSE

To provide the Flood Resiliency Committee with the 2023 Work Plan, its Terms of Reference, and the 2023 Annual Meeting Schedule.

BACKGROUND

Annually, following the Board Inaugural meeting in November, the Board Chair establishes the committee structure and the terms of reference for each committee, for the new year. To support the Committee in its work, this report brings forward the committee’s Work Plan and the Schedule of Meetings for 2023.

2023 Work Plan

The Flood Resiliency Committee’s 2023 Work Plan is based on the 2023 budget approved by the MVRD Board on October 28, 2022. The Flood Resiliency Committee’s Work Plan is Attachment 1.

The Work Plan presented in this report is consistent with the Flood Resiliency Committee's Terms of Reference (Attachment 2) and is being brought forward for the Committee's information, review, and endorsement.

Key actions in the 2023 Work Plan for the Committee are described below and listed according to the Committee's responsibilities in its Terms of Reference:

- Lower Mainland Flood Management Strategy Update
- BC Flood Strategy Update
- Metro Vancouver Freshet Preparation and Response

The Committee will be updated on the status of the actions and projects in this Work Plan on a quarterly basis per the Committee's schedule.

2023 COMMITTEE MEETING SCHEDULE

The MVRD Procedure Bylaw requires the Corporate Officer to provide the Committee with an Annual Meeting Schedule for the upcoming year, including the date, time and place of the meetings (Attachment 3).

Meeting Place - In-Person Meetings

Committee meetings will be held at Metro Vancouver Committee room, 28th Floor, 4515 Central Blvd, Burnaby, BC, at 9:00 am/1:00 pm, unless otherwise specified on the Metro Vancouver public notice board, the Metro Vancouver website, and the respective agenda. All 2023 committee meetings will be held electronically by video-conference as hybrid meetings, allowing members to attend in person or electronically, whichever they prefer. The Committee Chair may decide to hold an in person meeting with electronic participation only available under exceptional circumstances.

ALTERNATIVES

1. That the Flood Resiliency Committee:
 - a) receive for information the Flood Resiliency Committee Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated February 23, 2023, titled "2023 Flood Resiliency Committee Meeting Schedule and Work Plan"; and
 - b) endorse the 2023 Work Plan, as presented in the report dated February 23, 2023, titled "2023 Flood Resiliency Committee Meeting Schedule and Work Plan".
2. That the Flood Resiliency Committee:
 - a) receive for information the Flood Resiliency Committee Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated February 23, 2023, titled "2023 Flood Resiliency Committee Meeting Schedule and Work Plan"; and
 - b) endorse the 2023 Work Plan, as presented in the report dated February 23, 2023, titled "2023 Flood Resiliency Committee Meeting Schedule and Work Plan", incorporating the requested changes from the Flood Resiliency Committee.

FINANCIAL IMPLICATIONS

The priorities in the 2023 Work Plan of the Flood Resiliency Committee are consistent with the 2023 Budget approved by the MVRD Board on October 28, 2022, and with key actions included in the Annual Work Plans.

Committee meeting expenses and remuneration associated with meeting attendance have been allocated in the annual budget.

CONCLUSION

The Work Plan presented in this report identifies the priorities for the Flood Resiliency Committee in 2023 and is consistent with its Terms of Reference and the 2023 Budget approved by the MVRD Board.

To assist the Committee, the 2023 Annual Meeting Schedule has been established to guide the Committee's success in completing the business of the Work Plan. Staff recommends that Alternative 1 be approved.

Attachments

1. Flood Resiliency Committee 2023 Work Plan, dated February 23, 2023.
2. Flood Resiliency Committee Terms of Reference, dated December 9, 2022.
3. Flood Resiliency Committee 2023 Annual Meeting Schedule.

Flood Resiliency Committee 2023 Work Plan

Report Date: February 23, 2023

Priorities

1st Quarter	Status
Flood Resiliency Committee Meeting Schedule and Work Plan	In Progress
Lower Mainland Flood Management Strategy - Update	In Progress
Metro Vancouver Freshet Response - 2022	In Progress
2nd Quarter	Status
BC Flood Strategy Update	Pending
Metro Vancouver Freshet Preparations - 2023	Pending
3rd Quarter	Status
Lower Mainland Flood Management Strategy - Update	Pending
BC Flood Strategy Update	Pending
Metro Vancouver Freshet Response - 2023	Pending
4th Quarter	Status
Lower Mainland Flood Management Strategy - Update	Pending
BC Flood Strategy Update	Pending

Flood Resiliency Committee

Terms of Reference

The Flood Resiliency Committee is the standing committee of the Metro Vancouver Board responsible for providing advice and recommendations to the Metro Vancouver Board on flood resiliency and related matters.

Committee Responsibilities

The Committee will provide advice and recommendations to the Metro Vancouver Board and to the Board members appointed to the Leadership Committee of the Lower Mainland Flood Management Strategy on issues related to flood resiliency. Key responsibilities for the Committee include:

- Reviewing the Lower Mainland Flood Management Strategy and the Provincial Flood Management Strategy;
- Reviewing the potential impacts on the region and Metro Vancouver Regional District members by the severe flooding in November and December of 2021;
- Identifying risks and gaps in the existing infrastructure to mitigate flooding;
- Identifying short term capital investment to repair damage to the infrastructure from recent floods;
- Identifying longer term capital investment to bring infrastructure to withstand predicted flooding due to climate change;
- Considering Metro Vancouver regional priorities and issues for the Lower Mainland Flood Management Strategy;
- Identifying roles and responsibilities of all orders of government to financing, developing and maintaining the infrastructure;
- Considering options to coordinate and collaborate with:
 - a) Metro Vancouver Regional District members;
 - b) Fraser Valley Regional District;
 - c) First Nations;
 - d) Provincial government; and
 - e) Federal government; and
- Reporting back to the Metro Vancouver Board with advice and recommendations on flood resiliency and related matters.

Committee Membership and Meetings

The Chair of the Metro Vancouver Board shall appoint the Chair and Vice Chair of the Committee. Committee members are appointed annually by the Metro Vancouver Board Chair. The Committee will meet every two months, and hold special meetings as required. A quorum of 50% plus one of the Committee membership is required to conduct Committee business.

Committee Management

The Committee Chair, or in the absence of the Chair the Vice Chair, is the chief spokesperson on matters of public interest within the Committee's purview. For high profile issues the role of spokesperson rests with the Metro Vancouver Board Chair or Vice Chair. On technical matters or in

cases where an initiative is still at the staff proposal level, the Chief Administrative Officer or designate is the appropriate spokesperson. Where necessary and practical, the Board Chair and Chief Administrative Officer will confer to determine the most appropriate representative to speak.

The Chief Administrative Officer assigns a Committee Manager for the Committee. The Committee Manager is responsible for coordinating agendas and is the principal point of contact for Committee members.

The Committee may request the Committee Manager to:

- gather information and provide analysis of the Lower Mainland Flood Management Strategy, the Provincial Flood Management Strategy, flood resiliency matters, or legislated responsibilities of the different levels of government;
- seek out and consider input from additional stakeholders deemed to have an interest in the flood resiliency; and
- seek advice and input from other Metro Vancouver Standing Committees and other committees, such as the Regional Administrators Advisory Committee, Regional Engineers Advisory Committee or Regional Planning Advisory Committee.

**Flood Resiliency Committee
2023 Annual Meeting Schedule**

- **Friday, March 3, 2023 at 1:00 PM**
- **Friday, May 19, 2023 at 1:00 PM**
- **Friday, July 14, 2023 at 1:00 PM**
- **Thursday, July 6, 2023 at 1:00 PM**
- **Friday, September 15, 2023 at 1:00 PM**
- **Friday, November 10, 2023 at 1:00 PM**

** Committee Meetings are subject to change.*

Metro Vancouver - Fraser River Freshet Response 2022

Brant Arnold-Smith

Program Manager, Security and Emergency Management, Corporate Services
Flood Resiliency Committee – March 3, 2023

58414033

13 of 37

metrovancouver

AGENDA

- Preparation
- Resources
- 2022 Barnston Island Freshet Response
- Review & Next Steps



104th Ave –Barnston Island Ferry Dock

METRO VANCOUVER FRESHET PREPARATION

- Review and Implement Emergency Management Plans (EMP) and Emergency Response Plans (ERP) as required.
- Take proactive measures to protect residents & MV Critical Infrastructure
(Tiger Dams/Sand Bags/Pumps)
- 14,000 sandbags to build a 100 m x 1.5 m high sandbag wall



Barnston Island Secondary Dock-North



BARNSTON ISLAND OVERVIEW

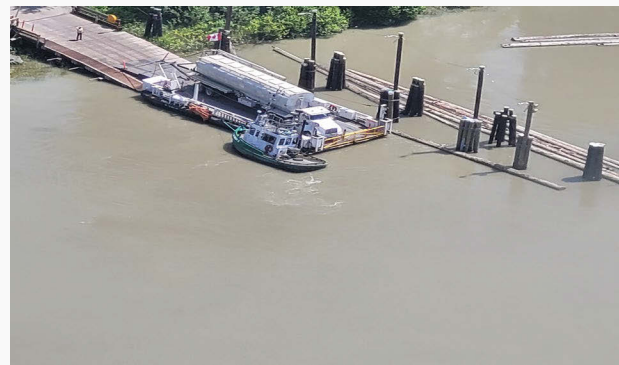
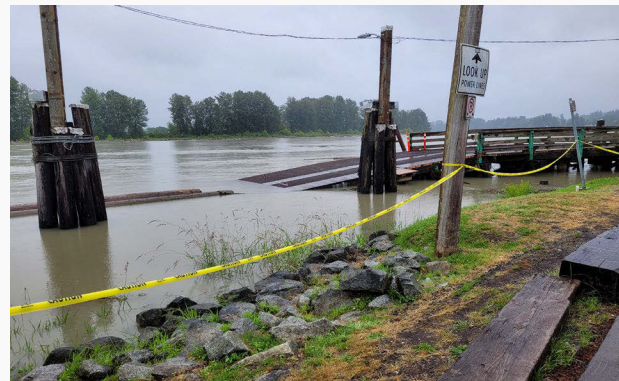


- Metro Vancouver Electoral Area A; Katzie Indian Reserve No. 3
- 628 hectares (6.28km²)
- 111 total residents including Katzie Nation
- Mostly mixed farmland; livestock & cranberries
- Small business
- Regional parks
- Aerial hydro feed (no substation)
- Cellular & Telus on private silo
- Single pump station
- Submarine water main parallel to ferry
- One main road
- Geographically isolated (ferry)



BARNSTON ISLAND OVERVIEW

Vulnerability-Loss of ferry service



RESOURCES

- Metro Watershed Protection
- Departmental support & expertise (Parks, Engineering, Corporate Comms)
- City of Surrey (Fire/EM, RCMP)
- Emergency Management & Climate Readiness
- Talon Helicopters
- Tiger Dams, Flood Control, Spill Response
- Joint sandbagging operation
- Sandbag machine
- Heavy equipment



ELECTORAL AREA A - BARNSTON ISLAND

EMERGENCY RESPONSE

- **Response Measures:** Declaration of Local State of Emergency, Evacuation Alert/Orders, tiger dams, sandbagging, riprap, dike surveillance



ELECTORAL AREA A - BARNSTON ISLAND

EMERGENCY RESPONSE

Mission Gauge Level	Flood Level	Measures Undertaken
6.2m	Initiate Evacuation Alert	Instruct livestock owners to begin movement of animals off the island
6.75m	104 th Avenue access to the Barnston Island ferry becomes inundated at high tide	City of Surrey closes the road when inundated
7.0m	104 th Avenue becomes continuously inundated and ferry slip unusable	Due to access no longer being available for emergency services, an Evacuation Order is required prior to the water reaching this point
7.5m	Dikes on north side of Island at significant risk of failure	
8.0m	Dikes at, or near overtopping	

FRASER RIVER AT MISSION GAUGE-WATER LEVEL FORECASTING

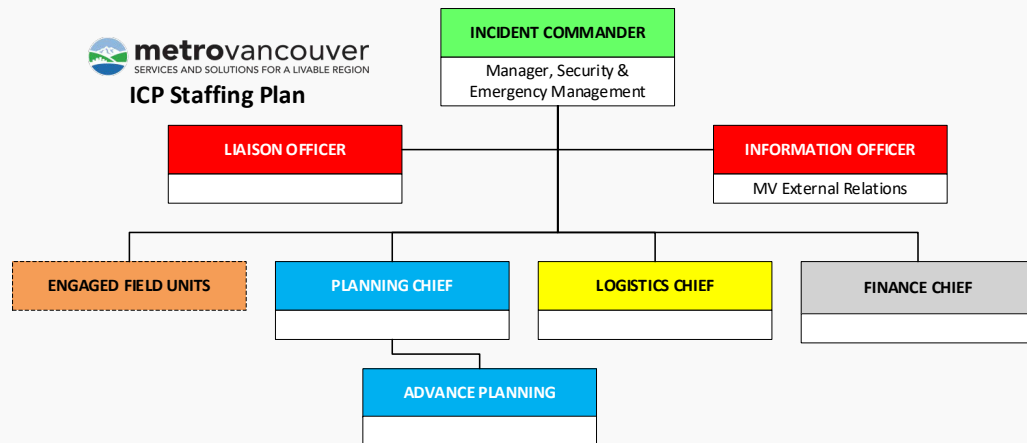
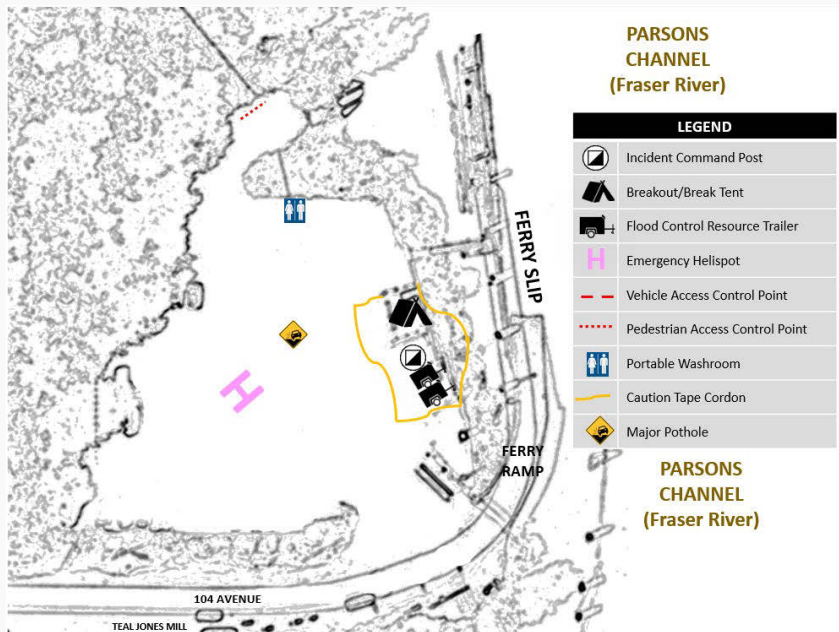
Predicted daily peak water levels for: 30-Jun-22 to 08-Jul-22

	Day 1: 30-Jun-22	Day 2: 01-Jul-22	Day 3: 02-Jul-22	Day 4: 03-Jul-22	Day 5: 04-Jul-22	Day 6: 05-Jul-22	Day 7: 06 Jul-22	Day 8: 07-Jul-22	Day 9: 08-Jul-22	1894 Flood
Gauge Name (Downstream to Upstream)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Peak level (m GSC)	Design Level (m GSC)
Fraser R. at Mission – 08MH024	5.75	5.96	6.20	6.45	6.44	6.72	7.21	7.34	7.07	8.89



RESPONDING TO THE 2022 FRESHET

Incident Command Post





RESPONDING TO THE 2022 FRESHET

metrovancover | ELECTORAL AREA A



Barnston Island: Emergency Preparedness Information and Community Meeting – Monday, June 20 7:00 pm

With high river levels upon us, it is important that Barnston Island residents are prepared in case there is a flood-related emergency, so make sure to:

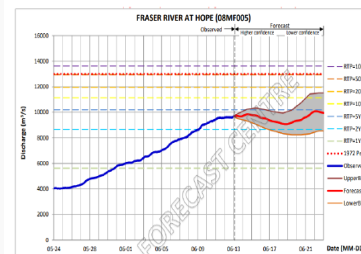
- Review PreparedBC's [Flood Preparedness Guide](#) and create an emergency plan for your household
 - Register for Metro Vancouver's [emergency notification system](#)
 - Monitor the [River Forecast Centre website](#) for the latest flood and freshet conditions
 - Attend an upcoming community meeting to hear about ongoing emergency preparedness efforts for Barnston Island and what you should expect in case river levels continue to rise.
- (Please note that the meeting date and time may be revised if conditions change. We will advise*





RESPONDING TO THE 2022 FRESHET

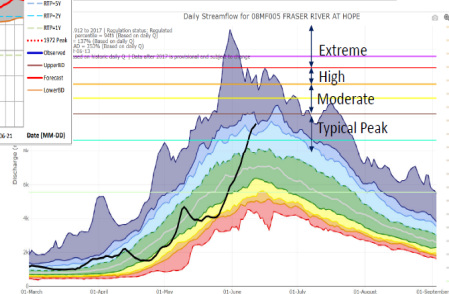
- Fraser River Water Level Forecasts
- WARNS Model
- CLEVER Model
- Snowpack Modeling
- Gauges + flow rates + precipitation 48 hours ago in the upper basin + “king” tides = ?



Current 9,700 m³/s at Hope

Forecast to hold around this level into next week, as of today's weather forecast

Fraser River at Hope



AFTER ACTION REVIEW - NEXT STEPS

Plan update including:

- Partnerships
- Evacuation / Communications Plan
- Critical Infrastructure analysis
- Traffic / Re-entry
- Environmental analysis
- Multi-modal transportation strategies
- Action thresholds
- Supplier resource lists
- EMCR support





Fraser River – Barnston Island

Thank you

26 of 37

metrovancouver
Together we make our region strong

To: Flood Resiliency Committee

From: Neal Carley, General Manager, Parks & Environment

Date: February 23, 2023

Meeting Date: March 3, 2023

Subject: **Manager's Report**

RECOMMENDATION

That the Flood Resiliency Committee receive for information the report dated February 23, 2023, titled "Manager's Report".

Lower Mainland Flood Management Strategy

The Lower Mainland Flood Management Strategy (LMFMS) is a collaborative process to reduce flood risk and increase resilience in the lower mainland. Over the past eight years this process has involved more than 60 organizations that have responsibilities or interests related to flood management and include the Government of Canada, the Province of British Columbia, local and regional governments, First Nations governments, and non-governmental and private sector entities in the lower mainland. The process is facilitated and coordinated by the Fraser Basin Council, with oversight and decision-making by a Leadership Committee.

The LMSMS initiative started in 2014. Phase 1 was completed in 2016 and included an analysis of lower mainland flood scenarios, a review of flood protection works and practices in the region, and an assessment of flood vulnerabilities and impacts. Key findings include expectations for larger and more frequent floods due to climate change, estimated losses in the tens of billions of dollars from a large magnitude flood, and an understanding that most dikes in the lower mainland do not meet current provincial standards for height or seismic resilience.

Phase 2 started in 2017 and is focused on developing a long-term strategy. A first draft of the strategy was developed and distributed in 2021. Input was received from federal, provincial, local governments (including Metro Vancouver), First Nations, and other regional entities. Diverse perspectives were received on several key issues related to the first draft. It was also recognized that strengthened participation of First Nations is needed, particularly in the context of the *Declaration on the Rights of Indigenous Peoples Act*. As such, the Leadership Committee approved the concept of a "Pathways to Action" report to set out recommendations for completion of a regional flood strategy. This is being developed through a Working Group and facilitated by the Fraser Basin Council. A link to the Lower Mainland Flood Management Strategy web page is included as Reference 1.

On January 27, 2023, Vice-Chair McEwen, Director MacDonald and Director Kruger were appointed by the MVRD Board to serve on the LMFMS Leadership Committee to provide regional input to the Leadership Committee and periodically report back to the MVRD Board.

Dike Vulnerability Assessment Update

In 2022, the Fraser Basin Council, with funding from the Ministry of Forests, Flood Safety Section, retained Northwest Hydraulic Consultants to use a 2D hydraulic model to compare a variety of flood profiles (water surface elevations) with dike crest elevations surveyed most recently by the Province of BC between 2019 and 2020. The project results were shared with local dike authorities and regional maps were prepared.

The Fraser Basin Council has work underway to create “heat maps” by combining the dike crest comparison results with other information on dike vulnerability to develop a regional picture of the status of flood protection dikes across the lower mainland.

Build Back Better Together

The Build Back Better Together Collaborative is a group of BC-based organizations and experts with the shared goal of helping BC's recovery from the severe flooding in the fall of 2021 in a manner that strengthens and enhances future flood resiliency.

The collaborative includes Emergency Planning Secretariat (Indigenous-led), UBC Coastal Adaptation Lab (School of Architecture and Landscape Architecture), West Coast Environmental Law, Ebbwater Consulting, Sto:lo Tribal Council, Watershed Watch Salmon Society, Resilient Waters Project, Farmland Advantage, and Kerr Wood Leidal.

The Build Back Better Together Collaborative work focused on furthering dialogue on the concept of Build Back Better Together. This began with briefing notes and webinars. In April of 2022, the Collaborative held its first forum, with several local governments from First Nations and local governments from the Lower Mainland, as well as Minister Blair, Minister Farnworth and several other federal and provincial representatives, to begin the conversation on the weaknesses of the current flood management system and how it can be strengthened.

On July 14, 2022, the Build Back Better Together Collaborative held a second forum with 158 participants from 16 First Nations, 14 local governments (including Metro Vancouver), provincial ministries, federal departments, farm community members, stewardship group members, and consultants. The second forum concluded with a set of principles on which the attendees agreed future planning should be based, as well as the need for additional sessions to develop a collaborative way forward. A link to the report from the July 14, 2022 forum is included as Reference 2.

Hílekw Sq'eq'ó, Disaster Resilience Regional Action Plan

Hílekw Sq'eq'ó is a Disaster Resilience Regional Action Plan to create a Mainland Coast Salish emergency plan for all hazards and climate change in a way that encompasses the world view, values and priorities of Mainland Coast Salish communities, the Sendai Framework for Disaster Risk Reduction, key articles of UNDRIP and jurisprudence. The plan is being developed by the Emergency Planning Secretariat, an organization that supports 31 First Nation communities, from Yale to Semiahmoo to Squamish in climate adaptation, resilience planning and emergency preparedness. A link to the Emergency Planning Secretariat is included as Reference 3.

BC Flood Strategy

The Province is developing a BC Flood Strategy to provide province-wide vision, guidance and priorities for flood resilience. The Province launched an engagement process in October 2022 and issued "From Flood Risk to Resilience in BC: An Intentions Paper" for comments and feedback. Metro Vancouver staff provided comments on the intentions paper in January 2023 (Attachment). The Province will release a 'What We Heard' report in Summer 2023. A link to the BC Flood Strategy home page is included as Reference 4.

BC Community Emergency Preparedness Fund

The Province created the Community Emergency Preparedness Fund in 2017 to support projects that help local governments and First Nations prepare communities for the risks of natural hazards and lessen the effects before disasters happen. The Province recently announced an additional \$180M for the fund, which brings the total investment to \$369 million.

The fund is administered by UBCM and is divided into seven funding streams, including public notification and evacuation route planning, emergency support services, emergency operations centres, disaster risk reduction – climate adaptation, extreme heat mapping and planning, volunteer fire department equipment and training, and Indigenous cultural safety training. Each stream has its own intake timeline and eligibility criteria.

The Province has also launched ClimateReadyBC, which centralizes on one website hazard and mapping tools, risk data and resources to help communities better prepare for future disasters and climate emergencies. A link to the ClimateReadyBC home page is included as Reference 5.

Attachment

"Enhancing flood-resilient regions: supporting collaboration, investments in infrastructure, and information sharing - Metro Vancouver submission to the B.C. Flood Strategy and Flood Strategy Intentions Paper", dated January 2023.

References

1. Fraser Basin Council [Fraser Basin Council - Lower Mainland Flood Management Strategy](#)
2. Build Back Better, Together – July 14 2022 Forum Report [2022-09-15-BBBT-July-14-Dialogue-Report_WEB.pdf \(watershedwatch.ca\)](#)
3. Emergency Planning Secretariat [About Us \(emergencyplanningsecretariat.com\)](#)
4. BC Flood Strategy [Home - BC Flood Strategy \(gov.bc.ca\)](#)
5. Climate Ready BC [ClimateReadyBC \(gov.bc.ca\)](#)



King Tide event in the District of West Vancouver

Enhancing flood-resilient regions: supporting collaboration, investments in infrastructure, and information sharing

Metro Vancouver submission to the B.C. Flood Strategy and Flood Strategy Intentions Paper

January 2023

METRO VANCOUVER SUBMISSION TO THE B.C. FLOOD STRATEGY AND FLOOD STRATEGY INTENTIONS PAPER

Introduction

Metro Vancouver is pleased to provide input to the B.C. Flood Strategy and Flood Strategy Intentions Paper and looks forward to continuing to work closely with the Province of B.C. to collectively enhance our region's resilience to flooding. Given that flood resilience initiatives span many of Metro Vancouver's service areas, our responses and recommendations reflect a diverse range of services and infrastructure and their intersection with flooding, while also addressing specific elements of the B.C. Flood Strategy Intentions Paper.

In providing our input, we urge the provincial government to continue working with Metro Vancouver to finalize the Lower Mainland Flood Management Strategy and to include local government representation in the federal-provincial committee on disaster response and climate resilience, provide long-term, sustainable funding for investments in resilient infrastructure, and increase information and data sharing with municipalities to improve planning and responding to disaster events.

Flood Impacts on Metro Vancouver Services and Infrastructure

As the regional body responsible for providing critical services to nearly 2.8 million residents – more than half the population of B.C. – Metro Vancouver recognizes the need to work together to protect our residents, infrastructure, and property from the impacts of flooding and other climate-related challenges. Representing 21 municipalities, one electoral area, and one treaty First Nation, building a resilient region is at the heart of Metro Vancouver's work. Delivering regional-scale services including drinking water, wastewater treatment, and solid waste management means that ensuring Metro Vancouver infrastructure is protected and resilient to such risks as floods is critical. Metro Vancouver also regulates air quality, coordinates regional planning, and manages regional parks; all services that work to protect the region from flood-related risks.

Liquid Waste

As part of our liquid waste infrastructure and services, Metro Vancouver provides drainage services to members under the auspices of designated regional Drainage Areas, or for their remaining combined sewage and stormwater catchments as they exist in parts of Vancouver, New Westminster, and Burnaby. These services safeguard our sanitary conveyance and treatment infrastructure in all sewerage areas from flooding damage. Much of our liquid waste infrastructure, including waste water treatment plants, tend to be located at low ground elevations and adjacent to marine or fresh water bodies, making them inherently vulnerable to flooding and sea level rise without adaptive response.

Regional Parks

Flooding and flood resilience are important factors in the planning, maintenance, and operation of

Metro Vancouver's regional parks system. Metro Vancouver protects over 13,800 hectares of land within the regional park system, with many regional parks located in areas that puts them at risk of riverine and coastal flooding. As most regional parks are within or adjacent to growing and increasingly impermeable urban areas, flooding from pluvial/stormwater sources is becoming more frequent. Metro Vancouver also manages five regional greenways located on top of existing flood infrastructure (dikes).

Water Services

In terms of the provision of water services to the region, much of Metro Vancouver's infrastructure such as pump stations and control valve chambers are located in low-lying areas and therefore at risk from flooding, including coastal flooding and sewer outfall backups caused by sea level rise. Recognizing that flooding can create critical service disruption, as well as economic and environmental losses, we emphasize the need for flood-proof infrastructure to support long-term resiliency and sustainable regional development.

Alignment with Metro Vancouver planning

Each of Metro Vancouver's regional plans are designed to support a more resilient, low carbon, and equitable future. The Intentions Paper's holistic approach to flood risk management and emphasis on green and ecological infrastructure approaches align with broader Metro Vancouver objectives including the [Ecological Health Framework](#), [Metro 2050](#), and [Climate 2050](#). We look forward to continuing to work with the provincial government to implement the actions set out in these plans and achieve our shared commitments and objectives.

Recommendations

Governance and collaboration

Metro Vancouver appreciates the provincial government signaling interest in taking a more active role in flood management. Metro Vancouver has created a Flood Resiliency Committee focused on supporting finalization of the Lower Mainland Flood Management Strategy, as well as coordination with our member jurisdictions, First Nations, the Fraser Valley Regional District, provincial government, and federal government on plans, priorities and funding to enhance flood resiliency. We urge the provincial government to continue working with Metro Vancouver to finalize the Lower Mainland Flood Management Strategy and to include local government representation in the federal-provincial committee on disaster response and climate resilience. The Metro Vancouver Flood Resiliency Committee would also be an ideal body for continued engagement with the province as the B.C. Flood Strategy is developed and eventually implemented.

Metro Vancouver recommends that a governance framework bringing together all orders of government, First Nations, and non-government diking and flood management authorities for planning and priority setting should accompany the eventual Strategy and its implementation. This framework should also include a clear definition of roles and responsibilities.

Long-term and predictable funding

Metro Vancouver would welcome a clearer commitment to enhanced funding support to better improve the resilience of municipal infrastructure to flooding. For example, while Program Area 4: Investing for Flood Resilience mentions the need to reimagine funding models and elaborates on how investment program priorities could be modernized, there is no mention of the Province exploring new

provincial funding models or providing or contributing to additional investments in flood resilience. Complimenting any funding, we also recommend identifying improvements and projects in a prioritized manner and providing technical guidance for flood avoidance and managed retreat.

Data and information sharing

Metro Vancouver encourages enhanced support from the Province to local governments including data and information sharing, guidelines, flood forecasting, flood preparedness and emergency response. Increased information sharing would help improve coordinated regional response to events such as the atmospheric rivers in 2021. The Province may also consider supporting municipalities in better understanding flood risk and engineering standards for resilience. For example, in terms of strengthening dike regulatory programs, Metro Vancouver would benefit from updated GIS/survey mapping of dike elevations for river-front parks in order to use elevation data in conjunction with real-time hydrometric data.

Equity and Reconciliation

Metro Vancouver supports the proposed vision of a holistic approach to flood risk management that considers reconciliation, public safety, economic stability and environmental sustainability. However, the Intentions Paper lacks any mention of applying an equity lens in the eventual Strategy. Incorporating equity considerations in strategies to address flooding and strengthen flood resilience will bring valuable perspectives and result in more effective outcomes that can minimize negative impacts to underserved groups.

Metro Vancouver works frequently with First Nations across the region on flooding, both during emergency events and through proactive planning and engagement. Metro Vancouver recommends that the eventual Strategy reflect the needs, issues, challenges and concerns of First Nations, through direct engagement with and contribution from First Nations. Furthermore, it is critical for the eventual Strategy to outline how funding and support for First Nations related to flooding can be secured at both the provincial and federal level.

Building back better through regulatory measures

Metro Vancouver supports the Intentions Paper's inclusion of the modernization of provincial technical guidance. We also suggest increasing the ability of local governments to deny building permits in hazard areas and supporting new structures that accommodate flooding. For this reason, we strongly support Action 2.2 for reviewing the B.C. Building Code and B.C. Electrical Code to determine if and how codes can improve flood resilience.

Integration with the updated Emergency Program Act

In responding to emergency events, Metro Vancouver has been involved in many freshet and flood events at Barnston Island, as well as flooding affecting critical infrastructure located near the Fraser River. Given these experiences, Metro Vancouver recommends that the eventual Strategy should both integrate and align with the forthcoming modernized Emergency Program Act Legislation. The Emergency Program Act and associated regulations could also be modernized with requirements for land use planning.

Emergency preparedness and response

In terms of enhancing flood forecasting capabilities, early warning systems, preparedness, and response

planning, Metro Vancouver suggests that the eventual Strategy address disruptions to supply chain, infrastructure, and the need for resilience with respect to energy supply that may impact the region in the event of a flood-related emergency.

The eventual Strategy would be strengthened by a broader scope regarding risks and preparedness, including potential risks from other impacts associated with flooding such as slope stability, debris, and contamination. For example, with respect to flood response, it appears that solid waste and disaster debris management is outside the scope of the Intentions Paper. However, Metro Vancouver suggests that the eventual Strategy could acknowledge how disaster debris management is a priority area of action, and could refer to such existing documents as the Province's Debris Management Guidelines and the Flood Waste and Debris Management Plan.

Dike and ditch management

While the Intentions Paper includes mention of strengthening dike regulatory programs, it does not currently address the issue of dikes and dike management. Metro Vancouver strongly recommends improving the existing and ineffective patchwork system of dike responsibility. Specifically, responsibility for managing dikes does not appear to be included in Program Area 1. For example, in the case of the registered dike maintained by Metro Vancouver at Colony Farm, the dike protects a First Nations reserve and infrastructure (e.g. an industrial park) for which Metro Vancouver does not have the jurisdiction to manage.

With regard to understanding flood risks, in addition to the focus on dikes, the eventual Strategy should also consider including ditch maintenance. For example, farmers would need assistance with managing ditch debris in ways that avoid open burning and the associated discharge of harmful emissions.

Dikes and public recreation

Metro Vancouver operates facilities that are in front of, on top of, and behind current flood protection infrastructure. The Intentions Paper could be strengthened by recognizing the co-benefits provided by BC's flood protection infrastructure in terms of supporting sustainable transportation and recreation. Encouraging sustainable transportation is a climate action that reduces transportation-related greenhouse gas emissions. Addressing the tenure of existing flood protection infrastructure, which can hinder local and regional government efforts to use dikes to support recreational cycling and active transportation as a co-benefit to flood protection, is also recommended.

Dikes and infrastructure alignment

With respect to the delivery of large-scale infrastructure projects and the regulation of dikes, Metro Vancouver suggests tying dike upgrades for flooding with seismic upgrade work as required.

Flood risk assessment

Metro Vancouver supports the intention to conduct a province-wide flood risk assessment. In conducting this assessment, we recommend including assessment by sub-region, such as the Lower Mainland. Further, these assessments should provide a dynamic list of all current, forecasted, and emerging deficiencies and needs. The flood risk assessment process should also include a list of priorities and a time frame of 30-50 years alongside a schedule of proposed implementation.

Flooding and land use planning

The Intentions Paper does not appear to address the topic of urban development and growth, though there is a reference to community planning in Action 3.4. Metro Vancouver would therefore welcome provincial support and guidance for discouraging growth and development in flood-prone areas in order to reduce flood exposure. This guidance, in addition to further defining flood hazards and their location, would be useful to Metro Vancouver as a regional planning service. The Province could also consider developing more guidance on how to best integrate land use planning, emergency planning, and climate change adaptation planning and could consider reversing the requirement for local governments to manage flood mapping.

Agricultural land and food security

The Intentions Paper could be enhanced by more explicitly stating the connection between vulnerable agricultural lands and the disproportionate financial burden placed on the agriculture sector, which creates significant levels of food insecurity for all populations. Metro Vancouver suggests that issues relating to food security could be increased in the Intention Paper, including investing in transitioning farms away from high flood-prone areas. The Intentions Paper could also be strengthened by addressing the linkages between food storage and disaster routes, such as examining how food will be transported in the face of a major flood disaster.

Green infrastructure and collaboration opportunities

While Metro Vancouver supports the inclusion of “green infrastructure as a preferred option for mitigation funding guides” as part of Action 4.3, we also recognize that such nature-based solutions require provincial leadership, staff capacity, funding, collaboration, and perseverance to replicate across large and jurisdictionally-complex regions such as Metro Vancouver. To support successful implementation of such initiatives, Metro Vancouver suggests that delivery on a pilot basis to areas of greatest risk across the province may have the most beneficial outcomes. For example, successful pilot projects in the Metro Vancouver region include Surrey’s Living Dyke and Make Way’s Resilient Waters.

With respect to flood protection and flood risk management activities for industrial lands, Metro Vancouver suggests considering green infrastructure solutions that can minimize site-level flooding risks to industrial and commercial lands, as well as working with energy utilities and regulatory bodies to ensure energy infrastructure are resilient to current and future impacts of climate change.

Conclusion

Metro Vancouver is pleased to contribute our responses and recommendations to the Flood Strategy Intentions Paper and the eventual B.C. Flood Strategy. As a provider of critical regional services, we continue to urge the provincial government work with us to finalize the Lower Mainland Flood Management Strategy and to include local government representation in the federal-provincial committee on disaster response and climate resilience, provide long-term, sustainable funding for investments in resilient infrastructure, and increase information and data sharing with municipalities to improve planning for and responding to disaster events. We look forward to continued engagement as the B.C. Flood Strategy is developed and working together to collectively enhance our region’s resilience to floods and other climate-related events

APPENDIX A — METRO VANCOUVER REGION



Village of Anmore

Village of Belcarra

Bowen Island Municipality

City of Burnaby

City of Coquitlam

City of Delta

Electoral Area A

City of Langley

Township of Langley

Village of Lions Bay

City of Maple Ridge

City of New Westminster

City of North Vancouver

District of North Vancouver

City of Pitt Meadows

City of Port Coquitlam

City of Port Moody

City of Richmond

City of Surrey

Tsawwassen First Nation

City of Vancouver

District of West Vancouver

City of White Rock

