

## **FLOODS – AN EMERGING ECONOMIC THREAT REQUIRING ACTION**

British Columbia has several thousand kilometres of coastline along which communities are located. Likewise, Fraser River and other rivers flow through BC communities that are vulnerable to flooding. Floods from rivers and oceans could destroy or affect residential, commercial, industrial, and agricultural properties as well as affect transportation means (roads, highways, bridges) and cause widespread disruption to day-to-day living requiring significant expenditure to restore areas back to pre-flood conditions. The damage to the economy and businesses due to floods are significant, in the hundreds of million dollars. Flood protection structures, measures such as dikes and associated infrastructure (pump stations, flood boxes, rip rap and relief wells) throughout BC need to be upgraded to combat the threat of sea level rise of up to 1 m by 2,100. Significant timebound expenditure is needed to upgrade flood protection infrastructure throughout BC.<sup>1</sup>

### **Background**

Climate change leading to melting ice caps in the north and south poles is causing sea level rise. The BC Ministry of Environment and Climate Change Strategy has directed cities to prepare for a 1m rise in sea levels by 2100. Extreme weather events such as atmospheric rivers causing significant rainfall/snowfall and river levels rising beyond diking or natural levels are being seen in BC communities. Forest fires and heat domes as experienced in BC in the summer of 2021 further challenge the environment and pre-dispose land to flooding by destroying trees and vegetation that normally play a water absorption role. This can cause significant flooding of rivers flowing through BC. Flooding poses catastrophic risks to BC's economic vitality, safety, environment, property owners and communities.

Although, cities have been directed to prepare for sea level rise and river body risks, there remains the need for significant dollars (running into billions) to upgrade dikes and associated infrastructure over the coming years to prepare adequately for such flooding events. There is a 0.5% chance of an extreme flood today while there is a 50% chance of an extreme flood by 2,100 AD<sup>2</sup>. Complete restoration of coastal and river boundary communities and infrastructure following a major flood event could take several years causing severe disruption to the economy resulting in losses of several hundreds of million dollars. To help prevent damage and losses, dikes across BC must be upgraded in a timely manner and in a priority sequence.

As part of its long-term flood adaptation strategy, the City of Surrey has embarked upon a full review of existing dike infrastructure throughout the City limits and has identified priority areas around rivers (Nickomekl, Serpentine) and the coastline (boundary bay) requiring significant investment for upgrades over the next several years for which both provincial and federal funding will be required in addition to city funding.<sup>3</sup>

The City of Abbotsford has long been advocating for upgrades to diking and drainage infrastructure and more predictable funding arrangements with the province and federal government given historical flooding vulnerability from the Nooksack and major flooding events; more recently in 1990 and with the 2021 disaster. The City of Abbotsford's key focus in the months ahead is to ensure federal and

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<sup>1</sup> 2019, Surrey Coastal Flood Adaptation Strategy – Presentation to the Surrey Board of Trade Environment Team by the City of Surrey Environment and Drainage Manager <https://businessinsurrey.com/wp-content/uploads/2019/02/CFAS-Surrey-BOT-Feb-14-2019-compressed.pdf>

<sup>2</sup> <https://www.ducks.ca/stories/conservator/rising-sea-levels-on-canadas-coasts/>

<sup>3</sup> Serpentine and Nikomekl Lowlands – City of Surrey <https://www.surrey.ca/city-services/3654.aspx>

provincial support is provided to upgrade the Sumas and Matsqui dikes as well as the required infrastructure upgrades at the Barrowtown pumpstation.

In order to effectively manage future flooding, current drainage infrastructure needs to be upgraded. The effectiveness of drainage depends on direction of water out of the farmland, and out of the region. Drainage requires regional efforts, and so it requires the Province to approach upgrading in a regional aspect by working with municipalities.

If the province values food security and the protection of food sources, it must rethink infrastructure investments and prevent a greater disaster that may be just around the corner. Abbotsford is the top agriculture producing jurisdiction in the country on a per-hectare basis with sales of \$1 billion per year according to the 2016 census and it also produces 50% of all the milk, chicken, turkey and eggs consumed in the province. The Abbotsford case illustrates the importance of protecting our food supply and of natural disaster preparedness in the interests of the entire province and country.

Abbotsford Mayor Henry Braun warns the disaster with Sumas Prairie will pale in comparison if the Matsqui dike breaches. The Fraser River is 10 times larger and more powerful river than the Nooksack River and will wreak havoc on our economy and infrastructure if it overtops those substandard dikes.<sup>4</sup> The BC Chamber of Commerce estimates that the economic impact of a Fraser River flood event on Matsqui Prairie to be approximately \$30 billion.

Local governments simply cannot afford to fund what is needed to upgrade such critical infrastructure. For example, \$1 Billion is needed to rebuild both dykes to today's standard in Abbotsford.

It is understood that dike inventory maps, designs etc. have been prepared by the Provincial Government and that funding for upgrades from both the federal and provincial government have arrived in pockets over the years since at least 2014. However, as stated previously, long-term funding certainty is required and significant and strategic funding and planning to study flooding patterns of rivers, understand climate change implications with respect to sea level rise especially time sensitivities, as well as improve and upgrade flood protection measures throughout BC.<sup>5</sup> A report (2015) released by the BC Ministry of Forests, Lands and Natural Resources found that 71% of lower mainland dikes were vulnerable to failure by overtopping, where floodwaters breach the top of the dike resulting in a flood. Only 4% of dikes in BC met provincial standards.<sup>6</sup>

There is also a significant risk associated with "orphaned" infrastructure. Flood infrastructure currently built and relied upon that has no jurisdiction responsible for maintenance or upgrade. A lot of infrastructure built in past flooding emergencies has no "owner" and is still critical to providing flood protection on the Fraser River (and tributaries) any effective Provincial dyking program must address the challenge of orphaned infrastructure.

Overall, we found the B.C. government is not adequately managing the current and future risks posed by climate change to invest in necessary infrastructure and sustainability. It is very likely that B.C. will not meet its 2020 emissions reduction target of 33% below the 2007 levels, models also suggest the

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<sup>4</sup> <https://globalnews.ca/news/8441820/abbotsford-bc-flood-update-dec-10/>

<sup>5</sup> Flood protection structures in BC <https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/integrated-flood-hazard-management/dike-management/flood-protection-structures>

<sup>6</sup> <https://vancouversun.com/news/province-was-studying-dike-integrity-but-data-not-to-be-available-until-next-month>

province is not on track to meet the 2050 target.<sup>7</sup> Government has work underway to adapt to climate change, but more needs to be done. Actions are taking place at the ministry level—notably to build a strong foundation of knowledge and develop tools—but adaptation needs to be better integrated into policies and decision-making processes.<sup>8</sup> Key climate-driven risk areas, like flooding and wildfires, require additional attention. We found that government may not be able to manage flood risks, given that roles and responsibilities are spread across many agencies and levels of government, and these organizations may not have adequate staffing or technical capacity. Government’s current activities to prevent wildfires are not sufficient, as a substantial number of hectares of forest require fuel treatments. Treatments have not been occurring in a coordinated manner, nor have they been targeting areas of highest risk. Adaptation is not just a provincial government issue. Local governments are on the front lines, but we heard that they are challenged to effectively take action. This includes a lack of financial support, reliable data and knowledge, and policies at the provincial level. Furthermore, the provincial government has not yet significantly involved First Nations in provincial action.

### **The 2021 Context**

BC experienced severe weather patterns in 2021 that resulted in devastating flooding across the province. Vital road, rail, and port links were severed for weeks, and farms, homes and businesses were destroyed. It is estimated that 15,000 people were forced to evacuate their homes, countless crops were lost, and over 600,000 farm animals perished. In addition, the Trans Mountain pipeline was shut down, resulting in a fuel shortage in the Lower Mainland. Ken Peacock, Senior Vice-President and Chief Economist at the Business Council of B.C., estimates the weather disaster will result both in lost economic output for the province ranging from \$250 million to \$400 million, and an impact on growth results for 2021.

In the recent BC flooding disaster of November 2021 across the province impacting communities the City of Abbotsford’s Sumas Prairie was hardest hit with the impact of a record-breaking atmospheric river that fell on the southern part of BC and caused Washington State’s neighboring Nooksack River to flow across the border into the Sumas Prairie.

The economic toll of the major flooding events is still being totaled, and we will likely not know the extent of the cost until late 2022. Preliminary data collected from the Abbotsford flooding disaster from impacted farmers and businesses reveals millions of dollars in damages and long-term recovery estimates particularly in the organics and berry sectors.

There was little in the way of a coordinated approach to minimize the damage of the floods. The weaknesses of the flood mitigation strategies were exposed, and it was evident that when a disaster occurs, a federal-provincial-municipal response is needed.

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<sup>7</sup> <http://www.bcrea.bc.ca/government-relations/flood-protection>

<sup>8</sup>2018, [https://www.bcauditor.com/sites/default/files/publications/reports/Climate\\_Change\\_FINAL\\_0.pdf](https://www.bcauditor.com/sites/default/files/publications/reports/Climate_Change_FINAL_0.pdf)

## THE CHAMBER RECOMMENDS

That the Provincial Government:

1. Partner with BC municipalities to determine guaranteed provincial funding through a strategic plan over 5 years to ensure upgrades to flood mitigation infrastructure;
2. Partner with the Federal government to establish an emergency flood mitigation program that improves infrastructure in coordination with provincial and municipal governments; and,
3. Participate as a leader with the Federal government on international discussions with the United States on cross border flood risk mitigation.

**Submitted by the Surrey Board of Trade, Abbotsford Chamber of Commerce, Chilliwack Chamber of Commerce, and Delta Chamber of Commerce**