

NATURAL RESOURCES CONSERVATION BOARD

APPLICATION NO. 1701

ALBERTA TRANSPORTATION SPRINGBANK OFF-STREAM RESERVOIR PROJECT

**CALGARY RIVER COMMUNITIES ACTION GROUP AND FLOOD FREE CALGARY
WRITTEN SUBMISSION**

FEBRUARY 26, 2021

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A. INTRODUCTION

The Calgary River Communities Action Group (**CRCAG**) is a non-partisan advocacy organization¹ of approximately 1,000 members comprised primarily of individuals residing in Calgary's established neighbourhoods who were catastrophically impacted by the June 2013 flood. CRCAG was formed in the immediate aftermath of the 2013 flood and its mandate includes:

- to advocate for construction of large-scale flood mitigation infrastructure to provide the City of Calgary protection for, at a minimum, a 1 in 200-year scale flood event on the Elbow River, and
- to participate in legal and regulatory proceedings as deemed necessary in furtherance of advocating for particular flood mitigation infrastructure projects.²

Since the Government of Alberta identified the Springbank Off-Stream Reservoir Project (**SR1**) as the preferred project to mitigate flooding on the Elbow River, CRCAG has tirelessly engaged with all levels of government and filed submissions to relevant federal and provincial authorities in support of the project.

Flood Free Calgary (**FFC**) is a Calgary-based interest group representing over 40 businesses, business associations, community associations, and other organizations who are focused on protecting Calgary residences and businesses from the effects of flooding. The group was established in 2017 and has actively represented local businesses in advocating for effective flood mitigation for the City of Calgary, including SR1.³

We urge the Natural Resources Conservation Board (**NRCB**) to find that SR1 is in the public interest and we ask that the NRCB approve the project as quickly as possible. If the NRCB

¹ CRCAG is incorporated under the Alberta *Societies Act*, R.S.A. 2000, c S-14.

² <http://protectcalgary.com/about/>

³ <http://www.floodfreecalgary.com/>

determines that conditions are necessary for its approval, we ask that such conditions have a compliance timeframe that will not delay construction of the project.

B. ANOTHER FLOOD IS INEVITABLE

Calgary was built in a floodplain at the confluence of the Bow and Elbow Rivers. It should therefore not be surprising that Calgary has historically experienced flooding, including in 1879, 1883, 1884, 1897, 1902, 1915, 1923, 1929, 1932, 1950, 2005 and 2013.⁴ While the 2013 flood is the second most expensive natural disaster in Canadian history,⁵ it is only the fourth largest flood experienced by Calgary: the floods of 1879, 1897 and 1902 were larger.⁶ Alberta Transportation's evidence is that SR1 would have been operational ten times in the last 105 years for which records are available, had it been in place.⁷

Like many other major cities located near the water, City planners in the early 1900s did not take flood risk into account and the City was allowed to grow around both the Elbow and Bow Rivers with very few restrictions. The river communities that were flooded in 2013 were some of the earliest to be established. The following aerial photos taken shortly after the flood show the inundation of much of the inner-city of Calgary, including these older communities.

⁴ <https://floodstory.com/> (Appendix D-1, pdf pages 2-14/205) and Sanders, H., [A quick history of Calgary floods](#), CBC News, July 29, 2013 (Appendix D-2, pdf pages 15-18/205).

⁵ Bryant, S., & Davies, E. (2017). Living with Rivers: Flood Management in Alberta, prepared for the Kule Institute for Advanced Study at the University of Alberta (**Bryant and Davies**) at page 20 (Appendix D-3, pdf page 39/205).

⁶ Sanders, H., [A quick history of Calgary floods](#), CBC News, July 29, 2013 (Appendix D-2, pdf pages 15-18/205).

⁷ Alberta Transportation, [Response to NRCB and AEP Information Request \(IR\) 2](#), Question 58(a) and (b), April 2020 at page 84 (pdf page 94/214).



Photo credit: The Canadian Press/Jonathan Hayward



Photo credit: The Canadian Press/Jonathan Hayward

It is certain that Calgary will flood again. The only question is when and how badly. Climate change may increase flood risk.⁸ Data shows that tangible flood damage is climbing.⁹ And history shows that greater floods than 2013 have occurred and can be expected to occur again.

SR1 is being proposed to keep Elbow River floodwaters out of Calgary and downstream communities. It will supplement Alberta's significant investments in local area mitigation upstream of SR1 in communities such as Bragg Creek, Redwood Meadows and the Tsuu T'ina Nation.

Calgary, a City already contending with COVID-19 and a collapse in energy prices, would be devastated by another major flood event.

The City of Calgary is the economic engine of the province and a significant contributor to the Canadian economy. The City and its 1.2 million residents must be meaningfully protected from flooding for Calgary to have a sustainable future, which is in the best interests of all Albertans. Upstream mitigation on the Elbow River is required; local mitigation is not enough.¹⁰

C. SR1 WILL MITIGATE THE NEGATIVE IMPACTS OF THE NEXT FLOOD

Flood waters diverted by SR1 will prevent or reduce the degree of flooding in the Elbow River watershed, thereby preventing or mitigating the negative effects of a future flood. Much of the historical, cultural and recreational heart of the City of Calgary is within the Elbow River watershed. SR1 will protect some of the oldest Calgary neighbourhoods and provide important protection to Calgary's downtown and inner-city, including Fort Calgary, the Calgary Zoo, the Calgary Stampede, the Saddledome, and new investments like the BMO Event Centre in Victoria Park, City Hall and the new Calgary Public Central Library. Working in tandem with the Glenmore Dam, SR1 will protect Calgary from a 2013-sized Elbow River flood.¹¹

⁸ Alberta Transportation, [Response to CEAA IR Package 3](#), Question IR3-01, May 2019 at page 2 (pdf page 14/244).

⁹ Bryant and Davies, Figure 2 – flood damage trends in Alberta at page 9 (Appendix D-3, pdf page 28/205).

¹⁰ City of Calgary, [Flood Mitigation Options Assessment Summary](#) at page 12: "While The City of Calgary can implement some mitigation measures within its jurisdiction, it is essential that upstream mitigation is built to provide the level of protection needed for Calgary" (Appendix D-4, pdf page 128/205).

¹¹ CRCAG and FFC recognize that flood mitigation on the Bow River would also be required to completely protect the City. However, SR1 would eliminate the impacts of a 2013-sized flood on the Elbow River and would lower volumes on the Bow River downstream of the confluence of the Bow and Elbow Rivers.

Quantifiable impacts of flooding

The following is a summary of some of the quantifiable impacts of the 2013 flood. By reducing flows on the Elbow River, SR1 will prevent or mitigate these impacts.

- 14,500 homes were damaged in Calgary.¹² On the Siksika Nation reserve downstream of where SR1 would be located, 136 homes required reconstruction.¹³
- 4,000 businesses were flooded in Calgary.¹⁴ Approximately 7,000 businesses were impacted by the flood,¹⁵ with 79% of flood-impacted businesses closing their offices for a period.¹⁶ Over one third of impacted businesses never reopened.¹⁷
- 3,000 buildings were flooded in Calgary.¹⁸
- 10 health facilities and 80 schools were damaged in Southern Alberta.¹⁹
- 1,000 kilometres of roads were washed away, as were rail lines, pedestrian bridges and culverts in Calgary.²⁰
- A rail bridge (Bonnybrook) failed on the Bow River downstream of the Elbow River confluence, causing a train carrying highly explosive, toxic liquids to derail.²¹

¹² Alberta Transportation, Environmental Impact Assessment (EIA) Vol. 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.2 (pdf page 4/14).

¹³ Bryant and Davies at page 37 (Appendix D-3, pdf page 56/205).

¹⁴ Alberta Transportation, Environmental Impact Assessment (EIA) Vol. 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.2 (pdf page 4/14).

¹⁵ Calgary Chamber of Commerce letter to CRCAG and FFC dated December 3, 2020 (Appendix B-11).

¹⁶ Calgary Chamber of Commerce, Flood Resiliency, Insights from a survey of the Calgary Business Community, 2014 at page 6 (Appendix D-5, pdf page 135/205).

¹⁷ Calgary Chamber of Commerce letter to CRCAG and FFC dated December 3, 2020 (Appendix B-11).

¹⁸ Alberta Transportation, EIA Vol. 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.2 (pdf page 4/14).

¹⁹ Bryant and Davies, quoting the description of damages given during a 2014 presentation from the director of the Disaster Recovery Program at page 27 (Appendix D-3, pdf page 46/205).

²⁰ Alberta Transportation, EIA Vol. 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.2 (pdf page 4/14).

²¹ Graveland, B. & Ho, C., "[Unprecedented" flood to blame for Bonnybrook Bridge failure, train derailment in June 2013: report](#)", Calgary Herald, December 18, 2014 (Appendix D-6, pdf pages 143-146/205).

- 20 bridges, 93 kilometres of pathways and 30 parks in Calgary were closed by the flood.²²
- 16 LRT stations were closed and more than 50 bus routes were cancelled or detoured in Calgary.²³ It took 13 days for LRT service to be fully restored after the flood.²⁴
- 39,837 ENMAX customers were affected by the flood.²⁵ 34,000 locations in Calgary were without power.²⁶
- There were \$409 million in damages to the City's infrastructure alone.²⁷
- Evacuations in 26 communities affected 110,000 people in Calgary,²⁸ or approximately 9% of the City's population.
- A state of local emergency was declared for 14 days.²⁹
- Damage to property, contents and other items such as vehicles resulted in over 98,000 tonnes of waste going to City landfills in the weeks after the 2013 flood. That is the equivalent of three years of landfill space.³⁰
- The Southern Alberta Fisheries Habitat Enhancement and Sustainability (FISHES) Program, a 3-year, \$10 million program focused on fish habitat restoration, was established after the 2013 flood to mitigate the negative impacts on fish and fish habitat caused by flooding.³¹

²² [CRCAG May 9, 2016 blog post](#), citing figures compiled by CBC Calgary (Appendix D-7, pdf page 148/205).

²³ City of Calgary Infographic (Appendix D-8, pdf page 153/205).

²⁴ [CRCAG May 9, 2016 blog post](#), citing figures compiled by CBC Calgary (Appendix D-7, pdf page 148/205).

²⁵ [CRCAG May 9, 2016 blog post](#), citing figures compiled by CBC Calgary (Appendix D-7, pdf page 148/205).

²⁶ City of Calgary Infographic (Appendix D-8, pdf page 153/205).

²⁷ City of Calgary, [Pre-Hearing Conference submission](#) dated November 19, 2020 at page 1 (pdf page 1/3).

²⁸ City of Calgary Infographic (Appendix D-8, pdf page 153/205).

²⁹ [CRCAG May 9, 2016 blog post](#), citing figures compiled by CBC Calgary (Appendix D-7, pdf page 148/205).

³⁰ [CRCAG May 9, 2016 blog post](#), citing figures compiled by CBC Calgary (Appendix D-7, pdf page 148/205).

³¹ Government of Alberta, [Southern Alberta FISHES Program](#) (Appendix D-9, pdf pages 156-157/205).

- The City spent approximately \$100 million to repair erosion damage resulting from the flood. This figure is 200 times the amount spent on riparian and bank protection projects in a typical year.³²
- 5.1 million working hours were lost in Southern Alberta.³³
- The 2013 flood resulted in an estimated \$2 billion reduction in Canadian GDP.³⁴
- The Government of Alberta estimated the damages from the 2013 flood to be approximately \$6 billion.³⁵ Bryant and Davies developed a partial lower limit estimate of \$4.875 billion in damages from the 2013 flood using recovery spending as a proxy. The authors explained that this dollar figure only estimates a fraction of the loss as it excludes the hours spent on flood recovery by victims as well as private expenses not covered by the Disaster Recovery Program³⁶, which is not intended to restore properties to a pre-disaster level.³⁷

Several studies have been conducted to quantify the damages of future flood events and to compare the benefits with the costs of SR1:

- “Benefit/Cost Analysis of Flood Mitigation Projects for the City of Calgary and Environs on the Elbow River with Emphasis on MC1 and SR1” (**2017 IBI Study**) estimates that another flood of the same magnitude as the 2013 flood would cause \$4.7 billion in damages.³⁸
- Multiple studies conclude that the benefits of SR1 are greater than the project’s costs. The 2017 IBI Study found a benefit cost/ratio of 1.68, even without taking into account the positive

³² Klohn Crippen Berger (2017). Calgary Rivers Morphology Study, Summary Report, prepared for the City of Calgary at page 5 (Appendix D-10, pdf page 167/205).

³³ Calgary Chamber of Commerce letter to CRCAG and FFC dated December 3, 2020 (Appendix B-11).

³⁴ Calgary Chamber of Commerce, Flood Resiliency, Insights from a survey of the Calgary Business Community, 2014 at page 4 (Appendix D-5, pdf page 133/205).

³⁵ Bryant and Davies at pages 27-28 (Appendix D-3, pdf pages 46-47/205).

³⁶ The [Disaster Recovery Program](#) is a provincial government program that was made available to the City of Calgary following the 2013 flood to provide financial assistance to affected residents.

³⁷ Bryant and Davies at pages 29 and 50 (Appendix D-3, pdf pages 48 and 69/205).

³⁸ Alberta Transportation, EIA Volume 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.7 (pdf page 9/14) for a 1:200 year flood event taking into account existing mitigation. At page 17.2 (pdf page 4/14): “The 2013 flood was of similar magnitude to a 1:200 year flood”.

effects on the Bow River.³⁹ The 2019 update of the 2017 IBI Study prepared for Alberta Transportation (**2019 Update**) calculates SR1's benefit/cost ratio as 1.24.⁴⁰ The City of Calgary's most recent analysis (**City Analysis**) is that SR1 provides a five-to-one benefit-cost return.⁴¹

- Multiple studies also reach similar estimates of the amount by which SR1 would reduce the average annual flood damage on the Elbow River. The 2017 IBI Study calculates that the project would reduce flood damage by \$28 million each year.⁴² The 2019 Update finds total SR1 benefits to be over \$27.7 million annually once the project is fully operational.⁴³ The City Analysis is that SR1 provides an estimated annual reduction in flood damages of \$27 million per year.⁴⁴

The quantifiable costs that SR1 will prevent or reduce, on their own, makes it clear that SR1 is in the public interest and we urge the NRCB to so find.

Unquantifiable impacts of flooding

Financial losses can be calculated; social and environmental costs cannot.

Bryant and Davies state that their \$4.875 billion damage estimate for the 2013 flood does not include intangible damages, such as loss of life or the trauma of losing a home.⁴⁵ The 2017 IBI Study's calculation of \$4.7 billion in damages from the 2013 flood includes an estimated \$329 million of intangible damages (defined as loss of quality of life, such as illness, worry, loss of services, community relations or less enjoyment of community assets) by using an approach

³⁹ Alberta Transportation, EIA Volume 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.10 (pdf page 12/14) \$653 million benefits/\$389 costs = 1.68. At page 17.8 (pdf page 10/14): "The analysis considers the mitigating effects of the Project only on Elbow River floods; it does not include potential synergistic benefits through the application of flood control structures on the Bow River."

⁴⁰ Alberta Transportation, Response to NRCB/AEP IR 1, [Appendix IR6-1](#), SR1 and MC1 Option Benefit/Cost Analysis – April 2019 at page 4 (pdf page 8).

⁴¹ City of Calgary [Pre-Hearing Conference Submission](#) dated 19 November 2020 at page 2 (pdf page 2/3).

⁴² Alberta Transportation, EIA Volume 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.12 (pdf page 14/14).

⁴³ Alberta Transportation, Response to NRCB/AEP IR 1, [Appendix IR6-1](#), SR1 and MC1 Option Benefit/Cost Analysis – April 2019 at page 5 (pdf page 9/14).

⁴⁴ City of Calgary [Pre-Hearing Conference Submission](#) dated 19 November 2020 at page 2 (pdf page 2/3).

⁴⁵ Bryant and Davies at page 29 (Appendix D-3, pdf page 48/205).

based on households' willingness to pay to avoid flooding effects.⁴⁶ We note that this approach does not appear to account for environmental damage or loss of life. Not that it could.

Five people lost their lives in the 2013 Alberta floods: Lorraine Gerlitz, Dominic Pearce, Amber Rancourt, Jacqui Brocklebank and Robert Nelson.⁴⁷ The Calgary Fire Department performed over 400 water rescues in the first 24 hours of the flood.⁴⁸ Without this intervention, the number of deaths could have been much higher. The NRCB must prioritize public health and safety. SR1 is expected to reduce the number of injuries and fatalities that would be directly attributable to a flood in Calgary.⁴⁹

Alberta Transportation identifies some of the public health and safety issues that would be prevented or minimized in the period during and after a flood as follows:⁵⁰

- scarcity of food, clean drinking water, and medical supplies;
- decline in sanitation (due to garbage, industrial waste, sewage);
- water-borne communicable diseases and infections;
- increase in disease transmission (e.g., cold, flu) between people due to reduced sanitation and sheltering of large groups of people in close quarters;
- high numbers of pests such as rodents and insects (especially mosquitoes due to stagnant pools of water that provide breeding habitat);
- vector-borne diseases (e.g., diseases transmitted by mosquitoes);
- health risk from direct exposure to chemical contaminants in the water and food (e.g., chemical burns, rashes, food poisoning);
- looting and theft;
- loss of electricity and communication services;
- access and availability of transportation infrastructure and health-related infrastructure;
- contamination of agricultural land used for food production;
- contamination of buildings due to mold growth, which may trigger asthma or other respiratory issues; and,

⁴⁶ Alberta Transportation, EIA Vol 3B, [Assessment of Potential Effects on Employment and Economy](#) at pages 17.3 and 17.7 (pdf pages 5 and 9/14).

⁴⁷ Bryant and Davies at page 25 (Appendix D-3, pdf page 44/205).

⁴⁸ [CRCAG May 9, 2016 blog post](#), citing figures compiled by CBC Calgary (Appendix D-7, pdf page 148/205).

⁴⁹ Alberta Transportation, EIA Vol 3B, Section 15.0, [Assessment of Potential Effects on Public Health](#) at page 15.1 (pdf page 3/32).

⁵⁰ Alberta Transportation, EIA Vol 3B, Section 15.0, [Assessment of Potential Effects on Public Health](#) at page 15.1 to 15.2 (pdf pages 3-4/32).

- anxiety, depression and post-traumatic stress disorder, or exacerbation of existing mental health problems.

Non-quantifiable costs of flooding, including impacts on the public's physical and mental health, public safety and the environment, weigh strongly in favour of approving SR1 and must be considered.

D. SUBMISSIONS IN SUPPORT OF SR1

We have provided some statistics on the quantifiable impacts of the 2013 flood and a discussion of some of the non-quantifiable impacts of flooding. Our members are the people – homeowners, residents and business owners – behind those statistics. Our members are the people whose financial, mental and physical health suffered, and in many cases continue to suffer, as a result of the 2013 flood. Our members are the people whose lives, livelihoods and properties are most at risk when the next flood occurs.

Through our years of advocacy, we have heard countless personal stories of financial, physical and mental suffering that remained long after the flood waters receded and the last repairs completed. We asked our membership and other members of affected communities to share some of these firsthand stories and photos by letter or e-mail to illustrate the devastating impacts of the 2013 flood (Appendix A-1⁵¹). We received 218 letters and email submissions from CRCAG and FFC members and other community members who support approval of SR1 (Appendix B-1 to B-218).

We also created an on-line survey where we asked respondents to provide their names and identify the community in which they live or do business, whether they were impacted by the flood of 2013 or stand to be protected by SR1, and whether they support approval of SR1 (Appendix A-2). Survey respondents were also given an opportunity to provide open-ended comments including to describe how they were impacted by the flood. One reason we created the survey is because in speaking with several of our members, who we knew were ardent supporters of SR1, we were informed that they were finding it difficult to write us a letter detailing their flood story. They found it too emotional and did not want to relive the pain they suffered in the immediate aftermath of the flood. Considering how long has passed since the flood, this reaction of some of

⁵¹ Separate calls to action were issued to the business community and individuals/families affected by flooding. The calls to action were also updated when the evidentiary filing deadline was known.

our members speaks volumes. The survey was a less emotional way for some of our members and others in the community to express their support for SR1. We received 393 survey responses from individuals, families or businesses who support approval of SR1 (Appendix C).⁵²

We note that many of the submissions and survey respondents are from households with two or more residents, and the communities represented include Connaught, Rideau Park, Roxboro, Elbow Park, Beltline Calgary, Cliff Bungalow, Downtown, Mount Royal, Royal Oak, Mission, Stanley Park, Elboya, Inglewood, Bowness, Erlton, Bridgeland, Parkhill, East Village, Coach Hill, Sunnyside, and Skyview.

This section provides excerpts from some of the submissions and survey responses we received from businesses, associations and organizations, the Mayor of Calgary and individual residents of flood-impacted communities.⁵³ These accounts outline the social, economic and environmental harm that would be avoided if the NRCB approves SR1.

Associations, Businesses and Organizations

Appendix B includes letters from several community associations, including the Elbow Park Residents Association (Appendix B-1), the Rideau Roxboro Community Association (Appendix B-2), the Cliff Bungalow-Mission Community Association (Appendix B-3), Ramsay Community Association (Appendix B-4), Beltline Neighbourhoods Association (Appendix B-5), Erlton Community Association (Appendix B-6), Elboya Heights-Britannia Community Association (Appendix B-7), Marda Loop Community Association (Appendix B-8) Inglewood Community Association (Appendix B-9), and East Village Neighbourhood Association (Appendix B-10), which together represent well over 43,000 residents⁵⁴. Some of these associations describe the impacts on their community members as follows:

The impacts of the 2013 flood on Elbow Park residents were extensive. Countless homes in the Elbow Park community were significantly damaged by flood waters. Much of this damage was bourn by the homeowners themselves as it was either not insured or uninsurable.

⁵² Without consideration of duplicates from the letter and e-mail submissions.

⁵³ Letter and e-mail submissions and survey responses have been reproduced as written, including typographical errors. Contact details have been redacted, as well as survey responses from respondents who did not consent to disclosure of their responses.

⁵⁴ From Appendix B: Elbow Park 1,195 households + Rideau Roxboro 1,000 residents + Cliff-Bungalow-Mission 6,000 people + Ramsay 2,100 residents + Beltline 25,000 Calgarians + Erlton 1,280 residents + Elboya-Britannia 2,400 people + East Village 4,000 residents = 42,975 (which does not include residents from Marda Loop or Inglewood, whose community associations did not specify the number of residents they represent).

Government assistance, while welcomed, fell far, far short of indemnity for the many residents that experienced extensive damage to their homes. Some could not afford necessary repairs and were forced to leave their community. Another flood event like 2013 would be economically devastating to many residents of Elbow Park. – Elbow Park Residents Association (Appendix B-1)

The impacts of the 2013 Elbow River flood were devastating for our community. Virtually every home was damaged, most severely. Ten percent were damaged beyond repair and demolished as a result. Only a handful were rebuilt, leaving a patchwork of vacant lots scattered throughout the neighbourhood. It took months, and in many cases years, for residents to repair and rebuild their homes, encountering staggering financial losses....In the year after the flood, the population of our community plunged by over 40% as families were displaced as they rebuilt their homes. Many never returned. The toll wasn't limited to losing vehicles, homes and possessions, but the realization that a lifetime's worth of irreplaceable photos and experiences shared amongst generations were gone as well. The impacts didn't stop there as so many of our residents were forced to take time away from work in order to lead the recovery and rebuilding efforts of their homes, some suffered job losses. The physical and mental health impacts were real, and for many remain today. – Rideau Roxboro Community Association (Appendix B-2)

The flood waters broke the banks of the Elbow and overwhelmed the stormwater drainage system in the early morning hours of June 21...The flood quickly inundated the southern third of Cliff Bungalow and Mission up to 23rd Avenue, and almost the entire area of East Mission up to and including the Holy Cross Hospital. Had it not been for strategic berm placement along Elbow Drive, the extent of damage from overland flow would have been much worse, perhaps even extending the flood zone from the Elbow to connect with the Bow zone through the Beltline and Downtown. It is significant and speaks to the ferocity and speed of the rising waters, that the only fatality of the flood that occurred within the City of Calgary was an elderly woman living in the Mission District. Her name was Lorraine Gerlitz and she was found drowned in the lobby of The Vineyards building on 25 Avenue S.W....The extent of the flooding was wide and deep with all lower suites and main floors of homes and apartments in the floodway and flood fringe affected, entranceways impassable, possessions and cars lost. Businesses along our high street had their inventory, kitchens and infrastructure destroyed. All members of the community were without power for many days and gas mains were shut

off... Every spring the residents of Cliff Bungalow and Mission experience the dreadful memory of past flood events and look anxiously at weather forecasts and river levels. They remember the ferocity of a river running full speed down our streets and through our parks, the horrible roaring sound of the water rushing through every opening and filling apartment parkades like bathtubs. This has been a latent threat and mental burden on the community for seven years and counting – Cliff Bungalow – Mission Community Association (Appendix B-3)

When the flood waters broke the banks of the Elbow and overwhelmed the stormwater drainage system the community of Ramsay was all but cut off from the rest of the city. The closure of all of our neighbouring bridges isolated our community...Stampede pedestrian bridge is a major connector for Ramsay into downtown was destroyed and took years to rebuild – Ramsay Community Association (Appendix B-4)

[T]he event badly affected all of our residents from a number of perspectives including: social distress, environmental concerns (e.g., the pollution caused by the flood waters and the subsequent collection and disposal of so much additional garbage) and direct economic impacts (e.g. the forced closure of downtown and Beltline-area businesses where many of our residents work)...We have no expertise in flood mitigation, but we note that three successive provincial governments have reviewed options and all have concluded that SR1 was the best option... - Beltline Neighbourhoods Association (Appendix B-5)

Erlton was dramatically affected by the 2013 flood...Physical damage was one part of the impact on Erlton...Many of the area townhouses had basements and garages flooded. The condominium communities had their parkades flooded with many cars trapped inside. A large number of single family homes were flooded in the lower and main levels. Some were completely destroyed and needed to be rebuilt, others were repaired, and some remain as vacant land. There was also psychological harm. There was and continues to be strain on the community and individuals due to the stress of dealing with the immediate and long term impacts of the flood...The flood caused a great financial impact to our community and to our residents. The damage to personal property and our homes was significant. Some had to bear all the costs of repairs and reconstruction. For others the costs were partially covered by flood insurance or disaster relief. Local businesses, community organizations, and charities also contributed to rebuilding in Erlton. Many residents have also seen dramatic increases in

insurance costs or have had flood coverage revoked. Residents directly on the river have paid for reconstruction of the riverbank. – Erlton Community Association (Appendix B-6)

Damage associated with the 2013 Elbow River flood event was severe throughout the lower elevations of Elboya Heights Britannia community. Stanley Park became Stanley Lake causing our community clubhouse to have water levels reach five feet above the first floor resulting in approximately \$500,000 of damage. Homes in our community located upstream of Stanley Park were either severely damaged or destroyed by flood waters. Further upstream, the parkland below Britannia Bluffs was totally inundated by the surging Elbow River flushing away the Sandy Beach pedestrian bridge and destroying pathways for good measure. – Elboya Heights – Britannia Community Association (Appendix B-7)

The flooding disaster of 2013 tore through our EV community damaging buildings, personal property, community infrastructure, local economy, and the well-being, and safety of our residents and businesses. Residents were either driven out of their homes or stranded with no power or water; the elderly and disabled residents were unable to use the elevators in high buildings and in some cases, it took days before firefighters could carry people out. Water levels filled the multilevel parking below residential buildings destroying cars and contents of personal storage lockers. The aftermath of this flooded community saw immense loss of personal property, emotionally traumatized residents, and a wake of damaged property that took years to clean up...The degree to which our East Village community has been damaged and distressed by the flood and the 7 years of rebuilding that followed have left us protective of our home and neighbours. Today, 4000 residents live in this mixed-use neighborhood of residential condos, historic buildings, and street level businesses. Within the heart of Calgary's urban core including East Village, sits the recently built Calgary Central Public Library (2018) and Studio Bell (2016) both significant civic amenities, as well as public plazas and parks spaces. The post-flood efforts to rehabilitate the EV and to implement the visions of the EV masterplan are substantial, commendable, and require flood protection to remain part of our vibrant city. – East Village Neighbourhood Association (Appendix B-10)

In addition to residential associations, business community losses from the 2013 flood are described in letters submitted by businesses and organizations such as the following:

- Calgary Chamber of Commerce (representing over 1,500 members) (Appendix B-11);
- Calgary Economic Development (Appendix B-12);

- Calgary Sports and Entertainment Corporation (Appendix B-13);
- Calgary Stampede (Appendix B-14);
- Calgary Municipal Land Corporation (Appendix B-15);
- Kensington Business Revitalization Zone (representing over 250 businesses) (Appendix B-16);
- Victoria Park Business Improvement Area (representing approximately 350 businesses) (Appendix B-17);
- Fourth Street Business Improvement Area (representing more than 200 businesses) (Appendix B-18)
- Building Owners and Managers Association (BOMA) Calgary and the Calgary Chapter of NAOIP, the Commercial Real Estate Development Association (together representing over 700 property managers or owners/developers) (Appendix B-19);
- Battistella Developments (Appendix B-20);
- BILD Calgary Region (representing over 650 members of the building industry) (Appendix B-21);
- Claret Corp, S&R Holdings and First on Colour (East Village businesses) (Appendix B-22);
- The Calgary Zoo (Appendix B-23);
- Inglewood Business Improvement Area (representing over 220 businesses) (Appendix B-24);
- 17th Ave Retail & Entertainment District BIA (Appendix B-25); and
- Calgary Downtown Association (representing over 2,500 businesses in centre city) (Appendix B-26).

For example, Calgary Chamber of Commerce speaks to the approximately 7,000 community businesses that were impacted and the 5.1 million working hours that were lost in Southern Alberta. Calgary Economic Development highlights the risk of a future flooding event threatening the City's livability. Calgary Sports and Entertainment Corporation speaks to the \$50 million final cost of the flood restoration project and significant increase in insurance premiums to its properties. Calgary Stampede references the more than \$65 million in damages it incurred as a result of the flood. The Calgary Municipal Land Corporation speaks to the devastation to its construction projects and impacts on 650 low-income seniors living in the East Village, in addition to the over \$1 billion in public investment that requires flood protection. Similarly, Victoria Park Business Improvement Area describes the devastating impacts of the flood on critical infrastructure and heritage buildings, and the persisting effects of the flood on the business community. Calgary Downtown Association references the widespread impacts to centre city of

the 2013 flood, including the more than 160,000 displaced office workers and significant disruption to lives of around 7,000 centre city residents. The Calgary Zoo describes its terrifying experience and significant losses as follows:

Operation Noah's Ark commenced at 3:00 pm Thursday and continued until 2:00 am on Friday, June 21; for eleven hours 158 animals were relocated from their homes on the St. George's Island portion of the Zoo...The morning after; it was evident the hardest hit area was Destination Africa, in particular the Savannah building where two giraffes were waste deep in the muddy water and we had challenges containing the young male hippopotamus. Although the north shore exhibits and other low-lying areas of Canadian Wilds were safe from the flood waters, the loss of power for several days to many areas of the zoo presented other challenges...The overall damage to the zoo was \$50M in structural and building damage and \$10 million in lost revenue, including daily admission, school programs, weddings and corporate events. The stress inflicted on the animals cannot be measured.

The Mayor of Calgary

City of Calgary Mayor Naheed Nenshi's letter (Appendix B-27) discusses the importance of SR1 as follows:

The City of Calgary has worked tirelessly and done everything within our power to ensure that Calgary is minimizing the risk that a flood like 2013 could have on our economy. Preventing flooding in Calgary requires infrastructure at a regional scale outside Calgary's border...If SR1 is not approved or the Province is forced to reconsider other alternatives that have already been dismissed as less effective, the flood mitigation infrastructure Calgary requires could be delayed by decades. This will further impact our already challenging economic situation by leaving our city exposed.

Individual residents of flood-affected communities

Appendix B also includes 193 letters or e-mails from residents of flood-affected communities in Calgary. There is no way for us to do justice to these personal accounts of the flood of 2013. We ask the NRCB to carefully review each of the attached submissions that were thoughtfully penned by residents, many of whom clearly continue to be deeply affected by the flood of 2013. Following are some excerpts from the submissions in Appendix B and survey responses in Appendix C, beginning with accounts of the devastation and loss in the immediate aftermath of the flood:

Had I not seen the level of devastation myself, I would not have believed that flooding could cause that much damage – Paul Fisher (Appendix B-28)

It was as if their destroyed life was on display for the world in a soggy heap on their front lawns – David Carlson (Appendix B-29)

Water filled our basement and 4ft of our main floor...[A]lmost all of our belongings were submerged and destroyed. When we were able to go back to our house, everything was coated in thick, foul smelling, silty mud. Sewer had backed up in the basement and everything stunk. Items had been thrown by the water - a lamp was hanging from our dining room light fixture. We tried to sort through our belongings to find things that we could salvage, but it was almost impossible. The mud was so thick that you could barely tell what you were holding. While we appreciated the help that we received from strangers during the clean up process, it was emotionally scarring to see them enter our homes and deem our possessions as trash. I distinctly remember one well meaning person come into our home and say "Wow, this is the worst house so far. Everything here is garbage." The volunteers took items indiscriminately and threw them out. Even items that could have been saved, like pots and pans or dishware, were taken out of our house by strangers and thrown away. Due to the extent of damage to the house, we ended up pulling it down after the flood. The flood was devastating for members of my family. – Andrea James (Appendix C)

I'll never forget overhearing a volunteer at about day 10 after the flood, "This reminds me of a war zone... just without the dead bodies." It was that bad – Rhonda Siebens (Appendix B-30)

The neighborhood looked like Armageddon. It was becoming more and more difficult to get garbage trucks in to dispose of all the mess. – Michael and Elizabeth Brain (Appendix B-31)

It's hard to think back to the intensity of that time. The smell that lingered in our home for over a year (like a river ran through it); the incessant noise of generators, pumps, power tools, vehicles, trades, demolition and repair; the wet, smelly infectious dirt that was like glue in the house, the garage and stuck to every inch of our property and again, being so tired of it all...It was a surreal experience – we were effectively in a war zone complete with helicopters overhead...I never thought I'd be the person standing in line for Red Cross support or asking

strangers to help save our home. It was a humbling life lesson and one none of us will ever forget. – Sarah Walker and Bruce Herdman (Appendix B-32)

Our safe-community world came crashing down with the 2013 Elbow River flood...When we entered [our home], the psychological and emotional shock were enormous. Fecal matter and silt covered everything. – Caroline Brown (Appendix B-33)

Our home, of some 21 years, was ravaged... The land adjacent to our home had become a tributary of the Elbow River and was flowing past our garage and into our home...Our basement was decimated, the contents strewn about as if multiple fire hoses had been turned on and everything blasted; 99% of the contents were destroyed. Thirty-five years of irreplaceable photos, Christmas decorations, family memorabilia, tools, food, business files, too numerous to count, our water supply, heat and electricity, all gone over night. – Tom and Heather Lester (Appendix B-34)

During the 2013 flood the river exploded and burst all of our basement windows. The river literally ran through our home, bringing rocks, trees, sewage and debris with it. Our entire main floor and basement were destroyed by the flood water. With almost 3 feet of water on the main floor, we lost almost everything!..Post flood we couch surfed in different homes with our three young children not knowing where or what we would eat next or where we might sleep each night. As we searched for a temporary home to rent, rental agencies tried to take advantage of our terrible circumstances. This was the most difficult time we have experienced in our lives. We now understand the desperation one feels to be homeless with a young family, having lost everything. – George and Alison Wadsworth (Appendix B-35)

The following morning, we were devastated by the seen when we drove to mission road to see a river ravaging our neighborhood. I could not bear the sight and uncertainty, so I took my canoe with my brother and paddled to my house to discover our property had 4' of standing water on front lawn and entire basement was filled with water right to the underside of the main floor. The situation was dire, questions were running through my head as I paddled my canoe onto the front porch that is 6 steps above the lawn. Where was my family and I going to live with our one-year old daughter? Could we still live here? Was our entire net worth and life saving ruined forever? What was I going to do with this house? How could we ever live here again and think about this happening again and again ever year? I was stressed beyond

believe but knew I had not other options but to buck up and move on with life and deal with this massive blow mother nature gave our family. – Petrovich family (Appendix B-36)

In 2013, when the floodwater came, dirty water filled the basement to within ¼” from the top of the hardwood on the main floor. The next three months were the worst, most stressful of my life. My husband and I literally worked 18 hours a day trying to put the home back in order, while simultaneously fighting with insurance to try and get some recovery. The sleep deprivation and stress wore on us. We stopped talking to each other, we didn’t go to work for 3 months, and I struggled to find care for my 3-year-old. My mom was going through cancer treatment at the time and was very weak. I was unable to be with her and take her to treatments as I our house took so much work. We were completely on our own. Insurance did not cover any of the clean-up work – that was completely up to us. I begged friends to be able for me and my 3-year-old to live with them as we were unable to find housing. For 6 weeks I couch surfed at various friends at their mercy. There were no rentals available at all. There was literally nowhere for us to live. My husband was staying in the house with no hot water and no electricity, literally camping in his own house. It was incredibly stressful not knowing where we were going to live day to day. It was only due to kindness of others that we survived...Looking back, I would not wish this experience on anyone. I still view this as the worst time of my life. Worse than COVID, worse than anything I have ever experienced. – Adriana Markel (Appendix B-37)

When we gained access to our home on day 3, I waded through my yard to get to my house to see the devastation. Unimaginable mud everywhere. Furniture tipped and moved. Built-ins ripped out of walls. The raging river had literally run through our home. We found Lego blocks stuck to the ceiling in my basement, a dead fish in my our trampoline, my freezer filled with muddy water soaked rancid meat. Destroyed irreplaceable items including mementos of our children’s lives, our wedding photos, and items passed down from our parents and grandparents were lost because we never imagined that much water. The clean up was weeks of exhausting mud hauling, cleaning, demolition, and the heartbreak of watching our ruined belongings fill bin after bin after bin. I watched neighbors cry in their front yards. My children were traumatized. – Cathy Dorrington (Appendix B-38)

Many of the letters describe the loss of family heirlooms, precious mementoes, and other irreplaceable items, some collected over many generations:

[My] husband and daughter had passed away a number of years before and I had many 'treasured memories' stored in the basement. These were gone for ever. Many being paper memories such as photos, pictures made by my daughter, school memories, letters from my husband when we were parted for 3 months, forever lost, this was probably the biggest loss for me as other things could be replaced. – Brenda Gracie (Appendix B-39)

We thus made a decision to knock down the house that had been our home since 1977 and in which we raised our three children. This was a devastating decision to them as well as to us but there was no other rational decision...While we lost all the contents in the basement, the most valuable thing we lost were photos and memorabilia from our family, my parents and my grandparents. None of that was salvageable – lifetimes of memories, gone. – Steve Allan (Appendix B-40)

Beyond the cost and time, the loss of memorabilia from my father and mothers World War II medals/pictures to all the family heirlooms and significant artwork is really upsetting as it all irreplaceable – John Baillie (Appendix B-41)

At that time we had just returned from a holiday celebrating our 85th and 80th birthdays. We debated whether we could rescue our home or whether we would have to sell in a market that crashed overnight...We lost everything in the basement including furnace and all major appliances. But it was my husband who really suffered the greatest loss. He is a professor of medicine at U of C, pursuing active research. He was greatly affected. He used our large furnished and carpeted living area as a study. He lost upwards of a thousand books from his library... He lost a beautiful antique mahogany desk (with all its contents) and chair which we brought with us from England and which had belonged to his great grandfather Dr. John Langdon Down who first described Downs Syndrome. He lost so many irreplaceable books, personal letters and papers...My husband was devastated by his many losses and has to this day not got over his huge emotional disturbance as well as his physical losses. This summer we had a water event in the basement due to burst pipes and he experienced horrible flash backs. There is no question that we have not got over the flood. It is extremely hard to write this letter. – Michael and Elizabeth Brain (Appendix B-31)

Unless you have personally experienced a flood to your home, belongings, workplace, or city, you cannot begin to imagine. The months of cleaning silty-mud. Lost belongings and important

family artifacts. Photos of loved ones. Gone. Waiting months and hoping insurance will cover your loss, if only financially. Some things will never be replaced. – Mark Cadotte (Appendix B-42)

My husband and I were in our 70s when our home was flooded in 2013. At the time of the flood, we had lived in our home for more than 40 years...We lost half of everything we owned...We lost the things that were to trigger our good memories as we age. We lost our recreational equipment. We lost the things that bring us joy. – Doris Schuh (Appendix B-43)

When the flood hit, I had just moved into the house and all my worldly possessions were stored in the basement. Worldly meaning, hundreds of precious music scores and irreplaceable recordings. You see, I am a musician and this was my life. Gone. – Cory Miller and Heather Meyers (Appendix B-44)

It wasn't the destruction of our house that was the worst part, it was the loss of the valuables that can never be replaced. I represented our country in 2 Olympics and lost all my Olympic memorabilia, my husband's parents immigrated to Canada in the 60's and all the memories of their homeland were destroyed. I found our wedding album floating in the sludge a couple days later, pages torn and missing. – Heather and George Arvanitis (Appendix B-45)

Further, as commercial photographers, we have been recognized with countless national and international awards for our work. Housed in our basement had been our archive of photographs (pre-digital), comprising over 30 years' worth of negatives and prints of notable people including numerous Canadian Prime Ministers and Premiers, along with prominent business, indigenous, and cultural leaders. Unfortunately, this archive was destroyed also. – Ellen Brodylo (Appendix B-46)

In addition, the letters we received reference the devastating property and financial losses experienced by members (much of which is now uninsurable), in many cases impacting life savings and retirement plans:

After these two flood events, our insurance company (understandably) will no longer cover us for sewer backup and I am unable to purchase overland flood insurance because of our

location in close proximity to the Elbow River. So the next flood event will wipe us out financially and we will have to move. – Fred Klein (Appendix B-47)

The financial toll has been accordingly overwhelming, to put it mildly. We have worked hard to live in this community. That being said, buying this home was largely an attempt we made to secure an appropriate retirement vehicle, a vehicle we hoped we could rely on in the future. We have poured every available dollar into this house in the hopes that it'd give us the financial means to enjoy our retirement years. Forces beyond our control have compromised this investment, and those dollars now prop up a skeleton with a decaying foundation... We cannot financially or emotionally handle another flood. – Leslie Delicaet and Douglas Reid (Appendix B-48)

I suffered greatly as a consequence of the 2013 flood. I had a huge financial setback as the insurance did not remotely cover the cost of reclamation and rebuild. I could barely pay the annual increased insurance costs....I didn't have the amount of money that I would normally have because it went to flood reclamation and rebuild costs. I had to spend retirement funds. This decreased my quality of life...I lost over a half million dollars on the value of my home after the flood. That was my retirement money. – Anonymous (Appendix B-49)

We could not help but notice that as flood, repair, rebuild and remediation moved along for many, there were many first-generation bungalows and 1.5 story homes, usually occupied by seniors where flood recovery efforts were not underway. Sadly, these houses sat brewing with mold as the unfortunate elderly occupants have a hard enough time mobilizing themselves for normal day to day routines, not to mention to be able to mobilize themselves or others for emergency flood cleanup and restoration. Quietly many of our seniors really struggled. From my observations many of them never returned to the neighborhood and the skeleton of their empty home sat for a long time unoccupied. There is no question that for many a lifetime dream to downsize and use home equity to enjoy retirement was buried alongside their silt and mud encased family life possessions, erased by the flood in a moment of time, as their home equity value floated away with those dreams, as they simply could not rebuild to bring them back. One by one the back hoes came and house by house their homes and dreams disappeared into what seemed to be an unending conveyor belt of construction bins headed for the City landfill. – Rob Motherwell (Appendix B-50)

I bought my beautiful home in Roxboro in 1983. Next to the birth of my children, it was the happiest day of my life. I lived in that house for 30 years and raised my family there. The 2013 flood destroyed it beyond reasonable repair. I had to tear it down. They say “Don’t cry over anything that can’t cry back”. I beg to differ. That house represented the most meaningful part of my life. It is almost eight years later, and I am still heartbroken when I look at the pictures of the flood...The experience was exhausting, horribly expensive, and has left me with an abiding fear of the rains of spring. Every June is a month of anxiety. Now, as a senior citizen, I know that I could not cope with the physical and emotional exhaustion should this occur again. Moreover, my husband and I delayed retirement in order to pay for the destroyed house. We cannot do that again. We need protection. – Shirley Orr (Appendix B-51)

My wife and [I] are now nearly 8 years older and we have decided that we cannot withstand another flood (even to the extent of 2005). If there is another flood we will simply have to walk away from our home of more than 30 years. – Bob Hale (Appendix B-52)

The days and weeks that followed are largely a blur, but the one vivid memory that still haunts is the arrival of our insurance representative on one of the first days following the flood, who after introducing himself pulled out our policy and immediately drew attention to the policy exclusion for loss resulting from overland flooding. It was in this moment, while we were still pumping floodwater from the basement and absorbing the magnitude of the damage and destruction, that it sunk in that much of our life savings and worldly possessions were lost. – Troy Moller (Appendix B-53)

We would have liked to have sold our home after the flood but were unable. No one wanted to buy in our area after the flood....Because of our age, it would have been better for us to move immediately after the flood. To move by ourselves later in our 80s was physically not a good idea. We never wanted to sell our home because we actually planned to age in place in our home. Our home was planned for us to age in place. We continue to live in our home. However, we no longer feel safe in our home. Every spring, we do flood watch from mid-May to mid-July. With climate change, the time for flood watch is increasing. We worry whenever there is a stalled weather pattern. We wanted to be able to travel at this time of year during our retirement. For the last 7 years we have had to give up our dreams of travelling and have had to stay home to watch the river levels. Our retirement has been ruined because of the lack of flood mitigation, no SR1. Now, because of recent health issues, we may never be able to

travel far from home. Our peak years to travel have been taken from us by the delays with flood mitigation, with no SR1. The thought of the loss of our dreams creates stress. – Doris Schuh (Appendix B-43)

My mother passed away in 2012 and just before the flood in 2013 I had our 1912 sandstone home designated a Heritage Home...[T]his house is still in the process of recovery and it has taken all my savings and retirement, my livelihood (my Steinway piano was destroyed), my health and my spouses health. We are incapacitated from disease and long term stress...I have given up my home, livelihood, well being and any financial security in the wake of this flood. – Cory Miller and Heather Meyers (Appendix B-44)

As you can imagine, the financial impact to our family was significant. A small portion of the costs were covered by a very supportive insurance carrier and government assistance. However, most costs were not covered and have forced my wife and I, as we approach our retirement years (I am now 65; my wife is 64), to re-think our ability to retire even into a modest lifestyle. – Alfred Sailer and Kenna Windle (Appendix B-54)

While many members experienced life-altering financial losses as a result of the 2013 flood, the primary and most upsetting theme running through the letters from residents is the immeasurable and continuing impact of flooding on physical and mental health. Many letters describe lingering stress, anxiety, fear and a sense of insecurity in the absence of upstream flood mitigation. As one resident aptly describes, while the financial costs are quantifiable, “[t]here is no way to measure the emotions, and the fear that it will happen again”⁵⁵. Others describe the devastating impacts on mental and physical health as follows:

The snow is melting, the sun is out and I silently walk over a bridge that spans the Elbow River. I say nothing but watch as the water runs beneath me. My inside voice wonders if this will be the year for another flood, or will Mother Nature give us another pass. My kids are with me and must recognize the stress on my face. They ask “why do you always walk so slow and silently over this bridge”. I smile at them and hope that this year their lives and home will not be taken away from them again...I am angry, I am stressed and I am afraid. – Shauna Johnson (Appendix B-56)

⁵⁵ John Heffer (Appendix B-55).

The financial cost to our family was enormous. So too was the emotional cost. At the time, my wife was awaiting surgery. We were forced to relocate suddenly and for a considerable length of time. Our dog did not survive the flood. The emotional trauma of the event and subsequent challenges presented in our lives continues to this day – Dr. Shep Sector (Appendix B-57)

It is difficult to fully explain to people who have not endured natural disasters and are disconnected from the experience, what it truly feels like. When I now watch floods telecast in other parts of the world, I feel deep empathy. Yet it is more than empathy that I know the flood victims may come to experience. It is:

- *the fear of the unknown as the event happens;*
- *the uncertainty of what lies ahead;*
- *the heartbreak of losing personal items, especially treasures from my childhood, old family photographs, momentos from milestone moments, and a lifetime of things acquired, collected, saved – now forever lost;*
- *the arduous task of physically emptying a basement full of heavy, wet, muddy items*
- *the underlying fear of the possibility of black mould setting in, if wet items are left too long;*
- *the stress of accounting with insurance companies for the losses and disruption in life;*
- *the personal invasion of space from contractors and various trades as we rebuilt;*
- *the deep regrets from a fractured community of heritage homes that could not be saved and neighbourhood friends who sold out and moved on;*
- *the collective anxiety in our neighborhood as the flood season approaches each year;*
- *the necessary precautions, such as “do not leave town” during the annual flood risk period until upstream mitigation is complete.*

A critical event changes you. It changes your life. Even as I write these words now and many years have passed, these emotions rise to the surface and fill my heart with ache. – Ida Heron (Appendix B-58)

The effects of watching your life be thrown out onto the lawn was devastating. The mental and physical effects of living through this horrific devastation will never be forgotten. – Shirley and Paul Storwick (Appendix B-59)

What we lost in the flood of a material nature pales in comparison to what my husband and, ultimately, I lost. We no longer travelled without incredible stress and confusion. We no longer

enjoyed our stimulating conversations and laughter among many other things. Life had taken a drastic turn. He became frustrated, agitated, realizing his loss...To say the flood of 2013 impacted our lives and the lives of our family is an understatement. Bob may have had one or two or more years of quality life had it not been for the trauma of the flood. We will never know. My husband passed away earlier this year and I miss his presence every minute of every day. Expedition of flood mitigation is so necessary. I would not want anyone else to experience the devastation we did which went far beyond the loss of personal belongings. – Jackie Eden (Appendix B-60)

I suffered psychologically, and in fact, fully believe I had PTSD. ...Every spring after 2013, my neighbours and I would go to the fourth Street bridge to assess the height of the flood water. I was on the provincial River Flood information site every day five or six times a day. The terror of another flood completely enveloped my mind...Eventually, I realized I couldn't continue with the fear that laid dormant but was resurrected every year in flood season. I knew that I would have to move out of my neighbourhood and away from my neighbours of 30 years if I was ever to financially and psychologically survive intact, while the province and the federal government got their respective acts together to remediate the situation with the Springbank Dry Dam. I miss my neighbours and the relocation was difficult...My marriage collapsed over the culminating stress and anxiety. – Anonymous (Appendix B-49)

I lost my sweet old 100 house to the flood in 2013. I had just gotten married and was happy to have found someone to share my home and life with. The stress of all this was too much for a new marriage. After living in a basement suite for a year following the flood the marriage fell apart...The last point I want to address is the feeling I have every year when flood season begins. I still lose sleep over worrying about this happening again. As much as this has brought people together in my neighbourhood, the uncertainty over another 1-100 year or worse is always over shadowing the joy of the Spring season every year. – Mona Hayes (Appendix B-61)

As you can see, our home was devastated. But objects can be replaced, and basements rebuilt. What cannot be so easily replaced is the sense of security one should feel in our own homes. The impact on my mental health and that of my daughters has been profound and we are still dealing with the longstanding negative impacts in our work and school lives. Even seven years later we still dread the springtime because it brings back traumatic memories,

and our anxiety rises knowing we are unprotected should the waters rise again. – Greg Clark (Appendix B-62)

[M]ore devastating than the financial cost is the emotional wear and tear associated with the fear of future flooding. Every June, spring run-off brings extreme anxiety to our family and neighbourhood. This annual period of stress will continue until upstream flood mitigation is in place. – Doug Miller (Appendix B-63)

My three children (aged 11, 7, 7) and who attend the neighbourhood school go through additional stress and uncertainty annually as they monitor the river levels; a habit and worry which should not be on the young minds. – Reidun Tatham (Appendix B-64)

Beyond the significant financial hardship and strain caused by the Flood of 2013, even more distressing are the physical and mental impacts and the lasting emotional scars caused by the Flood. For our family, the 6 foot plus wall of water that hammered our home with vicious force resulted in physical illness, trauma, heartbreak and the loss of precious, irreplaceable belongings....Imagine the feeling of looking at most of your belongings piled in a heap on the front lawn, on route to the dumpster. The thought of my wife clutching me, sobbing, while fire fighters removed, for the scrap heap, her grandmother's almost 100 year-old piano, will forever remain etched in my memory. Furthermore, each spring, the May-through-July time period brings a sense of anxiety and stress that we could again be devastated by a flood. – Jay Reid (Appendix B-65)

While some may argue that the cost of the flood was the enormous loss of property, I believe that the true cost of the flood can be measured in simple human misery. – Sharon Watkins (Appendix B-66)

The stress of being out of our home for over seven months, moving thirteen times during this period to rely on the kindness of adult children and friends for accommodation, took a great toll on our psychological health and physical well being. I needed to seek medical help. – Diane Boje (Appendix B-67)

In my 40 years of living in this neighborhood and working in mission I have never seen anything that compares to the level of devastation that occurred in the flood on June 2013.

Seeing the entire contents of peoples' homes, their furniture their clothes, their memories discarded in muddy heaps along the every boulevard was a sight I will never forget. My two children, then 3 & 6 still have nightmares of floods taking away all of their belongings. I myself have suffered from panic attacks and anxiety almost like clockwork when the snow starts to melt every spring. – Michael and Beverley Docherty (Appendix B-68)

There are none of us here in this community that experienced the despair and disruption of the 2013 flood, that do not feel some level of anxiety as the month of June approaches each year. – David Hutchison and Linda Shea (Appendix B-69)

There were five official deaths attributed to the 2013 flood, however our across-the-street neighbor was already in fragile health and passed away. Certainly, the damage to her home and loss of her belongings did not help her mental state which was crucial to her personal health struggle and so she succumbed. Not an official flood death, but one of many whose lives were shortened and/or greatly negatively affected by the flood waters. – Les Grieve (Appendix B-70)

Every time it rains my 12 year old daughter panics and asks, 'Is it going to flood again?'. She was 4 years old during the flood of 2013 and its aftermath. For almost 8 years she has worried about something as simple as rain. – Season Prevost (Appendix B-71)

I believe the confinement caused by the flood damaged elevator was a large contributing factor in her early death. – Ed Engstrom (Appendix B-72)

But we also lost something that is less tangible and far harder to replace. We lost our sense of security. – Sarah Walker and Bruce Herdman (Appendix B-32)

More importantly, the risk of another similar event weighs heavily on our minds each spring season when no meaningful remediation has been accomplished. It has become a daily ritual from late April until the end of June to look at the data from the Alberta Rivers app on my phone to try to assess the risk based upon snow levels at the headwaters and the flow rates and depth at various monitoring stations along the Elbow River. It is a source of great anxiety for our family each spring. – Nancy and Scott Laird (Appendix B-73)

The property damage and financial impact described in the first portion of this letter of support pales in comparison to the personal and emotional impact the 2013 flood had on my wife and me... Unfortunately for my wife and I, we live the personal and emotional impact of the flood every day...[W]e continue to feel unsettled in our home. – Alfred Sailer and Kenna Windle (Appendix B-54)

One of my boys experienced extreme anxiety. For over 3 years after the flood, either my husband or myself would need to be home with our son. His very predictable world had just vanished over night. He lost his home, his cherished toys, and his foundation. He now believed that very bad things can happen and the next thing was, that he would lose his parents and become completely homeless. – Kellie Bowden (Appendix C)

My family suffered immeasurable loss and mental health damage as a result of the 2013 flood...We lost a lifetime of family memories and a much loved home. We lost 4 families on our street because they could no longer live in their homes, either because the homes were deemed uninhabitable or lacked the financial resources to rebuild. 4 families on a street of 10...The cost of the flood...included tragic stories of marriages ruined, mental health ptsd occurrences, financial ruin, heart attacks and strokes. I recently ran into a volunteer who helped in our moment of need and he still walks with a limp due to a horrible accident in our home while he was helping move debris. He is paying a lifetime sentence of leg pain and damage due to the flood. He and his wife lost their business as a result of the flood. It broke my heart again just as it did when the accident happened to see him limping and hearing he still experiences pain. As for myself, I truly lost a spark for life because of the flood. The enormity of damage and destruction that happened in a matter of hours drove home the realization that a roof over our heads and a lifetime of building a life full of memories is so very core to who we are. When people say, well it could have been worse, at least nobody was hurt, they do not have any clue about the effect a catastrophic flood has on the people who are part of it. They don't see injuries that happen after that are not recorded, they don't see the despair when everything you own is thrown into container after container to be sent to a dump. They don't see the marriages destroyed, the financial losses, the forced relocations and the bizarre and hurtful condemnation that you had the nerve to live in a floodplain. It all hurts. I NEVER want to see anybody experience this disaster again. – Jo-Ann Horan (Appendix C)

Finally, many of our members have incurred significant costs on personal flood mitigation – for example, installing sump pumps, generators, break resilient glass, and custom fittings to seal water entry points; relocating mechanical/electrical equipment; raising water tanks, furnaces and other utilities; carrying out additional landscaping; installing flood walls; and even raising their entire house – all with the expectation that the City and Province will do their part to protect their citizens. The fact remains that nothing that individual homeowners can do will be enough to withstand a major flood event, given the impacts of both overland and groundwater inundation. In the words of several residents:

We understand that living on the river entails a certain level of risk...we have done everything in our power to mitigate our risk and reduce the damage from flooding from the Elbow River. But the risk of a 2013 size flood is more than we and our community can accept or bear any longer. – Ellen and Allen Borak (Appendix B-74)

[T]here was a popular view that the dam was responsible for ending the flood threat from the Elbow to Calgary. This popular view informed my wife's parent's expectation that the Glenmore Dam was capable of attenuating the volume and flow of the Elbow River to prevent flooding. This expectation also aligns with the fact that the City, through its land use planning and bylaws, zoned and established the Roxboro community (along with other inner City communities like Elbow Park) as RC-1 residential lands and has collected tax revenue for well over a century on that basis, thereby representing to its constituents that the lands are suitable and safe for residential development and use. – Troy Moller (Appendix B-53)

When we decided to rebuild in 2015, we did so trusting that our local and provincial governments would move expeditiously on their promises of undertaking upstream flood mitigation. These assurances gave us comfort in our decision to remain in Roxboro if we too did our parts to mitigate further future loss from flooding. So we, like many of our neighbors, did our part. We set the main flood of our rebuilt above the 1:100 year flood line, left our basement unfinished, and moved our utilities out of the basement. Now, nearly 8 years later, we are feeling exposed and somewhat betrayed by our partner (e.g., government) with whom we engaged in good faith. – David Allen (Appendix B-75)

The above accounts demonstrate the devastating impacts of the 2013 flood, including on personal and business finances and physical and mental health.

E. SR1 IS IN THE PUBLIC INTEREST

The catastrophic impacts of the 2013 flood cannot be forgotten and they will be repeated if SR1 is not approved. No society should deliberately leave itself exposed to the risk of such devastation. The project will avoid the social, economic and environmental effects of a future 2013-sized flood of the Elbow River, both quantifiable and non-quantifiable, that we have outlined in this submission. Accordingly, SR1 is in the public interest.

Having taken nearly seven years to arrive at this stage of the regulatory process, SR1 is the only prospect of implementing effective flood mitigation for the City of Calgary in the foreseeable future. In our respectful submission, an NRCB decision that SR1 is not in the public interest is a conscious decision to leave the City of Calgary vulnerable to flooding on the Elbow River indefinitely. It is a decision to leave \$1.254 billion in residential property, commercial property and infrastructure unprotected.⁵⁶ It is a decision to put the safety and wellbeing of hundreds of thousands of people living and working in Calgary at risk indefinitely.

We urge the NRCB to find that SR1 is in the public interest. The social, economic and environmental benefits of SR1 far outweigh its burdens. As an example, we ask the NRCB to compare the thousands of homes severely impacted by the 2013 flood in Calgary with the five residences within the footprint of the project,⁵⁷ the owners of which will all be fairly compensated.

We ask the NRCB to approve the project as quickly as possible. If the NRCB determines that conditions are necessary for its approval, then we ask that such conditions have a compliance timeframe that will not delay construction. Time is of the essence. SR1 must be fully operational before the next major flood event occurs. The future of the City, and its ability to continue to contribute to the prosperity of Alberta and Canada, depends on it.

⁵⁶ Alberta Transportation, EIA Vol 3B, [Assessment of Potential Effects on Employment and Economy](#) at page 17.10 (pdf page 12/14), Table 17-6: Flood Damage Avoidance for a Design Flood from Elbow River, total of direct costs for commercial and residential (\$935.2 million) and infrastructure (\$318.6 million).

⁵⁷ Government of Alberta, Springbank Off-Stream Reservoir handout dated September 2017: "There are 22 residences within the total offer [to purchase any quarter section parcel of land touched by the SR1 project footprint]. Only five residences exist within the required 3,610 acres needed for the project." (Appendix D-11, pdf page 205/205).

F. THE CRCAG AND FFC PANEL OF WITNESSES

The CRCAG and FFC plan to sit a panel of three members at the hearing, consisting of Brenda Leeds Binder and Tony Morris from CRCAG and Paul Battistella from FFC.

Brenda Leeds Binder is Co-President of CRCAG. She is employed by an energy company in downtown Calgary and resides in Elbow Park with her husband and three children. Her basement was filled with five feet of water from sewer back-up resulting from the flood in 2013. She was unable to return to her downtown office for 10 days following the flood, as the building was closed because of the flood. In her letter (Appendix B-76), Ms. Leeds Binder describes the physical work and financial burden of rebuilding her home as well as the lingering mental strain. After opening her home to another family whose house was uninhabitable following the flood, Ms. Leeds Binder began working with others to start CRCAG to advocate for flood mitigation.

Tony Morris is Co-President of CRCAG. He is a partner at a downtown law firm and resides in Roxboro with his wife and three children. His home narrowly avoided main floor damage in the 2013 flood (however his basement was filled to the ceiling with flood water). Mr. Morris sets out the trauma of his flood experience and its lasting effects in his letter (Appendix B-77). Mr. Morris explains that he was motivated to become a founding member of CRCAG by the volunteers that assisted with the clean-up of his home, as well as his desire to participate in the City's collective recovery.

Paul Battistella is founder of FFC. Mr. Battistella and his brother run Battistella Developments, a company started by their parents after immigrating to Canada. Battistella Developments builds multi-family mixed use buildings in Calgary's inner city and owns residential and commercial units in the buildings it develops. In his letter (see Appendix B-20), Mr. Battistella explains how the 2013 flood impacted each of these buildings, including tenant evacuations, flooded parkades and loss of electricity. Mr. Battistella also notes that the home he shares with his wife and two children suffered damage to the main floor, which required he and his family to live elsewhere for the six months it took to complete repairs. Given the importance of protecting Calgary's central business district, which is the seat of the economic engine of not only the City but the entire province, Mr. Battistella established FFC in 2017 to represent local businesses in supporting flood mitigation.


Ms. Leeds Binder, Mr. Morris and Mr. Battistella have volunteered countless hours of their time to ensure Calgary is protected from flooding.

G. REQUESTS FROM THE PRE-HEARING CONFERENCE DECISION REPORT

In its Pre-Hearing Conference Decision Report, the NRCB requested that parties provide, as part of their written submission, an estimate of the time they are requesting for cross-examination of adverse parties. The only party that we anticipate cross-examining at this time is the SR1 Concerned Landowners Group (**SCLG**). We estimate a cross-examination time of one hour. This estimate is subject to review of the written submissions of the SCLG and other parties opposed to SR1. After our review of these submissions, we will update the NRCB on whether we intend to cross-examine additional parties and will confirm our estimate of the time for cross-examination of the SCLG.

The NRCB also indicated that it will allow witness panels with more than two witnesses more than 20 minutes to introduce their evidence and witnesses on request. As noted above, we intend to seat three witnesses. We therefore respectfully request an additional ten minutes for our oral submission.

Finally, we have included in Appendix D the materials referenced in this CRCAG and FFC submission, with the exception of Alberta Transportation's evidence already on the NRCB record. As part of our opening statement, we also intend to present a video made by one of our members of his family's account of the flood, as well as some of the photos attached to the submissions we received. The video and photos are available on the CRCAG website at <http://protectcalgary.com/after-the-flood> and <http://protectcalgary.com/nrcb-slideshow-20-min-video/> respectively.



Brenda Leeds Binder

Co-President, CRCAG



Tony Morris

Co-President, CRCAG



Paul Battistella

Founder, FFC