



# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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## Project Overview

Bowness is one of several vulnerable communities along the Bow River that remains at risk from another 2013-level flood. Since 2018, The City of Calgary has been working with the community to explore the feasibility of a flood barrier that would help protect Bowness from another devastating flood like the one Calgary experienced in 2013 while minimizing impact to riverfront residents. This report outlines the engagement process and the recurring themes and feedback heard throughout the recent phase of community engagement. This feedback will help shape the project team's recommendation on the future direction of this project.

Since 2018 there has been extensive engagement with the community about the proposed flood barrier in Bowness. This includes over 175 meetings with riverfront property owners, 200+ door-knocking visits, 22 meetings with the Bowness Flood Mitigation Working Group, three in-person open houses and four pop-up booths. The most recent community engagement took place from January to March 2021 where The City shared study results, proposed barrier designs and collected feedback through online engagement and one-on-one meetings with residents identified for a barrier.

## Flood Resilience Plan Overview

As a low-lying community located in close proximity to the river, there will always be a risk of flooding in Bowness. During the 2013 flood, Bowness was inundated with water and was one of Calgary's hardest hit communities. Many in the community were evacuated for more than a week, and approximately 400 residences in the area were damaged.

In 2016, The City hired external consultants to update the Provincial Flood Damage Assessment study for Calgary and to assess and recommend future resiliency and mitigation measures. The resulting document, the Flood Mitigation Measures Assessment (FMMA) report, was approved by Council in the spring of 2017. Recommendations included the following combination of mitigation solutions to create a flexible and adaptable flood risk management program to reduce Calgary's flood risk and protect Calgary from a 1:200 level flood:

1. Upstream flood protection (Provincial jurisdiction):  
Reservoirs to increase water storage to help slow the flows of larger river floods.
  - a. Modified operations at TransAlta's Ghost Reservoir.
  - b. A new upstream reservoir on the Bow River.
2. Community-level flood protection:  
Permanent flood mitigation infrastructure to protect vulnerable areas from flooding and work with future upstream reservoirs to provide greater protection.
  - a. Permanent flood barriers in select communities.
    - o The design of the barriers in Bowness would vary depending on the property owner's lot.

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3. Property-level mitigation and policy implementation:  
Updating building regulations and guidelines, limiting types of development and public education to help make people, homes and communities more resilient.



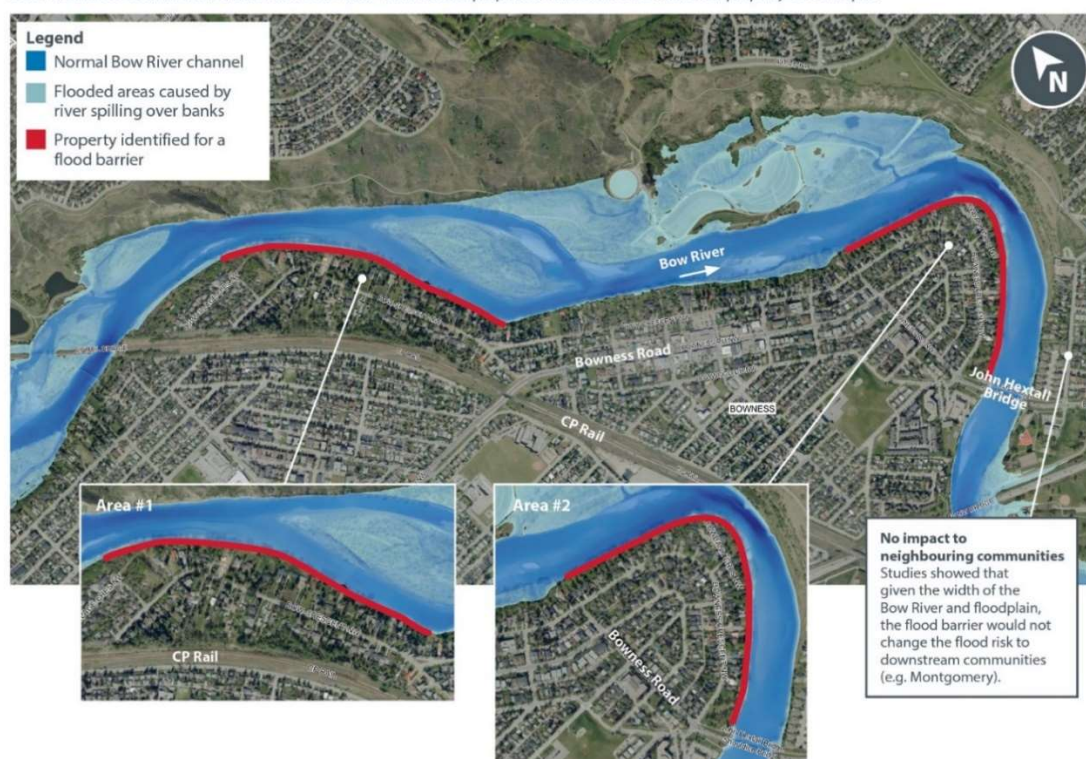
Work completed on the Bowness community flood barrier project before fall 2018 was part of the conceptual design phase. Since Bowness was identified as one of the communities requiring community-level mitigation, The City has been working with the community to explore the feasibility of a flood barrier to ensure any recommendations to Council are reflective of community values and priorities.

### Bowness flood barrier

The red line in the map below shows the proposed location for the barrier along the Bow River. The total length of the flood barrier is 1.9 kilometres, divided into two sections that target the key low-lying areas along the riverfront. In this phase, seventy-four riverfront properties were identified as being impacted by the barrier. Results from the river modelling showed there is no risk to neighbouring downstream communities.

#### Proposed flood barrier alignment

*Note: The exact location of the riverbank flood barrier on individual properties is not shown as it relies on property-owner input.*



The proposed Bowness flood barrier is one fundamental piece of The City's Flood Resilience Plan. It is intended to help reduce the flood risk for Bowness residents and protect critical infrastructure in the area with a solution that:

- Improves public safety
- Helps reduce the cost of flood damages
- Helps reduce storm and sanitary backup
- Minimizes impact to the natural environment
- Provides good value for money invested
- Works in tandem with upstream reservoirs, including current modified operations of TransAlta's Ghost reservoir and a potential future reservoir on the Bow River to mitigate flood damage in the community, with an ultimate goal of reaching The City's 1:200 overland flooding target.



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Over the last two and a half years, design and engineering consultants gathered detailed information about the area, conducted environmental site surveys and completed engineering studies and analyses. During that time, The City also worked with Bowness residents, businesses, the Bowness Community Association and other local groups to explore the feasibility of a barrier and what the design could look like.

## Public & stakeholder engagement

Public and stakeholder engagement was a key aspect of the Bowness Flood Barrier Feasibility Study.

### Goals

Through the engagement and communications program, The City focused on:

1. Building trust and relationships with riverfront property owners, Bowness residents and other members of the community impacted by the project;
2. Building a shared understanding of Calgary's overall Flood Mitigation Plan, the benefits of the Bowness barrier and the policy environment in which decisions are made;
3. Provide information on the technical studies that were completed and would be considered in combination with stakeholder and public feedback to inform the feasibility of the Bowness flood barrier;
4. Engaging with the impacted property owners to collect personal input on values, areas of sensitivity, and other factors that should be considered for the barrier;
5. Gathering feedback for the barrier design options from those riverfront property owners who would be impacted by barrier development and answering questions they have about the project;
6. Obtaining input from the community on the Triple Bottom Line social criteria, as well as benefits and concerns of the barrier to aid in evaluating the social feasibility of the barrier and help inform recommendation for next steps to Council along with economic and environmental feasibility.

## Communication activities

To encourage and support active participation during this phase of the engagement process, we completed the following communication activities:

- Mailed a Community Information booklet to 600 residences in the flood affected area (postcards with web addresses and engagement opportunities sent to rest of community)
- Shared information online, including a summary of the technical studies and FAQ's page
- Bold signs in the community
- Social media advertising
- Information sessions
- Project update in Bowness Community Association newsletter



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## Engagement activities

Due to the COVID-19 pandemic, engagement shifted from in-person to online in March 2020.



The **Bowness Flood Mitigation Working Group** was created for this project to enhance community engagement by providing advice and input on engagement and communication, to review and provide input on studies and research and to build mutual trust and understanding, with a focus on delivering the best flood mitigation solutions for the community of Bowness. The Working Group comprised of community members, the Bowness Community Association, Mainstreet Bowness Business Improvement Area, and representatives from Bowness Responsible Flood Mitigation Society (BRFM). We held **22** meetings with the Working Group where they were given the opportunity to provide feedback and ideas about the project and its engagement, as well as give insight into the social criteria factors for the social evaluation section of the Triple Bottom Line evaluation.



In January 2021, The City held **eight virtual information sessions** to provide an update on the project and share study results covering the following topics:

- **General project overview** (three sessions)
- **Flood modelling** (one session)
- **Groundwater** (one session)
- **Environmental studies** (one session)
- **Barrier design process** (one session)
- **Evaluation process** (one session)

The registration process for these events was coordinated through Eventbrite pages, which received a total of **694 page views**. In total, these virtual open houses had **275 registrations**, of which **203** people attended the sessions. Throughout the sessions **784 questions** were submitted during the live Q&A (Question & Answer). These questions were answered live with commonly asked questions taken and combined to be answered on the Bowness Flood Barrier Project Engagement FAQ (Frequently Asked Questions) section page. A feedback survey was also sent to all virtual open houses attendees to gather their feedback on the engagement process.



The City's project team held **virtual one-on-one meetings** with Bowness riverfront residents whose property was identified for a barrier. These one-hour meetings provided Bowness residents the chance to review barrier design options for their specific property and for the project team to understand their thoughts and concerns with the proposed barrier. The project manager also met virtually with Bowness riverfront residents who do not require a barrier to provide an opportunity to ask questions, as some of these residents were previously identified as being impacted by either a barrier or





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access roads before more detailed studies were completed. Seventy-five residents signed up and attended a one-on-one meeting, totaling over **65 hours** of face-to-face virtual engagement. For privacy reasons, their information and verbatim conversations are not included in this report. The notes of these meetings will be shared with the residents themselves and general themes from the meetings have been included here and will factor into the evaluation of the feasibility of the barrier.



We offered a call-in number and an email address for individual support needs during the engagement. **Forty-seven** people reached out through email and phone, totaling over **22 hours** of one-on-one support to ensure engagement accessibility.



The **Bowness Flood Barrier Project Engagement survey** was created to understand residents' opinions about the social feasibility of the Bowness flood barrier, which would feed into The City's Triple Bottom Line evaluation. The survey was open for **55 days** from January 4 to February 28, 2021 and **244 submissions** were received. Results from the survey are summarized in the next section.

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## What we asked

The Bowness Flood Barrier Feasibility Study is evaluated using The City of Calgary's Triple Bottom Line approach. The social piece of the Triple Bottom Line evaluates the proposed flood barrier's impact on the community and is informed by the input received from the community during this engagement period.



The feedback received through the Bowness Flood Barrier Project Engagement survey is the primary source of feedback used for the social evaluation of the Triple Bottom Line. This information is supplemented by feedback received during one-on-one meetings and other engagement opportunities. Survey questions can be found in Appendix A and verbatim survey results can be found in Appendix B.



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## What we heard

As part of the online engagement, The City asked the community to help rank the importance of each social criteria and to comment on the benefits and concerns they see with an overland flood barrier. There was a total of **244** submissions of the survey.

Participants were broken down into the following categories (self-identified or provided a postal code):

Type	Total
Riverfront property resident	66
Bow Crescent resident	40
Flood area resident	65
Bowness business owner or employee	6
Bowness resident (non-flood affected)	29
Other / no response	38

## Summary of survey questions and responses

### Social criteria ranking

Based on engagement we completed with the Bowness Flood Mitigation Working Group, social criteria were identified to help evaluate the feasibility of an overland flood barrier in Bowness. The seven social criteria were ranked for their importance through the online engagement portal, with **216** submitted responses. The overall combined ranking of these social criterion (1 denoting most important and 7 being ranked as least important) was:

1. Financial Impacts to Flood Affected Residents  
*Considers the potential of property damages and loss of valuables from overland flooding.*
2. Community Safety  
*Protects the diverse Bowness community and population, including seniors, owners, renters, businesses and services. Aids in emergency response and the potential evacuation of vulnerable populations.*
3. Riverfront Land Aesthetics and Enjoyment Impacts  
*Considers concerns regarding the loss of aesthetic appeal and land enjoyment to riverfront residents' property.*





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4. Financial Impacts to Riverfront Property Owners  
*Considers concerns regarding perceived financial impacts to riverfront landowners.*
5. Mental and Emotional Health  
*Considers emotional distress caused by dealing with flooding and perceived future flood risk.*
6. Construction Impacts  
*Considers concerns regarding the disruptions to the community and riverfront owners that construction may bring.*
7. Community Equity  
*Contributes to providing 1 in 200-year overland flood protection in combination with upstream reservoirs.*

Riverfront property owners and non-riverfront respondents ranked social criteria differently.

Non-riverfront respondents	Riverfront respondents
1. Community Safety	1. Financial Impacts to Riverfront Property Owners
2. Financial Impacts to Flood-Affected Residents	2. Riverfront Land Aesthetics and Enjoyment Impacts
3. Community Equity	3. Financial Impacts to Flood-Affected Residents
3. Riverfront Land Aesthetics and Enjoyment Impacts	4. Construction Impacts
5. Mental and Emotional Health	5. Mental and Emotional Health
6. Construction Impacts	6. Community Safety
7. Financial Impacts to Riverfront Property Owners	7. Community Equity

1 denoting most important and 7 being ranked as least important.



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## Benefits and concerns

We asked respondents to comment on their perceived benefits and concerns with a permanent overland flood barrier. A breakdown of the main themes from these responses are summarized in the tables below. Please note: the percentages presented in the tables will not equal 100, since a comment could have numerous themes present in it. Verbatim responses can be found in Appendix B.

**The total number of responses was 221, with 61% of comments stating potential benefits to an overland flood barrier. Some of the themes of those benefits are below.**

Benefit of a permanent overland flood barrier	Description
28% of comments stated that a permanent overland flood barrier would <b>reduce overland flood risk</b>	<ul style="list-style-type: none"><li>– Having a barrier would provide additional protection until upstream facilities are in place.</li></ul>
11% of comments stated that a permanent overland flood barrier <b>would help reduce future damage to property and infrastructure</b>	<ul style="list-style-type: none"><li>– Having a barrier would create reduce future flood impacts to affected properties and city infrastructure.</li><li>– Having a barrier would reduce damage caused by future floods.</li></ul>
8% of comments stated that a permanent overland flood barrier would <b>save flood affected residents' money</b>	<ul style="list-style-type: none"><li>– Having a barrier would reduce flood-affected residents' repair costs from the effects of future floods.</li><li>– Having a barrier would increase real-estate values.</li></ul>
7% of comments stated that a permanent overland flood barrier would <b>reduce flood concern and anxiety</b>	<ul style="list-style-type: none"><li>– Having a barrier would reduce concerns about flooding when the river is high or when it rains.</li><li>– Having a barrier reduces anxiety about potential for flood damages</li></ul>
5% of comments stated that a permanent overland flood barrier would <b>increase safety</b>	<ul style="list-style-type: none"><li>– Having a barrier means flood area residents will be safer</li><li>– Having a barrier helps protect the community</li></ul>



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The total number of responses was 221, with 86% of comments stating their concerns about an overland flood barrier. Some of the themes of those concerns are below.

Concern of a permanent overland flood barrier	Description
40% of comments had concerns around <b>groundwater flooding not being addressed</b> by the overland flood barrier	<ul style="list-style-type: none"><li>– Concern about the lack of groundwater mitigation that the barrier provides</li><li>– Concern that the barrier is ineffective if it does not mitigate groundwater.</li></ul>
27% of comments had concerns around <b>ecosystem disturbance</b>	<ul style="list-style-type: none"><li>– Concern about loss of wildlife habitats, impact to wildlife itself, and migration corridors.</li><li>– Concern about riverbank stability.</li></ul>
22% of comments had concerns about the permanent overland flood barrier <b>project cost</b>	<ul style="list-style-type: none"><li>– Concern about money allocation for the project.</li><li>– Concern about taxpayer dollars going towards the project.</li></ul>
17% of comments had concerns about a <b>reduction in land enjoyment of riverfront property owners</b> , with a permanent overland flood barrier in place	<ul style="list-style-type: none"><li>– Concern about the barrier causing an impediment to river access and yard use.</li><li>– Concern about loss of views for affected properties.</li><li>– Concern about loss of privacy due to the barrier.</li></ul>
14% of comments had concerns about <b>overtopping damage</b> (e.g., water/debris being trapped behind barrier or causing in-rush of water), with a permanent overland flood barrier in place	<ul style="list-style-type: none"><li>– Concern about a barrier causing more flood damage from overtopping.</li><li>– Concern with water pooling on property due to the barrier.</li></ul>
12% of comments had concerns about the <b>barrier not being effective or not high enough</b> (i.e., does not address a 2013-level flood)	<ul style="list-style-type: none"><li>– Concern about the efficacy of a barrier in preventing overland flooding.</li><li>– Concern about whether the barrier should be higher to provide more protection.</li><li>– Concern about how the proposed barrier would mitigate a 2013-level flood</li></ul>

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11% of comments had concerns about an overland flood barrier <b>reducing the importance of other mitigation techniques</b>	– Concern about having the barrier in place reducing the chance of upstream mitigation being constructed
8% of comments had concerns about the <b>construction impacts</b>	<ul style="list-style-type: none"> <li>– Concerns about disruption that construction of a barrier would bring (noise, dust, traffic)</li> <li>– Concern about loss of backyard enjoyment while barrier is under construction</li> </ul>
8% of comments had concerns about the <b>financial impacts for riverfront homeowners</b>	– Concern about a barrier decreasing their property value

We asked respondents to comment on their perceived benefits and concerns with **no** permanent overland flood barrier. A breakdown of the main themes from these responses are summarized in the two tables below. Please note: The percentages presented in the tables will not equal 100, since a comment could have numerous themes present in it. Verbatim responses can be found in Appendix B.

**The total number of responses was 203, with 76% of comments stating potential benefits to no overland flood barrier. Some of the themes of those benefits are below.**

Benefits of having <u>no</u> permanent flood barrier	Description
26% of comments stated that, without a permanent overland flood barrier, there would be cost <b>savings for The City and taxpayers</b>	<ul style="list-style-type: none"> <li>– Not building a barrier would save The City and taxpayers money.</li> <li>– Stopping the Bowness Barrier Study would save The City and taxpayers money.</li> </ul>
25% of comments stated that, without a permanent overland flood barrier, there would be <b>less ecosystem disturbance</b>	<ul style="list-style-type: none"> <li>– Not having a barrier would protect wildlife habitats, impact to wildlife itself, and migration corridors.</li> <li>– Not having a barrier would maintain riverbank stability.</li> <li>– Not having a barrier would maintain the natural river cycle.</li> </ul>
22% of comments stated that, without a permanent overland flood barrier, <b>riverfront landowner enjoyment could be better maintained</b> (including privacy, overall yard use and views)	<ul style="list-style-type: none"> <li>– Not having a barrier would preserve privacy for affected properties.</li> <li>– Not having a barrier would maintain river access and yard use for affected properties</li> <li>– Not having a barrier would maintain views for affected properties.</li> </ul>

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16% of comments stated that, without a permanent overland flood barrier, <b>other mitigation efforts upstream or at the property level would be better promoted</b>	<ul style="list-style-type: none"> <li>– Not having a barrier would shift resources and energy to upstream mitigation.</li> <li>– Not having a barrier would promote affected residents to develop property level flood mitigation.</li> </ul>
10% of comments stated that, without a permanent overland flood barrier, <b>the river and Bowness aesthetic, and culture, would be better retained</b>	<ul style="list-style-type: none"> <li>– Not having a barrier would help maintain Bowness' history and culture.</li> <li>– Not having a barrier would help the aesthetics of the river remain natural and untouched.</li> </ul>
8% of comments stated that, without a permanent overland flood barrier, <b>positive financial impacts riverfront properties</b>	<ul style="list-style-type: none"> <li>– Not having a barrier could help property values go back up</li> <li>– Not having a barrier will make it easier to sell the property</li> </ul>
5% of comments stated a <b>reduction in stress</b> with no permanent overland flood barrier in place	<ul style="list-style-type: none"> <li>– Not having a barrier would mean the stress of project would be gone</li> <li>– No concerns from the barrier being overtopped and trapping water if a large flood event occurs</li> </ul>

**The total number of responses was 203, with 66% of comments stating concerns about no permanent overland flood barrier. Some of the themes of those concerns are below.**

Concern of having <u>no</u> permanent flood barrier	Description
37% of comments had concerns around <b>long-term timelines for upstream reservoir, and their flood risk in the interim</b> with no permanent overland flood barrier in place	<ul style="list-style-type: none"> <li>– Concern about on-going potential for flooding before longer term options are in place.</li> </ul>
17% of comments had concerns about the <b>financial impacts</b> of having no overland flood barrier in place	<ul style="list-style-type: none"> <li>– Concern about the costs of future remediation for flood affected residents.</li> <li>– Concern about property owners being responsible for property level flood mitigation measures (i.e., raising grade, putting up temporary barriers).</li> </ul>
5% of comments had concerns of <b>increased emotional stress</b> with having no overland flood barrier in place	<ul style="list-style-type: none"> <li>– Worry about potential flooding each spring</li> <li>– Create stress from dealing with flood damage</li> </ul>





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## Survey participant questions

We also invited participants to ask questions about the project. A breakdown of the main themes from these questions are summarized in the table below, with example quotes of said themes. Please note, the percentages presented in the tables will not equal 100 since a comment could have numerous themes present in it. Verbatim responses can be found in Appendix B.

**The total number of responses was 170, with 87% of respondents asking questions. Some of the themes of those questions are below.**

Questions about the project	Examples
31% of questions wondered about <b>City of Calgary process</b>	<ul style="list-style-type: none"><li>– Why is this project happening?</li><li>– What are The City's priorities?</li><li>– Who is making decisions for the project?</li><li>– Is The City being transparent?</li><li>– Why is a City project being considered on private properties?</li></ul>
18% of questions wondered about the <b>project logistics</b>	<ul style="list-style-type: none"><li>– Is this project for a select few or for the greater community?</li><li>– Personal property questions (logistics around berm design or placement or personal river access or specific financial questions).</li><li>– What happens if property owners disagree with the project?</li></ul>
14% of questions wondered about <b>flood mitigation provincially and upstream</b>	<ul style="list-style-type: none"><li>– Why is money being spent on this project instead of upstream mitigations?</li><li>– What will happen with the Trans Alta agreement or upstream reservoirs?</li></ul>
14% of questions wondered about <b>neighbours' opinions affecting decision</b>	<ul style="list-style-type: none"><li>– Why is this a controversial topic?</li><li>– Concern about advocacy groups having more influence and individual voices not being heard.</li><li>– Concern about riverfront owners having more influence than the larger community.</li><li>– Concern about the larger community having more influence than riverfront owners.</li></ul>
14% of questions wondered about <b>groundwater or sewer backup</b>	<ul style="list-style-type: none"><li>– How does the barrier benefit me if I still get groundwater flooding or sewer backup in my home?</li><li>– Why is this project moving forward if it does not address groundwater flooding or sewer backup?</li></ul>

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14% of questions wondered about the <b>cost of the project</b> (including the cost of the barrier itself as well as the cost of the overall project)	<ul style="list-style-type: none"> <li>How much has been spent on this project to-date?</li> <li>How much will be spent on the barrier and this project moving forward?</li> <li>How can this be financially justified?</li> </ul>
12% of questions wondered about the <b>project timeline</b>	<ul style="list-style-type: none"> <li>When will the barrier be built?</li> <li>How long will construction be?</li> <li>Why hasn't the project started already?</li> </ul>

### Summary of one-on-one meetings with riverfront owners

Through the engagement process, The City had contact with 65 of the 74 riverfront homeowners (88%) identified for a barrier based on the river modelling conducted in this feasibility phase. Fifty-one virtual meetings with riverfront owners took place between January 4 and March 12, 2021 with some homeowners opting to send letters stating their position on the barrier in lieu of a meeting. A breakdown of sentiment is provided with recurring themes we heard:

Theme	Sentiments
43% of riverfront homeowners <b>required more information</b> about what is happening upstream before supporting an overland barrier	<ul style="list-style-type: none"> <li>Unsure if the barrier is necessary if a new upstream reservoir is constructed in the future. Does the barrier have enough benefit?</li> <li>Concerned if the barrier will influence changes to reservoir operations and if that would increase their risk of basement flooding from groundwater. Want to see more assurance from Trans-Alta and the Province about operating protocols.</li> <li>Wants to see more information on what can be achieved through a new upstream reservoir first as they feel it is a much bigger piece of the solution.</li> <li>Concerns for the trees that would need to be removed on their property.</li> </ul>
30% of riverfront homeowners were <b>unsupportive</b> of the overland flood barrier	<ul style="list-style-type: none"> <li>Do not see a benefit to the barrier, as it cannot eliminate risk of basement flooding damage from groundwater</li> <li>Believe that the solution should be entirely upstream and not impact individual properties.</li> <li>Believe current provincial agreement with Trans-Alta is enough to minimize risk of flooding until upstream is constructed.</li> <li>Homeowners who bought on the river understand and accept their flood risk.</li> <li>Do not believe a barrier or the proposed pumping wells (to help lower the groundwater table) will work.</li> <li>Concerned about the environmental impact being too great</li> </ul>



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15% of riverfront homeowners were <b>supportive</b> of the overland flood barrier	<ul style="list-style-type: none"><li>- Would prefer to not be directly impacted but understand the need for community-level protection for their property and/or the community.</li><li>- Want to see continued advocacy for upstream mitigation but are concerned that it is too uncertain or far away to rely on and the barrier could help provide some protection sooner.</li><li>- Feel the proposed design could be integrated in a way that minimizes the impact to their property and the environment</li><li>- Appreciate how the design helps address concerns for their property, such as riverbank loss.</li></ul>
There was no contact with 12% of homeowners	<ul style="list-style-type: none"><li>- No meetings or correspondence between the City and property owners have taken place in the feasibility phase to assess their sentiment around the barrier.</li></ul>

Many of these homeowners indicated they also filled out the online engagement survey to provide their input into the social impact evaluation. The feedback provided in the one-on-one meetings also helps inform the economic feasibility of the proposed barrier as The City would be seeking negotiated land easements to construct the barrier on private property. Following the engagement, The City received a petition signed by residents indicating they would not negotiate an easement for the barrier on their property at this time. The petition showed alignment with those who indicated they were unsupportive or wanted more information about what is happening upstream before supporting the barrier.

## Next steps

The City of Calgary is completing a Triple Bottom Line (TBL) evaluation on the feasibility of an overland flood barrier in Bowness that considers the social, economic and environmental impacts of the project. This report is a summary of the social feedback that will inform the TBL evaluation. The results will inform an update to Council on the future direction of this project.

### Appendix A

The following information pertains to the Bowness Flood Barrier Project Engagement portal survey.

Based on engagement we completed with the Bowness Flood Mitigation Working Group, social criteria were identified to help evaluate the feasibility of an overland flood barrier in Bowness. As part of the online evaluation, The City asked the community to help rank the importance of each criteria and to comment on the benefits and concerns they have with an overland flood barrier.

### PORTAL QUESTIONS

We would like your help determining the importance of each of the Bowness flood barrier social criteria. The social criteria (in no particular order) and its description are found in the table below. The table also gives you some 'guiding questions' which are useful to consider when determining the importance of each social criteria. Once ranked, the social criteria will be used by the project team during the evaluation process of the overland flood barrier.

SOCIAL CRITERIA	DESCRIPTION	GUIDING QUESTIONS
<b>Community Equity</b>	Community Equity contributes to providing 1 in 200-year flood protection in combination with the Upstream Reservoir (note: This is the same overland flood protection target as other Calgary communities, how The City achieves that level of flood protection differs between locations in recognition of each community's unique conditions).	<ul style="list-style-type: none"> <li>What does equitable protection for Bowness look like compared to the rest of Calgary? Think about both local and upstream mitigation.</li> <li>How will a permanent overland barrier option help achieve this level of protection?</li> <li>How will temporary and policy flood mitigation options help achieve this level of protection?</li> </ul>
<b>Community Safety</b>	Community Safety protects the diverse Bowness community and population, including seniors, owners, renters, businesses and services. Aids in emergency response and the potential evacuation of vulnerable population.	<ul style="list-style-type: none"> <li>How will the construction of an overland barrier impact you and the community if there is a need to evacuate due to flooding?</li> <li>How will having no permanent flood solution impact you and the community if there is a need to evacuate due to flooding?</li> </ul>
<b>Financial Impacts to Flood-Affected Residents</b>	Financial Impacts to Flood-Affected Residents considers the potential of property damages and loss of valuables from overland flooding. Potential for increased property values with protection in place.	<ul style="list-style-type: none"> <li>What is the financial impact (positive and negative) of a permanent overland flood barrier to you and other community residents and businesses?</li> <li>What is the financial impact (positive and negative) of having no permanent flood solution to you and other community residents and businesses?</li> </ul>
<b>Community Well-being</b>	Community Well-being considers emotional distress caused by dealing with flooding and perceived future flood risk.	<ul style="list-style-type: none"> <li>How will a permanent overland barrier option impact your and the community's peace of mind?</li> <li>How will temporary and policy flood mitigation options impact your and the community's peace of mind?</li> </ul>
<b>Construction Impacts</b>	Construction Impacts considers concerns regarding the disruptions to the community and riverfront owners that construction may bring.	<ul style="list-style-type: none"> <li>How would the construction of a permanent overland flood barrier increase or decrease the risk of short term and long-term property damage, noise/nuisance, loss of access to residences and services, heavy truck traffic in the area, risk of accidents?</li> </ul>
<b>Riverfront Land Aesthetics and Enjoyment Impacts</b>	Riverfront Land Aesthetics and Enjoyment Impacts considers concerns regarding the loss of aesthetic appeal and land enjoyment to riverfront residents' property.	<ul style="list-style-type: none"> <li>How will the permanent overland barrier result in loss of aesthetic appeal in landowners' backyard? (i.e. the backyard itself or river views).</li> <li>How will a permanent overland barrier affect landowners' ability to access the river for their enjoyment?</li> </ul>
<b>Financial Impacts to Riverfront Landowners</b>	Financial Impacts to Riverfront Landowners considers concerns regarding perceived financial impacts to riverfront landowners.	<ul style="list-style-type: none"> <li>How will the permanent overland barrier reduce or increase the property's liquidity or value such that landowners are limited in their mobility?</li> <li>How will the permanent overland barrier reduce or increase the saleability of a property during design and construction?</li> </ul>



# Bowness Flood Barrier Project Feasibility Study

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1) We want you to rank each of the social criteria in order of importance by dragging and dropping them into the right-hand column.

Please rank from most important at the top, to least important at the bottom.

Community Equity	1
Community Safety	2
Construction Impacts	3
Financial Impacts to Flood-Affected Residents	4
Riverfront Land Aesthetics and Enjoyment Impacts	5
Mental and Emotional Health	6
Financial Impacts to Riverfront Property Owners	7

## Benefits and Concerns

Now we want to hear the benefits and concerns of the 'Permanent overland flood barrier' option versus the 'No permanent flood barrier' option as it relates to each social criterion.

As a reminder, the 'Permanent overland flood barrier' option would be a combination of earth berms or flood walls on private property that target two key low-lying areas along the riverbank area (approximately 75 properties). The 'No permanent flood barrier' option would be to maintain status quo. No structural flood mitigation is introduced into the community. Bowness would need to rely more heavily on other longer-term elements of the plan to achieve flood resiliency, such as the upstream reservoir, as well as more private property-level solutions such as property-level floodproofing and changes to permissible development and land use may be necessary.





# Bowness Flood Barrier Project Feasibility Study

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Please list all of the benefits and concerns that you have of the 'Permanent overland flood barrier' option versus the 'No permanent flood barrier' option as it relates to the social criteria above. Please write your responses below.

## Permanent overland flood barrier

### 2) Concerns of permanent overland flood barrier

You have 750 characters left

### 3) Benefits of permanent overland flood barrier

You have 750 characters left

## No permanent flood barrier

### 4) Concerns of no permanent flood barrier

You have 750 characters left

### 5) Benefits of no permanent flood barrier

You have 750 characters left

### 6) Which of the following best describes you?

Riverfront property resident

Bow Crescent resident

Bowness flood area resident

Bowness business owner or employee

Other - Write in postal code:



# Bowness Flood Barrier Project Feasibility Study

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## 7) What questions do you have about the project?

### All verbatim questions

#### Question 2) Concerns of permanent overland flood barrier

- May support delay of more permanent and effective upstream mitigation.  
If water does get into the flood zone, will it be trapped like it was in John Hextall park in 2013?  
Will berms increase potential damage through groundwater in flood/flood-adjacent properties?
- The barrier options that have been proposed do not appear to achieve the prevention of overland flooding at a flow rate equal to that of June 2013. An additional concern, however, is that ground water flooding will not be addressed. As was seen in Sunnyside in 2013, when storm outfalls are closed, the inland drainage system floods, thereby creating overland flooding from the storm system. The permanent Flood berm in Sunnyside ameliorated damage in 2013, but certainly didn't prevent it. The Sunnyside berm is considerably larger than the one proposed for Bowness. Therefore great expense for uncertain and marginal benefit.
- This project is ill conceived and a waste of taxpayer money. It has dragged on for 3 years now and will do nothing for groundwater flooding. The idea of pumping wells is ridiculous as they would never keep up and no one has any idea where the groundwater is going to go at a flow rate of 1,230 m<sup>3</sup>/s. Keep the TransAlta agreement going, pursue and financially support property level flood protection as per page 2 and continue to lobby and support upstream flood protection.
- Disturbing the existing ecosystem during the build.  
Living in areas that are higher risk for natural disasters should not be encouraged. Building a house in a floodplain is pretty but also very foolish.
- This will cause more groundwater flooding every time the dams release more than 800 MPa flow. We need a commitment from the City it will help pay for basement flooding when high releases from the dams cause flooding. It could cost us about \$40,000 every time. These costs should be included in their calculations when evaluating the barrier.
- Riverfront landowner enjoyment
- It does not address ground water flooding
- Impediment of river access and loss of views for affected properties
- If not done right (like the zoo berm) it will not be overly effective.
- You are taking away wildlife homes. You are taking away our beautiful Bowness. It's ridiculous that no one is listening to the people it will affect the most. Please think how you would feel if someone destroyed your neighborhood. There is zero guarantee that this will even keep overland flooding at bay. How about admitting that the flood had to do with human error with the dam?
- Considering how long it has taken to get these mitigation measures in process, how long will it take to see some actual results?
- Where is it going is it going to affect people
- Administrative bureaucrats know this barrier will cause extensive groundwater damage in Bowness when the river flows higher than 800m<sup>3</sup>. You are knowingly treating us like collateral damage.
- It won't be high enough
- None, we are not directly impacted by the barriers but are in one of the most flood prone zones. River rafters usage of the barriers to stop or otherwise.
- decreased property value. Diminished privacy. Viewscape infringement
- how are you going to stop the river water from flowing underneath. once under what about how is it to flow back to the river?
- My only concern are delays in construction, another flood occurring and more property damage or loss of life.

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- Do I get flooded anyway by water rising under the barrier?
- Barrier will not be effective because of groundwater flooding under the berm. Home owners will be subject to increased flooding events if river is flowed at proposed rates. Topping the barrier will be catastrophic in terms of cleanup after a flood event of this magnitude. Significant decrease in property values with significant negative benefits to home owners and the environment.
- Maintenance of the barrier would be critical as erosion, decay or any weakness would cause failure. The barrier would create pooling on the land side of it. The barrier would not prevent groundwater damage. We worry that once the barrier is in place the reservoirs may not be managed effectively resulting in higher flow rates in the Spring. Increased flow rates will cause a higher level of groundwater flooding.
- Ill-wrought, ugly, and poorly executed solutions such as earth berms implemented in Bragg creek and elsewhere represent a major loss to the beauty of Calgary's river areas and legacy communities.
- A barrier over a bed of gravel will not hold the water back. By allowing the dams to flow over 800 MPs ground water flooding will be significant. There are no government assistance programs to cover costs caused by ground water flooding. I believe it could cost us over \$40,000 each time these volumes are released. If the City of Calgary continues on this path, knowing the damages to the homes caused by groundwater flooding, the must accept the liability of these costs. Will you commit to covering groundwater damage costs?
- None.
- It fails making an in rush of current worse than before
- Damage to any of the vegetation and animals all. Changing the look for property owners, not seeing or having access to the river as they once did.
- Cart before the horse - no barrier until upstream mitigation

Will still get groundwater flooding

A big project to protect only a few houses, taxpayer money poorly spent. Give homeowners a property tax break and let them buy flood insurance

What happens when the barrier is over-topped by a 2013 type of flood; extensive, catastrophic damage where the barrier breaks.

Gross embarrassment of City officials, if Bowness floods from groundwater after spending millions on a barrier

Cost/benefit as barrier costs are currently under-estimated

Security issues and also environmental issues with additional access to the riverbank

Most houses are now built to 1 in 100 flood standards, so there is already some private property mitigation

- Riverfront residents will be affected
- My concern with overland flood barrier is it will not protect me from underland flooding, which is how I was flooded in 2013. I am also concerned that the berm will make the underland flooding much worse by constricting the river flow path. From reading the news, it is apparent the berm solutions in other areas (Bragg Creek, exshaw, fort Mac) have all, not only failed to prevent flooding, but have actually made flooding much much worse.
- The overland flood barrier is not able to address groundwater flooding. It's purpose is to facilitate higher controlled release rates from upstream reservoirs and that will be detrimental for Bowness. The solution requires a new and large upstream reservoir. Constructing the flood barrier will negatively impact the economic business case for a new upstream reservoir and promote this reservoir be built smaller than required to protect Bowness. This reduction in project economics for the upstream reservoir would result in it never getting built and bowness will only have a relatively useless

# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

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barrier. The city CANNOT limit community equity to only be based on overland flooding. Damage is the same if from overland or GW.

- That large pumps are installed in the area to insure the barrier is safe.
- It will devalue properties and decrease access to the river. It will probably increase trespassing and there will be a lot of disruption because of the construction.
- I'm really worried about how this process is being fought. There is a group of very well-off residents who are organized. But I don't think they represent everyone in the neighbourhood. They have the money to organize and fight. I remember, after the big flood, seeing how they were getting SO much help (which was good). But there were people who lost food and were lower income. I remember them watching all the volunteers helping the riverfront owners and not getting much help themselves. I worry their voices are lost against well organized and RICH opposition to this project.
- It will have an extreme negative impact on the existing ecosystem. Many, many trees will be removed, at a time when we need more trees. 2. I do not think this is fair to the property owners when what is probably the biggest financial purchase of their lives will be so substantially de-valued as a result. 3. My technical understanding of this project is that most of the flooding is groundwater flooding, not overground; and this project will have minimal impact on groundwater. I do not want my tax dollars spent on a political exercise. 4. Social equity. The wealthy of Roxboro get a reservoir to preserve their back yards. This project completely stinks of social inequity.
- Flood barriers move flood damage and severity downstream, and if breached, make flooding worse in their immediate vicinity.
- My only concern with a permanent overland flood barrier is that it is sufficient to do the job, and visually attractive. I understand many riverfront property owners are at arms with a barrier, but this is a community issue not an individual property issue.
- Untested and will cause more damage - stop the water before Calgary! 2013 we had no storm sewer or septic sewer backup. We did put in a septic sewer backup device but I see no value in a sump pump because of the high water table.....I will end up just recycling groundwater out to eventually return to the basement. Or somebody else's sump pump discharge...and besides, if everyone has a sump pump then the accumulated buildup of hydrostatic and flow pressure will collapse some basement concrete walls.
- For us and our surrounding neighbours, we had some underground sewer backup, this overland barrier will provide no protection with great expense
- No concerns, go ahead and build it
- ground water rising & more water behind the barrier even with no significant high water event.
- impact with wildlife moving in the area, loss of habitat for canadian goose/goslings to feed & breed, barriers to travel through the area especially the young animals/birds
- Loss of trees/bushes, including fruit trees/bushes
- maintenance of yard - inability to cut lawn, loss of irrigation system
- loss of view
- will not affect/improve storm drain/sewer back up
- construction - how long will it last and although the foot print doesn't look big, you will need to bring heavy equipment in and dig deeper than the base of the wall so in all likelihood, mature trees with large root systems will be damaged even if outside the barrier footprint
- My main concern is that this effective mitigation strategy, that could provide additional benefits to the community at large is being sabotaged by a wealthy and vocal minority that do not want others to enjoy expanded river access.

# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

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- I don't think that this will protect property in Bowness from water table rising and sewage back up which are extremely likely, and happened before, if water is high enough for overland flooding the berm is designed to mitigate.
  - No concerns. Please move forward to provide a permanent overland flood barrier as soon as possible.
  - Still have ground water flooding
  - inability for public to utilize river front and access and enjoyment of river/parks. Becoming an eye sore. Costs to taxpayers. Costs to riverfront owners.
  - Which option has less of an environmental impact to the species and habitats along the river
  - It takes away from the backyard of people who worked hard to get the properties along the river. It will have a minimal impact on reducing the severity of a flood at a huge cost to Bowness property values and enjoyment. I have been a Bowness resident for almost 20 years and Bow Crescent is where many resident dream to move one day. I do not live on Bow Crescent but would love to move there. Messing up the back yard for a flood barrier is not worth it. I would rather take the risk of having to renovate my basement.
  - None.
  - If there is a permanent floor barrier in these areas, is the increased flow expected to moved more to the other side of the floodplain? Would the barriers increase erosion in other areas? What are the effects of possible erosion?
  - It won't work to stop ground water flooding, the sewer has been lined. Backflow preventer are installed. If you control the level of goast dam there is no need or reason to build a wall on the river bank
  - Won't this just push flood waters elsewhere? Why would these barriers prevent a flood and not just change the way the flood occurs?
  - True effectiveness if a large scale flood happens again. If it's going to be built, it has to work when we need it to.
  - Concerned about Riverfront property owners BOYB group having a disproportional influence on the outcome.
  - Won't adequately address the groundwater flooding issue. Very expensive and very destructive to the riverine environment along Bow Crescent. Permanent barriers not a good option at all.
  - No concern. Go ahead and build it.
  - Residents are rightfully concerned that a barrier may be the 'thin edge of the wedge' that eventually leads to public pathways in our backyards. The City's design team must provide assurances, via property owner selection of barrier type (wall vs berm) and placement on their property, such that we can put this concern to bed. Property owners should be able to fence their yards overtop of the barrier in order to preserve the full use of their current yards, and have just as much room for kids & pets. Maximum effort should be taken to preserve trees and to blend the barrier into the landscape in an unobtrusive way.
  - Destroying nature for something that isn't needed
  - The effect of wild life in the area.
- Poor use of tax money. I renovated my house after 2013 to have greater flood resistance. I don't agree that this will make any real difference when ground water is what affected my property only.
- Waste of tax payer's money. Resistance to out-going ground water back to the river. Ground water always finds a way in. How does it get back out?
- What about my property value? This will negatively affect the value going forward. How are owners being compensated for this impediment?
- This is best option to save homes and businesses in Bowness.



# Bowness Flood Barrier Project Feasibility Study

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- Flood barrier will serve no purpose and is a waste of taxpayers money. Upstream midigation is the only correct answer!
  - just aesthetics from a river users perspective
  - The damage to the riparian edge is not repairable to the full extent of the damage done by the construction.
  - Construction impacts and timeline, ground water mitigation
  - Negative impacts on fish and wildlife
  - I would anticipate that the proposed barrier would increase shear stress/erosion potential at the constriction points under flood condtions. I suspect this has the potential to increase channel migration/bank erosion on banks opposite the barriers, particularly the narrow section in area 2. A fluvial geomorlhic assessment should be completed to understand the current conditions and asses the potential impacts of the proposed design.
  - After I read and saw photos what happened in Fort McMurray and Exshaw, I have no confidence that this barrier will benefit our lives. I'm not an engineer but isn't Bowness on various depths of alluvial...the river rises and so does the groundwater ? My fear isn't of flooding but the mess that can happen from water being trapped behind the barrier and being forced into the community and basements. The stress of the murder of the urban forest ...listening to chainsaws and chippers for years with construction is a major stress. My profession is in Turf Management and I have been involved with tree removal on golf course construction projects many more trees will fall than what is selected. Just the size of this project and the disruption.
  - No concerns this is a necessity.
  - No concerns here. I am very function over aesthetics
  - None. I think it's clear that the community benefits outweigh the costs. There could be long term community impacts if we don't have the barrier and there is another flood ie. homeowners can't receive insurance
  - The ranking question wasn't great. Most of those issues weren't of concern at all, and certainly not protecting the Richy rich that live on a floodplain. Shouldn't have bought a riverfront house if you have concerns about flooding.
- I am concerned with the extra taxes the working class will have to pay to construct a barrier to protect a few hundred (very wealthy) peoples houses.
- Is it enough coverage due to the water may be pushed into the area between the two barriers and flood more homes than before. I would like more info on what measures upstream are being done or considered since we seem to have a fair amount of dams between here and the mountains and if there is a chance of designing something to cure the flooding and make power for the city and area to lower prices and be greener to the area.
  - Environmental destruction, impact on Riparian ecology, integrity of a barrier over time.
  - Backing onto a river is a rare opportunity in this city...blocking this will affect property values and also enjoyment of these properties.
  - Not being high enough , current retaining wall may work. Grass berm should be dropped as an idea it wont work. I was present and lost my home in the 2013 flood. If your not going to build it properly dont bother building it at all. I spent my life savings re building my home and life again. My house is flood proof now . I lost everything , I learned a valuable lesson.
  - No real concerns
  - The main concern is having sufficient pumping capacity for seepage and possible overflow. Proper sewer design.
  - Disturbance of trees and potential wildlife in the construction. Plus the length of time it would take to construct.

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- None - get it done
- None. Tired of paying for people who choose to live in a flood plain. Get what you give.
- The amount of destruction that will occur due to the construction - wildlife, environment. Where will the water go when the barrier is breached? Who is responsible for maintenance of barrier? If City, how do they gain access? When barrier is breached, who will be responsible for pumping water back to river? Does the City do checks on the barrier every year to ensure no erosion or damage? Will this allow Trans Alta to run more water through the City thus increasing the ground water flooding issue?
- What will be the impacts on the opposite side of the river at the eastern barrier? With the river deepening in that area, will the opposite banks become more unstable?
- The idea of having flood walls as part of the plan is extremely concerning to me. With how high the water table is in this area, I worry about the longevity of flood walls. The construction process of constructing the barrier - I am concerned that the vegetation that will be removed would do a better job of flood resilience and I am concerned about the amount of sediment that will enter the river. Removal of trees = removal of habitat for our wildlife that depend on it.
- None
- Wasted tax dollars for something to try and reduce flooding should a 100 year flood from a perfect storm ever happened again.
- The superficial engagement process has led to inequity and alienation amongst affected property owners. The produced design disregarded feedback from those affected, highlighting that "engagement" was little more than lip service and afterthought. The cost proposed by this committee for the design is comically understated, despite clear feedback from multiple parties illuminating this. The design and build process thus far appears to represent an opportunity for the design team and administration to record an accomplishment on their resume, rather than to respond to the needs and rights of affected parties. Finally, this berm will not provide protection from groundwater, and the design team has been dismissive of this real concern.
- Destroys home value's and offers no protection from ground water. No guarantee's province will proceed with upstream mitigation and City's own reports say the bowness barrier should not be built if upstream mitigation not done.
- None.
- insufficient to protect those of us in the ground-water flood zone  
my commercial building is at risk from ground-water flooding (personal information removed)  
"no increased flood risk for downstream neighbors" - so why not first mitigate upstream as has been recommended?  
why should Bowness residents suffer increased damage through groundwater damage to protect the downstream neighbors?  
this is a not a solution to the larger problem and will put both riverfront and those of us a few blocks away at risk for groundwater flooding
- None. Totally support a flood barrier to keep the community safe.
- It will cause more damage from groundwater. It will damage the flora and fauna. We have many creatures that use that corridor and the barrier will take that space away from them. It is a waste of money and will not prevent any flood damage.
- Groundwater issues. Permanent overland flood barrier is being done based on the Associated Engineering report that first proposed it, as a 3 pronged approach to flood mitigation along with 2 other conditions:
  1. Maintaining TransAlta agreement that lowers water in Ghost damn during flood season and
  2. Add in additional upstream mitigation.

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Doing one in isolation was NOT an option

This barrier will allow to flow the River faster & Higher through Calgary (up to 1230m<sup>3</sup>/sec...average year is under 300m<sup>3</sup>/sec) ....which means there is significant increased risk of groundwater flooding (as is happening in Exshaw where they improved the floodway this year with the goal of preventing overland flooding)

- Public access to the river
- City design doesn't control for gw flooding & KCB gw study shows that w/ the current design & target peak flow rate, flood fringe residents can expect damaging gw flooding. As designed it would have been overtopped by most past major floods

Other unintended consequences as found in Fort McMurray and Exshaw.

A barrier may encourage trespassers onto private property, impacts privacy & security.

Negative construction impacts for residents: noise, dust, heavy equipment on the street, tree removal, destruction of natural river environment, etc.

Waste of City spending, given the barrier will not protect many from flood damages (gw & overtopping).

Disruption to wildlife during construction. The wildlife may not return after.

- Bowness floods via groundwater since we sit on the largest gravel bed in the entire Bow Valley. The Berm will provide no relief for this problem and may, in some cases, exacerbate the flooding. It will do nothing to protect residents near the river who flood via groundwater and may even increase hydro-static pressure (due to increase flow rates and volume) and adversely affect residents further afield who would not normally flood. It will completely decimate the ecosystem, destroying precious wildlife habitat and natural flora. It will destroy the peace and quiet of our neighborhood for over 2 years (probably double that, given the unrealistic construction projections). It will protect virtually no one and cost the taxpayers dearly.

- none
- you are swapping out me getting flooded by overland with me getting flooded by groundwater
- None
- Aesthetic appeal, construction times, maintenance, and preserving the history and look of Bowness. Also a lot of effort for a chance natural event that occurs 1 in 200 years. Could this not be mitigated by creating a recovery fund if it were to happen again?
- free flow of birds, nesting waterfowl, animals.

esthetics of the area

will not change groundwater flooding or sewer back up

- Disheartened with the process. A few riverfront owners are fighting for no reason...they won't be hurt..they have just dug their heels in and refuse to see reason.
- limiting animal and bird movement (young goslings, ducklings and baby animals) over the land especially on land with walls, problems accessing yard for maintenance, loss of irrigation system, construction which will lead to a loss of trees. access by homeowners with permanent wall features, ground water pooling in yard and inability to drain water away from land leading to flooding in the home for a longer period of time. turning bowness into a second high river which had water pooled in the community for months. if upriver controls not added will not be enough to prevent overland flooding anyway. storm water system overwhelmed and flooding from the inside of the barrier with no where for the water to go
- I would be concerned if it disrupted the character and appeal of the community. Having reviewed the brochure, this does not appear to be the case. It looks attractive and the river front homes will still be appealing.
- Well the cost to me, a land owner who prudently bought high ground. Then my disgust at this perhaps being forced upon riverfront landowners, who enjoy their vista and paid dearly for it. And then

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my expected annoyance during my next Bow river float, where in place of a pleasant cruise past architecturally intriguing homes we can feast our eyes upon a grassy berm.

- Concerns would be the aesthetics of the the barrier. I would not want a barrier that required demolishing the homes around the river. That said, from the pamphlet, it looks very pleasing and I have no issues with it.

- Years ago a project to extend Sarcee across the Bow was canceled because it would "ruin" the river valley. I will not complain though because I love the river valley and would not want to see a freeway in that area. However if one high bridge would have ruined the river valley how about a flood barrier that involves logging off the whole south bank, ripping out the soil and piling up a bunch of rocks? After that's been spoiled the bill is then mostly sent to poor taxpayers in the high NW and NE who don't even get a green line any time soon do to a lack of cash. All of that to benefit the rich river front property owners who want to keep their unique real estate. To add insult, after public money is spent public access will be denied

- I do not want anything build on the shoreline as there is much habitat that would be lost
- Loss of enjoyment by riverfront property owners. Construction impacts, while only months in duration for each section, will go on for a few years. (Noise, traffic, dust and disruption will persist for a few years)

- None. I think it is a good idea and I am fully supportive.

- This will not work will cause more damage - more ground water damage

- That it won't be sufficient. That said, I'm in the process of adding in a sump pump and will invest in additional property level measures ie. erect my own temporary barriers.

- It will not be effective in its current proposed form. It may slow the flooding, but yearly damage from rising waters will create the need for extensive maintenance. It also does not address flooding caused by under land water movement or sewage back ups.

Damage to natural wildlife corridors and a sensitive ecosystem.

- Can it be washed away? Or will it just be topped?

- After reading all available literature - both from the City and from the Bowness Responsible Flood Mitigation folks, I believe it will be ineffective - particularly in addressing groundwater. The City has downplayed this threat completely. Since I live in the area, I witnessed first-hand the effect of groundwater in the 2013 flood. Also, don't like the idea that this berm would allow the river to flow at higher volumes. This would seriously impact all Calgarians' enjoyment of the river, whether it is fishing, swimming, paddling, etc.

- I live at (personal information removed), in Bowness. I understand the city has determined my property does not reside in a low-lying area; and as such the City is not recommending a permanent flood barrier for my property.

FIRST: (personal information removed)

IS IT POSSIBLE: my property could later be recommended for a barrier?

ALSO-Before scheduling a virtual meeting with a project manager, I am currently uncertain about whether I need to meet with someone from the city to review my property.

I have questions I want you to respond to (in writing) before taking any next steps.

See Below #s 3, 4, 5

- Ground water flooding will continue and will be worse if dams flow above 800 mps

- Not sufficient to deal with groundwater flooding. Too expensive. Too destructive to build

- That it won't be sufficient to prevent a flood.

- The damage that will be done to the environment in order to build this barrier is not worth it. There are already protection measures in place, and although the risk of flood still exists, it is possible that another flood will not occur that affects Bowness residents. It is also possible that flood damage can

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STILL occur once this barrier is in place. The environmental impact on our river, lands, and forests is unacceptable.

- If we have a local rainfall greater than the 1 in 5 engineered for, how do we get rid of the overland water before our basements fill up?
- 2. There are risks with or without a berm. Do we have all the information? Is the city being transparent?
- 3. Has the city already made a decision and this whole process is just a note taking exercise to be called public engagement or consultation. Ward Sutherland statement "There will be a wall", do we have say in the matter.
- 4. The city seems to be engineering the height of the berm based on inundation maps that exaggerated and natural flow which implies, ignore the dams upstream. This does not seem like good engineering practice.
- 5. I have a lot of questions which are not being answered. Why?
- 6. We will lose our river view, access, and privacy.
- 7. More than likely a 3 year Construction disruption.
- 8. Resale option will not be viable until construction is complete.
- 9. Construction means we lose the best time of the year to enjoy our backyard for 3 years.
- 10. If get water trapped behind the berm we will be dependent on the city to bail us out in a timely manner.

Where would we be in the priority list?

- 11. Will TA release water above the safe 800 cms just because they can when a berm is in place?
- 12. Will TA fill there dams before dumping when there is a potential flood situation.
- 13. This whole process is taking a toll on our emotional and physical health as well as costing us a lot of time and money at our own expense.
- If we have proper flood management in place and use all the existing upstream infrastructure, do we really need a berm? Are the risks associated with a berm worth it?
- 1. Our basement will flood from GW with any sustained flow over 800 cms, with or without a barrier.
- 2. If we have a heavy local rain when storm drains are closed could we get overland flood water in our basement?
- 3. The berm height, footprint and alignment will all have a direct negative impact on our property value.
- 4. The city could go back to the original plan of one continuous road allowance from one end of the crescent to the other which would destroy our back yard.
- 5. The current proposed berm height on our Property is 1.5 feet above the 2013 flood level. Why?
- Will TransAlta flow the river faster as a result? Slow the Bow claims that we will have more flooding. This doesn't make sense to me as it defeats the purpose of all this effort. Why would the City spend so much time and money to flood Bowness more?
- It should be higher and it should include the homes of the people who are fighting it. I think the City should purchase the homes of the people who will lose significant yard space and we can use it as green space ie. a dog park.
- The city is subsidizing stupidity by building expensive infrastructure. City funds could be used somewhere else rather than modifying the river to increase a select few property values. Another flood is likely to severely damage the barrier and trigger further taxpayer funded expenditures to fix broken infrastructure.
- This does not stop the issue of groundwater flooding in Bowness. Also makes for unsightly and damaging construction on the riverbank.
- None.
- It can't be ugly and massive like the one in Exshaw.



# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

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- None. Design does not appear ugly and would lower property values of residents along the River.
  - I believe our property has a gravel base that is connected to the river, which will allow river water to freely enter our property equal to the river level, regardless of the existence of a flood barrier.
  - Environmental impact of disrupted land, trees, riparian habitat.
  - 2. That it does not reduce risk for flooding the the low lying areas.
  - 3. Cost of the project and disruption to build these barriers will be for minimal to negligible flood mitigation.
  - Blocking view to river, Bike path seems to be a city priority and would cause extensive risks for crime to property and The loss of wild life and trees. Is the city prepared to take on the financial risks that would be involved with sewer back-up and ground water flooding?
  - your ranking misdefines equity. equity is equity of protection, not equity of overland protection, please fix your survey
  - It is very expensive. Not clear the cost to build versus the benefit makes this viable. It be disruptive during construction, particularly to riverfront residents.
  - Simply put, if it does not protect against all forms of flooding then it is a waste of money. The whole process has trampled on private property rights never mind if it is given the go ahead by City council. It has been stressful for affected residents to battle City Hall but it is worth it.
  - ruin established green nature area and destroy land values while not being effective against ground water going under the berm. Bowness is just a big gravel pit and a tiny berm would have negative effect
  - I don't have concerns.
  - None
  - It could prevent floodwater from draining away. It could increase river flow, damaging downstream communities/properties. It would not prevent groundwater flooding. It would destroy riparian habitat (which the city is protecting on the other side of the river). It would be expensive.
  - This is the most ridiculous questionnaire / survey you could ever devise. What are you trying to achieve with this? Justify your job and the millions spent on salaries / studies and useless questionnaires!?
- Bottom line is a berm is so you can purposely run the river higher and faster and is going to increase the likeliness of property damage. The city WILL be liable for this fiasco.
- Increased risk from ground water. What will this do to our home insurance costs? Damage to environment and wildlife corridor. We have many creatures living back there. This pointless process has already caused increased stress and is causing mental emotional health issues. The studies have shown that there is no benefit with the barrier. Our property values have decreased due to the barrier plan. It is a waste of taxpayers money for no benefit. Only upstream mitigation and Transalta decreasing the flow can be of any help. In fact if Transalta had decreased the flow in 2013, our basement would not have been damaged. We did not have overland water damage.
  - It will allow for a relaxation of tighter monitoring or lake/river levels flows from the Bearspaw Dam by Transalta in flood season. Thus, we would have more frequent annual groundwater flooding like Exshaw has after it's river channel was upgraded as is proposed here. An alderman even used the term that this berm will allow for higher river flows through Calgary.
  - My main concern with a permanent flood barrier is that in its current form would do more harm than good in the event of another overland flooding event. Other concerns include the financial impacts on current and often long term landowners, the enjoyment of their properties which for most is the very reason they bought in the first place, the esthetics, and what I personally perceive as virtue signaling on the city administration's part.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- Ground water. So many concerns. Incentive to run water higher given could positively financially impact city at some point but create ground water issues for residents.
- The barrier will not prevent groundwater flooding, and may possibly make it worse (Exshaw for eg.). Concerns about public access using barrier. Want to have equity (treated the same) as Elbow River communities where upstream mitigation solves both overland and groundwater flooding. In Bowness, the Barrier does not address both issues.
- Not convinced that it will protect us from overland water and groundwater.
- Unnecessary financial expenditure. Upstream mitigation and private property-level solutions make more sense. Barrier would destroy valuable river habitat needed for wildlife corridors, fish spawning, and bird nesting, as well as ruining the river bank and stabilizing tree root infrastructure
- residing for (personal information removed) years on the river side of Bow Crescent and being of (personal information removed) years of age, privacy, security and enjoying a few more years in this location is upmost important to my mental and physical health. We accepted the risk of the ""unpredictable Bow" when moving here in 1985 and never had any regrets despite the floods of 2005 and 2013. The conceptional barrier as proposed by the City will have very limited protection from overland flooding and even less from the underground.
- The permanent flood barrier does not protect the community from groundwater flooding which is the main flooding mechanism in Bowness. If groundwater is not mitigated, overland flooding will not provide sufficient benefit to justify the cost. River front residents will not, no should not support a project on private property that does not protect them or the community. The natural area around the riverfront is defining for Bowness and provides habitat for birds and wildlife. Destruction of trees and limitation of wildlife movement in the area through barrier walls is undesirable. If the barrier is constructed first, the potential for the development of a future upstream reservoir that is needed to protect Bowness is reduced.
- Loss of focus on upstream mitigation
- Without groundwater protection its worthless.
- 1. This in no way addresses groundwater rise and in fact may make it worse which was a bigger problem in 2013.
- 2. Massive disruption to landowners and property devaluation
- 3. Coming from a construction background, project cost estimates are shockingly far off.
- 4. Significant habitat destruction requiring removal of innumerable trees
- Won't work
- Zero
- No, or extremely limited, fix to groundwater flooding. Using permeability from a well up the hill rather than wells beside the river!!!! Really? Flawed, Poor, misrepresenting science.
- None. The Berm will protect Bowness from floods and / or greatly reduce the impacts.
- No protection from big floods, groundwater, service interruptions, risk of overtopping.
- Financial damage loss of property enjoyment, views, trees, homeowner rights.
- Unnecessary cost to taxpayers.
- City loses motivation to aggressively push Province on upstream mitigation.
- City is losing respect and support of citizens by improperly engaging: misrepresenting facts, acting deviously, ignoring questions and pursuing a predetermined agenda.
- Expropriation (and I don't mean easement) will necessitate impinging on individual rights.
- Generally ineffective against groundwater, length of time and cost to construct, detrimental effect on natural environment, concerns should the berm be over-topped in another flood event .
- None. It is a necessary part of the Calgary flood mitigation plan.

# Bowness Flood Barrier Project Feasibility Study

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- Firstly that the design will function and is not compromised by a few owners who oppose it and who put the overall safety of the community above their needs. Secondly that the Barrier is built to protect from a significant flood. A partial attempt will be money spent but not sufficient to make adequate protection. Better to to a good job the first time.
- Having read the work done by the City, I fully support the project.
- None.
- IF BUILT BEFORE UPSTREAM DAM, IT DOES NOT PROTECT US FROM A 2013 TYPE EVENT AND PROBABLY MAKES THINGS WORSE, AS THE WATER WOULD NOT BE ABLE TO ESCAPE. DO ALL THE STUDIES AND THEN DESIGN THE BARRIER TO FIT IN WITH THE UPSTREAM MEASURES, NOT THE OTHER WAY AROUND
- That the protection isn't enough. We could still be impacted by groundwater and it is difficult to assess what homeowners would have to do. I am installing a sump pump and tried to research what I would need to protect my property and the information is not available at the property level. So I am getting the most massive one out there and hoping it's enough.
- It will not work. This is a waste of money.
- it does not protect people in the flood fringe from overland flooding. the city has stated that the barrier is like the icing and the upstream mitigation is like the cake. this project does nothing to progress the upstream mitigation or upstream reservoir. there is significant potential that if the barrier is constructed before a new reservoir is approved, the new reservoir will never be approved. it will be like making the icing and never making a cake to put it on. this would be a huge travesty for people in bowness who want and need flood protection
- Property owners damaging earthworks.  
Worry that there will be less impetus to build an upstream reservoir.  
Worry that if there is a flood, the barriers will prevent quick drainage.  
Worry that hidden groundwater floods will not be covered by insurance or DRP.
- Widespread groundwater flooding in the community will occur every time the flow rate on the Bow exceeds 800 m<sup>3</sup> per second. Most homes have elevated first floors so whether the flooding is via groundwater or overland the financial losses will be the same. This situation will occur every single time the city perceives a potential flood occurring beyond the estimated 1:8 flood volume probability (this # is highly suspect) with the ensuing utilisation of the 1230 m<sup>3</sup>/s barrier design flow rate. This is NOT community equity.
- I am concerned of the long term impacts for an overwater flood barrier and it's feasibility. I am concerned that the city is not being patient enough to wait and build a long term solution.
- The 1230 m<sup>3</sup>/s is faulty and 800 m<sup>3</sup>/s is required to protect the flood affected properties both riverfront and non riverfront. This barrier project team has consistently used poor information and misleading statements to suggest that riverfront and non riverfront properties would be better protected by this proposed barrier.  
The site package we received clearly demonstrates that the City does not and has not used current site data for it's analysis which is basic information that should have been obtained. The barrier does not address groundwater flooding. I am 100% against the barrier being built
- River bank erosion, will the city stabilize the existing river bank in places. If the barrier is built some of the river bank will need to be stabilized or the berm could wash out during high water. some of the storm water drains would require pumping stations. will the barrier result in higher flows during spring run off, that could cause the water table to rise, affecting basements in the area. some concern that this berm could be made into a public bike path. if a berm is built does this mean that the ghost dam will be filled to capacity in the spring time? will the existing trans alta deal remain in effect. how long would the life span of the berm be? 20 years, 50 years?, what about gaps in the barrier?

# Bowness Flood Barrier Project Feasibility Study

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- Studies don't indicate this would help. Expensive for a non-guarantee.
- I don't believe that it will help based on the available information.
- Way too much money for theoretical benefits.
- Barrier is useless because flooding still occurs through groundwater.

Waste of money.

- It will not protect from the main flood damage source in Bowness - groundwater flooding.

It might cause TransAlta to run the river more frequently at a higher flow rate, exposing Bowness to more frequent groundwater flooding AND cause more erosion along the river banks.

The nature and wildlife will be permanently reduced and damaged by the construction and existence of the barrier.

The waste of public money (tax or pooled utility fees) because it will not protect Bowness.

Construction of the barrier will reduce pressure on the Province to construct the sufficiently large upstream reservoir, which will actually protect against groundwater and overland flooding.

The sacrifice of the Bowness community if the river is run at a higher rate.

- Engineering studies have demonstrated that an overland flood barrier would not protect our property from the impact of a flood, and in fact may expose us to increased risk of damage from groundwater flooding in the event of more frequent higher flow rates. Upstream mitigation is necessary to protect the properties in Bowness, and in many of the downstream communities. Limited resources should first be directed to options that are much more likely to create a much larger benefit to not only the Bowness communities but to the city as a whole. T

- Creates a higher water flow, thus impacting groundwater flooding. Ruining the backyards of residents and thus decreasing land values

- Negative impact to the aesthetics and consequent loss of enjoyment of our backyard and view as well as potential loss of value to what is our biggest investment. Our previous house was destroyed in 2013 and our new home was built in compliance with the City's flood mitigation recommendations - no foundation, services on main floor. A barrier would offer us no flood protection since our main floor is above the level of the proposed barrier.

- Property values and saleability during design & construction. Construction could drag on for years and a homeowner would be stuck during this time as his property value would decrease greatly. Concern that TransAlta will use the berm to increase the river flow rate. At 800 cmps there is no overland flooding, at 1200 it would breach the berm. TA may use this as a means to keep the level high and increase ground water levels. There is pressure on TA to keep the water levels in the Ghost high for recreation/housing near the dam. There is NO TRUST that TA will work to manage floodwaters because they did not do so in 2013. Residents could see that Canmore was flooding but TA did not release the dam until very late in the day. Too late.

- I can see this trapping water between the barrier and the house so either way we would still have basement flooding.

- expensive, environmentally irresponsible, ineffective for groundwater flooding
- Costly, ineffective

- The only concerns we (my wife and I) have with a permanent flood barrier is that it is well constructed and able to withstand the pressure from a 1 in 200 year flood as well as being high enough to prevent overland flooding to happen again as it did in 2013.

- Loss of wildlife habitat, migration corridors and riverbank stability along the Bow river.

With the construction of a permanent overland flood barrier and the flexibility for Trans Alta to maintain a flow rate of 1230 m<sup>3</sup>/s (and higher water levels) there would be an increased probability for more frequent flooding (both overland and groundwater).

If a permanent overland flood barrier is breached by high water levels, the flooding and cleanup

# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

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issues are currently unknown. Proceeding with the construction of a permanent overland flood barrier is fiscally irresponsible and ineffective.

- Lower property enjoyment, access and value. Noise, access and privacy during construction. No to minimal groundwater protection for community leading to basement flooding and inequity with other communities. Barrier will not prevent fear of flood events over 800 cubic m/sec. Barrier will not prevent basement flooding leading to service (electrical and gas) interruption starting at 800 cubic m/sec, and increased damage over 1230 cubic m/sec (from overtopping)
- Studies show Upstream reservoir should be completed first - otherwise it is a waste of resources, ineffective in handling rising groundwater levels and overland flooding throughout ALL areas of Bowness. Your study excluded the south west corner of the community, specifically the west end of 33rd Ave, along the base of hillside - this area has a well documented history of problem drainage, sinkholes, an aging /outdated stormwater system prone to overloading all resulting in property damage and flooding in homes.
- Why the city has any right to a private citizens property to build an overland flood barrier while the river bank in front of the home owners property could be utilized like other areas of the city that include the Elbow River Community, the zoo and the Inglewood Sanctuary.
- Our concern with the flood barrier is that it will do little to protect private property and/or public infrastructure along the river.

The barrier will not provide effective mitigation as the majority of the damage was caused by groundwater and sewer backups in 2013 and in prior years.

Tax payer dollars will be wasted.

Property damage during the construction process.

Negative Ecological Factors - fish and wildlife, trees, etc.

Loss of privacy for homeowners.

- I did not fill it the ranking as it does not capture my concerns or values - my head started to spin trying to do the rankings so I stopped
- risk of unintended consequences (such as storm drainage issues in yards, loss of root stability near riverbank, etc.) Risk of overtopping.
- Risk of a breach in the barrier, maybe an open gate, Loss of trees, money better spent elsewhere, major unnecessary construction, loss of enjoyment of our street (bikers, joggers).

A barrier stopping overland flooding up to 1230 m<sup>3</sup>/s erodes the political will to look for an upstream solution that can keep the flow rate down to 800m<sup>3</sup>/s.

The barrier might be built when not necessary

- A permanent overland flood barrier does/will not address groundwater flooding!
- Proponents of an overland flood barrier appear to be missing the actuality of home owners' significant financial and emotional losses due to groundwater flooding.
- Disruption to natural environment, loss of habitat, introduction of invasive species, loss of property value, loss of privacy, loss of river aesthetics, stress caused to concerned neighbors, negative feelings and loss of empowering feeling like the city to listen to concerns, expense of project and ultimate increase in city taxes,
- Removal of trees
- Does not take into consideration ground water flooding. The Citys groundwater study - November 2020 - states that there will be groundwater flooding with the barrier in place. If the river is allowed to run at 1200m/sec we will have more groundwater flooding , more often.
- This project is costing tax payer dollars just to protect 75 properties. They should be responsible for their protection





# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

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- The overland barrier does not address several items and appears to be a giant waste of taxpayers' funds. Bowness is essentially built in an old flood plain/river bed as the Bow River evolved over time. The proposed barrier is not going to prevent groundwater infiltration. Furthermore, the barrier may compound the flooding issues by creating a pinch point by MW19-09 causing erosion on the far side and create a swell in water elevations upstream further increasing water levels and putting additional pressure on groundwater. Bowness is quickly gentrifying and a cheaper and simpler solution would be to change build requirements in the 100-year flood plain. (Raised Main Floors, Construction Materials that aren't susceptible to water)
  - Doesn't address groundwater inundation.
  - Ground water flooding. it appears that there is little or no lessening of ground water flooding. Need more upstream storage capacity ASAP. Riverfront owners are collateral damage.
  - It is a waste of money because the water will seep into the ground under the barrier and the flood will still happen.
  - Damage to the riverfront, trees, pathway, habitat for animals. This is a beautiful setting with large trees and a narrow dirt pathway along the river behind our home. The river properties with riparian rights to the riverfront are beautiful and private and should be left that way as homeowners wish. Upstream mitigation is a much better solution for water conservation, control and management of this resource. If upstream mitigation works in the Elbow river Basin it certainly will for the Bow river.
  - I watched the last flood from across the river and do not believe the barrier would solve or even reduce the problem. The proposed flow will damage the opposite bank of the river. The solutions must be found upstream.
  - Inability to get home insurance, as I have been told by our insurance, as they will not cover due to damage as result of barrier. Water being trapped on non river side. How does water return to river. Who maintains the barrier. How is access to the barrier granted for maintenance. Does the permanent barrier decrease likelihood of upstream mitigation? If barriers in place, will there be increase in flow of river through city thereby increasing risk of ground water issues? Environmental concerns - wildlife, plants, fish.
  - Waste of money for the lack of protection from groundwater flooding in favour of supposed protection of overland flooding. Both overland flooding and groundwater flooding prevention would be better served by a concerted effort to upstream management. The berm carries with it the option for TransAlta to exceed the current release level (800 m3/s) to (1230 m3/s). That will increase ground level flooding in a section of Bow Crescent. **STOP DRAGGING YOUR FEET ON THE UPSTREAM MITIGATION.**
  - All that work with no pathway for public seems silly.
  - Is not effective in protecting Bowness citizens from ground water
- So far very poor project management and lack of honesty and transparency on costs  
Waste of taxpayer dollars  
Takes resources away from implementing upstream mitigation
- Not going to help with the groundwater issue. Very expensive. Very harmful to the environment, wildlife corridor, river valley flora and fauna, not an efficient nor cost-effective way to prevent flooding
  - You are destroying thousands of trees and bushes, were is the concern for all the wildlife,
  - Will not stop overland flooding. Priority should be upstream mitigation first! Stop waisting time and money on a barrier!!!
  - There are no benefits. What would happen if there was a barrier; it would stop the water that came up through the ground, and that would have no way to move off, making the flooding much worse.



# Bowness Flood Barrier Project Feasibility Study

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- It doesn't work as a barrier. Water can seep through and may even result in piping.
- Extensive environmental damage in a wildlife corridor, impaired access to the river, land easements for city access, improper drainage, aesthetics, weirdly would perfectly fit a bike path in the future, groundwater issues, efficacy, cost; to list a few. This is an idiotic, archaic solution. We live in a flood plain, and we bought property along the river knowing this, because of its natural beauty.
- Studies done and posted publicly on this forum indicate the primary method of flooding experienced in 2013 was due to groundwater flooding. Prospective studies indicate no significance in difference of flooding levels after implementation of a flood barrier so I believe this is an extremely large sum of money to spend with no increase in safety. At the same time it is personally affecting many homeowners and the community of Bowness by decreasing satisfaction and use of this land and potentially disturbing wildlife and the environment.
- Does not address groundwater flooding and will increase this by allowing trans alta to increase flow rates significantly. Overtopping as a result of higher flows than anticipated will cause significant damage and possible personal injury. The emotional worry will be ongoing as to when the governing bodies will decide to increase flow rates beyond my properties capacity to keep groundwater at bay. Flooding overland as a result of heavy rainfall and no drainage options that will sufficiently keep our streets dry from sump pumping and increased water flowing from COP and paleo channels. Creating access for public on private property. Clear stripping properties of vegetation on and near barrier, HUGE construction, massive timeline. and
- You will have to remove trees and that will effect the natural habitat of the bats
- I am very concerned w/ the impact on the trees along the river... they serve as the BEST flood barrier (talk to the province about halting clear-cutting in the headwaters... ahem 2013) Not only are these trees irreplaceable ( for 200 years at least ) , the construction will impact the habitat of way too many animals that consider that side of the river a sanctuary...
- There is no area for comments on the above so I have placed them in the only boxes available for comment.

Trapped water, Homeless setting up camps

1. Financial Impacts to Flood-Affected Residents. Placing a structure behind a million dollar house will devalue it. This will result in the property tax assessment being lowered. This will result in less taxes, that will have to be made up by non-river front residents. The less affluent in Calgary will be subsidizing affluent Calgarians

2. Riverfront Land Aesthetics and Enjoyment Impacts Presently when you float down the Bow River it is like being in the country until you get to Crowchild Trail. A barrier along the river will feel like you are floating down an canal or drainage ditch

- 1/ It will not resolve the groundwater issues.

2/ It is not guaranteed to resolve the overland flooding issue, as potential future floods may exceed the volume of water in the river flow experienced in the 2013 flood event.

3/ The cost of the land, easements and construction is proposed to be borne by the City taxpayer. By extension, City taxpayers should benefit from a footpath along the top of the berm, giving them access to the riverbank. Otherwise, the affected property owners should be footing the cost.

4/ The project is a stepping stone to more taxpayer expense, such as pumping wells, larger sewers, and additional upstream dams.

- Will have little to no protection because of the groundwater issues. It's a waste of money and huge grief for riverfront owners. Massive destruction of natural habitat
- I don't have any.
- If the barrier still does not protect my house from any type of flooding, who will take responsibility for that?

# Bowness Flood Barrier Project Feasibility Study

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- It does not deal with in-ground seepage into basements and I expect flood water will go over or around the barrier. Once, water level recedes we are left with water pooling between barrier and home. It may give a false sense of protection from flooding and unduly delay the construction of upstream dams which are the best solution. It also could provide 'room' for the water levels on the Bow to be run higher on a regular basis (by Transalta) which would result in much more regular 'wet basements' for those closest to the river to due in-ground seepage.

## Question 3) Benefits of permanent overland flood barrier

- Short-term mitigation while we wait for upstream.
- Might prevent some overland flooding. The permanent flood berm built in Sunnyside perhaps reduces the frequency of minor flood damage. Sunnyside berm reduced damage.
- None. It is a make work project for the City of Calgary and the water resources group. The process has been flawed right from the start and that makes it look like the end result was pre-determined long ago. Trust has been eroded and that will only result in increased costs.
- None
- Very few as it is being built on a gravel pit. It will only protect up to a 35 year flood. Higher will over top. I see almost no benefit. It seems to be a make work project.
- Hopefully keeping the water in the river. More residential and commercial investment in bowness with less risk of flood.
- None. Look at Exshaw. The water will get around any barrier unless you are making it like an ugly canal
- Less shared risk
- Could help, any help is better than none
- It won't work. You are destroying the reason we live here.
- No worries about potential flooding when the river is high or when it rains massively in June Until the upstream facilities are in place the barriers will provide some insurance against overland flooding
- Better situation for resale of property
- I think it's a good idea because people had a hard time cleaning up and it was sad to see them lose their houses
- none,
- Better than nothing
- Mitigation of, or even elimination, of flood impacts to our property. As our basement is only 4 or so feet below grade we have never had groundwater issues. Our biggest concern and risk is overland flooding. Improved resale value and sellability of home.
- Community safety perhaps, no data yet to support this though
- none. will you the city be liable for the lake created when the river water rises from behind the barrier? you should be liable
- Once built it will save the province, city and these home owners money.
- overland flooding prevention
- A flood barrier in Bowness will have negative impacts as a berm with groundwater protection to prevent flooding under the berm will not be provided.
- Little to no benefit. The idea that the barrier would mitigate overland flooding is questionable. We need and must have upstream mitigation which would provide protection from overland and groundwater flooding.
- The obvious.
- I believe this has become a project of ego.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- Helpful for all neighborhood
- Streets won't get damaged. Can pave that bumpy road.
- Reduced cost of overland flooding.
- Perception of safety, so house prices might rise
- Other flood area residents will be safer. Considering the income levels of inner flooded areas, it will protect those residents from a financial burden of flood damage.
- It would protect the citizens from overland flooding, which would be great if that was the only way we were flooded. I am seeking underland floodin protection.
- It is a good deal for the city if they are able to obtain valuable river front property in bowness at a discount price after devaluing properties through this proposed project. The city will obtain economic benefits in employing their staff and consultants on what is planned to be provincial ARCP funding from the province. The province benefits as they can reduce expenditures for a larger upstream reservoir that is needed to protect Bowness, and potentially avoid this expenditure completely. The province also benefits through moving the flooding problem underground where they can avoid supporting flood victims through Disaster relieve funding. Downstream communities benefit from preserving upstream storage. Bowness gets zero.
- My house was severely flooded in 2013 and I cannot go through that again. I believe that a berm or barrier is needed to prevent overland flooding
- Not sure...a lot of the flooding in 2013 was due to ground water, not overland. The berm will not protect us from ground water flooding
- Very little. Again, my understanding is that there will a small benefit to flood damage, but that it will be small because most of the flooding is ground water.
- I see no benefits
- Ideally significant reduction in potential flooding in the future.
- NONE!!

As well:

- The City won't be responsible for any basement flooding in the Bow drainage.
- None as this flood mitigation should be addressed effectively upstream
- Peace of mind
- direct the water in the bow channel for a significant event
- Flood barriers provide proven mitigation against overland flooding and this proposal appears to include addition community benefits.
- Minimal compared to upstream mitigation and compared to the impact onthe wildlife corridor.
- Protection of our properties

Increased resale value of our properties due to flood protection

Peace between neighbours again with a resolution to this process

I believe the city of Calgary is working hard to provide our community with flood mitigation and the BRFM and some (not all) riverfront owners would rather have their homes flooded than have a little hill in their backyard.

- Mitigate the damage to flood prone properties.
- It would make the politicians feel like they tried and they could pat them selves on there backs.
- Prevent mass flooding within the larger community of Bowness.
- Protection to properties and the occupants' well-being and safety.
- It will be a monument to the hatred of mother nature
- protecting the rich?
- Peace of mind knowing that our property would be safe.

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- A permanent overland flood barrier is part of a mitigation system. Recommended by the experts. Less overland flooding.
- None
- It would protect the community. Floods are damaging to property and to the psyche. Best prevent it.
- Inglewood in 2013 clearly demonstrated the benefit of a permanent barrier. Preventing overland flooding should be the primary consideration.
- Great way for citizens to scrutinize budget again
- Future river path?
- It would save our community
- Not required if upstream is completed properly!
- prevent flooding
- Not really sure except that it's a maybe just in case measure to make communities down stream maintain their value while decreasing the value of Bowness and creating a sense that we are a less than important neighbourhood...something Bownesians are fully aware of....our streets don't even get properly plowed.
- Overall protection of the entire community, additional protection during smaller flood events
- Protection for the overall community
- None, at the end of the day we need an upstream reservoir and there are no guarantees. Mother Nature bats last.
- Preventing or at least mitigating the damages seen after the last floods.
- Saves my house from flooding. Provides better relief over anxiety of an unprotected home from water.
- Community safety. Financial impacts should another flood occur. No risk that home owners lose insurance or need to pay out of pocket for flood damages.
- it's a proactive, responsible plan to limit damage before another flood
- Will reduce flooding in areas on the fringe, which will be a help for the normal folks living on the fringe of the floodplain behind bow crescent.
- Due to the the fact that homes are built on a flood plain , like in many areas, something needs to be done.
- None, Upstream mitigation and Ghost Dam controls are more effective
- Mitigation of impact of flood on residents in the community.
- Eliminate Cost on many levels to the individuals effected, the community, property damage.....
- Reduced flooding for everyone, lesser cost, ability to do it in next 2-3 years. This is tried and true all over the world. In fact in many major cities, the berm is a walkway for the public. Higher property values for riverfront and non-riverfront bowness properties.
- People living in the flood zone will not have to worry about losing everything they own. They wont be stressed out every spring. Familys wont be ripped apart and forced to live in basement suites while they grovel with the DRP for financial aid. People wont have heart attacks while hauling muck out of their basements. I live at (personal information removed) in the 2013 flood homes with families in them were condemned and torn down on either side of me and across the street. There was a class 3 rapid running down the road.
- Potential for it to prevent a flood like 2013.
- Never want to experience a flood like we saw in 2013 again. A barrier would be a significant mitigant. It will potential negatively impact some of the river front property owners but would be to the benefit of the community as a whole.
- Reduce future financial burden on future generations of Calgarians
- Unsure of what the true benefits will be.

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- Protection for most years, but likely won't protect against everything and there is no way in my experience that this barrier will last 100 years as the City as claimed. I hope it will be more successful than I anticipate.
- Keep Bowness safe for future floods. Keep taxpayer dollars down because we wouldn't be paying to fix roads and bridges that got flooded again.
- None
- None, besides making an entry on the resumes of those involved in designing it. The cost is excessive even at the dramatically underestimated figure provided by the city, much less at the actual cost to build it. Meanwhile, groundwater obviates the benefits of possible reduction in overland flooding, while a barrier will only provide justification for the river to be run at higher levels.
- Can't see any as if we need the berm to protect from overland flooding we will already be flooded by ground water so waste of taxpayers money.
- Will reduce the risk of floods to residents of Bowness 2) Barrier is attractive and doesn't reduce the appeal of riverfront properties 3) Residents of Bowness could see positive financial benefits from the project (increase in property values) 4) it's the best option as an upstream reservoir is uncertain and, at best, would take decades to build 5) City could restrict development in Bowness which would cap the ability of the community to grow
- none
- Keeps the community safe.
- None for the people at risk. A paycheck for those involved in the planning and building of the barrier.
- Protect the community
- It will provide the City with a pet project, possibly some Provincial Flood mitigation money and temporary employment for the department set up to manage the flawed plan.
- reduced flooding... if done properly there could be other benefits
- still looking
- I would like to see earth berms and flood walls built on lands adjacent to and south of our property on (personal information removed) - we have been significantly impacted and our property damaged by overland flooding from this hillside. We have gone above and beyond, at our own expense, to protect our home. We have installed many flood mitigation measures and have been assisted over the years with City of Calgary interventions (311 calls). We need better prevention measures on the Hillside now going forward.
- Could save people's homes and community.
- some will not have overland river flooding
- Everything. Bowness is protected and our community won't be gutted if there is another flood event.
- prevent overland flooding if everything is 'right' in an extreme event, but this depends on upriver controls as well, if this is not done, then it doesn't help all residents of bowness.
- Residents have a much reduced concern over the impact of a flood. I am a developer in the area and believe it will make the community more appealing. Residents would see property values increase.
- It may reduce overland flood rehab expenses for some wealthy landowners
- It is necessary to protect the community from flooding. My understanding is that it, combined with an upstream solution and property level efforts are required to protect homes and families in Bowness. With the added layer of protection, I think Bowness will grow in popularity as a community.
- This project would be beneficial if and only if public access in the form of a multi use pathway was added along the barrier. If your going to use public tax payer dollars to build this barrier the least you can do is allow public access onto it. There should be a bike pathway on the south bank of the river that connects all the way to downtown. Going up that big hill into Silver Springs on a bike commute to work



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is awfully annoying. Come on Calgary, I know how much you like bike infrastructure. Don't listen to the rich who want to keep their luxury waterfront. Buy a strip back from the river bank and install your flood barrier WITH a bike path. Then this project might get my support. Also the extra park will make the city more livable

- Another make work project for the City
- Reduce need for evacuation. Reduced damage to properties that have not been mitigated sufficiently to withstand overland flooding.
- Flood damage is reduced or eliminated.
- NONE!!!
- Less risk of flood / flood damage
- In theory it may protect a small amount.
- Impact of a flood is eliminated or lessened.
- None
- The City is going to great expense on the proposed flood barrier project. I DON'T SEE BENEFITS to our community if GROUND WATER FLOODING IS NOT DIRECTLY ADDRESSED IN EQUAL MEASURE.

80% of our community was devastated by GROUNDWATER FLOODING, not overland flooding! Though my property isn't included in your project, I stand in solidarity with Bowness neighbours who were impacted by groundwater in 2013.

Before spending all your allocated funds, I recommend you work DIRECTLY with the Bowness for Responsible Flood Mitigation Community Committee, in addition to other Bowness community members, on the issue of groundwater flooding. It bears repeating: Groundwater flooding was responsible for 80% of 2013's flood damage in my community.

- None. It will not stop a flood like 2013 and it will not stop groundwater flooding
  - None
  - I would feel less anxious and worried about a flood and what it could mean for the community. I lie awake at night worried and have considered moving rather than live through another flood.
  - Possible protection from a future flood(s).
  - The chance of overland flooding would be greatly reduced, but at what cost? The higher the water level on the berm, the greater the GW risk.
2. We would be better protected if we had high water outside of the TA agreement. For example, if we had a 2013 rainfall in August flood management is not there.
  3. We would be better protected from human error or flood mismanagement.
  4. Depending on the barrier alignment, we may cut down on the number of cottonwood trees around. The squirrels and birds will not be happy.
  5. A barrier would protect us from ice jam flooding.
- The chance of overland flooding would be greatly reduced, but at what cost? The higher the water level on the berm, the greater the GW risk.
2. We would be better protected if we had high water outside of the TA agreement. For example, if we had a 2013 rainfall in August flood management is not there.
  3. We would be better protected from human error or flood mismanagement.
  4. Depending on the barrier alignment, we may cut down on the number of cottonwood trees around. The squirrels and birds will not be happy.
  5. A barrier would protect us from ice jam flooding.
  6. The yard would be spared the overland flood damage.
- Flood protection. Bowness will be able to withstand higher flow rates on the river.
  - Upstream protection is NOT enough and we need it to protect Bowness.



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- Residents of the area get a nice taxpayer funded boost to property values.
- Bowness has greater protection from a flood. Our community is safer and continues to prosper.
- I am not a flood area resident but can't get any flood insurance including sewer back up. I know my risk of overland flood is low, but stuff can still happen and insurance would give me peace of mind.
- Community is safer. Bowness has a very mixed socio-economic demographic. If we don't address the flooding, I worry that the wealthy will leave the neighborhood and the poorer elements will remain and make this an unattractive community for families. I.e. the Safeway in Montgomery often needs police services. What if it increases and now folks don't feel safe going to the grocery store.
- Not convinced of any.
- I have not seen evidence that this will mitigate risk for flooding (where groundwater made up the majority of flood damage in 2013). Yes, potential reduction in ground water levels and risk for overland flooding, but lots of work to do and buy-in from all parties and does not clearly address the cost (environmental, financial, social) of flooding that may be seen. You cannot address overland flooding in isolation.
- As a resident of a river property for over 55 years and had sewer back up caused by the 2013 flood, I can't see any benefit to a permanent overland flood barrier
- no equity of damage protection
- Assuming it does what it is designed to do - it provides more assurance and peace of mind to residents not along the river. I reduces, if only slightly, groundwater flooding.
- At this point there are no benefits for affected residences. Billable hours for internal staff and external consultants would certainly benefit from this project.
- there are no benefits because of ground water effect which will simply send the flood waters under the berm. There has to be dams upstream of Calgary
- We are all protected. We don't have to take extreme measures to protect our homes at the property level.
- Greater protection from a flood which ensures we have a vibrant community in the years to come.
- Protection of a few riverfront properties and nearby properties from overland flooding.
- Lots of extra work for pump, remediation and construction companies as they repair hundreds of basements flooded with ground water.
- The City of Calgary gets to continue employing staff and contractors for this waste of money and time project. It's nothing but a make work project that will damage the environment.
- None really...if we're going to flood with ground water anyways, preventing overland flooding is merely an exercise of better political optics that they're doing something while spending taxpayers money.
- The city can say that they have done something and people in Bowness can have a false sense of security.
- Creates perception something done.
- If it worked, with the upstream mitigation, it would all hopefully prevent flooding in the community. I do not see many benefits really.
- Not convinced that we will be protected from overland water and groundwater, and from evacuation and loss of utility services.
- There are no benefits whatsoever
- I can see only very limited benefits of a permanent overland flood barrier
- Without groundwater protection, there are no benefits with respect to property damage or public safety. This project might provide local jobs in the construction phase, but this investment will not deliver value to Bowness. The only benefit I can see from this project is that it will promote increased flow rates on the river, which could reduce or eliminate the need for new upstream reservoirs. It will

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also allow the existing upstream storage to be saved and allocated to reduce the peak flow rate to below the level that causes damage in downstream communities, but this will be at the expense of Bowness residents that will not be protected and will suffer extensive basement level flooding.

- None
- None....without groundwater protection.
- very few, given lack of groundwater protection.
- Decrease of overland and groundwater flooding 2) Less property specific measure are needed ie. reinforce basement windows and add property level barriers 3) Less financial hardship to homeowners 4) Less stress that floods will require time and money to recover 5) Bowness home owners won't lose insurance coverage for water
- Limited at best, since most damage during flooding has resulted from groundwater. Will this result in cancelation of the trans alta agreement? Only real solution is to keep water out of the city.
- Flood area residents will not face costly repairs and / or a decrease in property values WHEN another flood comes to Calgary.
- Contractors and City staff enjoy employment.
- This money that the city has earmarked really ought to get thrown into the kitty for UPSTREAM MITIGATION.
- It protects our community. We will be safer and suffer less fall out if another flood occurs.
- It can be made with landscape design to make it look good. The River is a resource many of the citizens enjoy it is not exclusive the riverfront properties. I see that within the entire city of Calgary there are only about 300 river front lots. These lot owners will still have very exclusive and special lots in the City. I don't think their property values will be effected. I would argue in fact the barrier makes their homes more valuable. Such a small number of lots in Calgary have this special condition. I see the river front owners holding and undue sense of entitlement. Their land is also so valuable because it is in the City of Calgary. I'm confident they will be Ok and still have beautiful lot. It will just be different.
- The Barrier will help contain a flood. The barrier along with upstream measures are necessary.
- Protection from a flood event.
- Waste of taxpayers money
- Bowness is more protected from overland flooding, particularly if there is a 2005 level flood.
- None. Absolutely none.
- the benefit is to the province as it will reduce overland flooding while making sure we are all groundwater flooded. this will eliminate the liability of the province and federal government from supporting poor bowness flood victims from DRP moneys. the property owners will be left on the hook.
- Protection of homes by lowering groundwater levels, protection from overland flooding. We are west of the road so we only stand to benefit.
- Another half-baked 'legacy project' for city administration? The political 'illusion of progress'? Keeping the city's bloated staff complement employed for another few years during a difficult economic times?
- expensive to build and will give people jobs for a short period of time.
- No benefit. The City needs to focus resouces on upstream mitigation to properly protect Bowness flood affected properties and downtown Calgary.
- Preventing the devistation of the 2013 floods and the loss of property
- None.
- I don't think that this makes sense based on available information.
- None. Pushes the problem elsewhere.
- None

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- None – because it will not protect from groundwater flooding, which is the major source of flooding in Bowness.
  - No real benefit has been demonstrated to us or to our Bowness neighbours by the addition of an overland flood barrier. The costs of such a barrier to the environment, to our property, and to the city as a whole cannot be justified by a project that has not been shown to provide benefit. This is a plan that we do not support and, to our knowledge, does not have the support of our community at large. It is unclear why this option has already received a considerable amount of taxpayer dollars with so little support or evidence of benefit.
  - Might help slow flooding, but this could be debated. Community "thinks" they are safe from flooding when this might not be reality - hence false mental and emotional reassurance
  - The construction of a barrier is of no benefit to us personally and it will potentially create an increased risk of groundwater flooding to our neighbourhood which is a greater concern than the threat of overland flooding.
  - Some increased security because a berm would hold back at least some of the water in a high water event. Bigger aspect is the unlikelihood of getting an upstream dam. Of the 3 options presented, all involve either negotiations with CP, indigenous or homeowners, and all are less than ideal options for the dam itself. Plus cost and environmental opposition and it is unlikely that a dam would happen before 15 - 20 years. Every year is a flood risk.
- If a berm is considered, then there HAS to be better pumping stations along with that so that if water is trapped, it can be quickly pumped out. No repeat of High River! As part of the berm, we want to see the pumping setups, and not just a vague assurance that it would happen in a flood.
- would this barrier prevent seepage into yards?
  - NONE as it does not protect the majority of properties that were flooded in 2013
  - provides jobs
  - The benefits of having a flood barrier would greatly reduce the amount of damage and financial costs caused by a flood the size of the 2013 event - do not believe it would eliminate all possible flood damage to home and property. The flood barrier would also help with our mental well being. To this day we still experience anxiety during the spring months when snow melt reaches its peak.
  - Without mitigating the groundwater flood risks for Bowness, there is NO benefit of a permanent overland flood barrier. (Installation of an unknown number of pumps, in currently unknown locations - to handle groundwater, is NO solution)
  - Small group (less than 200 homes) may benefit from reduced damage due to high flow surface water
  - Not evident
  - No benefit at all. In the last large flood the river did not even come over the bank of the river for river front home owners it actually flooded by coming back up the street and through ground water.
  - There are absolutely NO benefits to having a barrier.
  - For my property there is no benefit to an overland barrier - we have the same damages in our home with or without a barrier. The fact that the barrier does not prevent groundwater damage negates any benefit to the flood effected homes
  - There will be no actual benefit.
  - Since it doesn't protect from groundwater, I don't see any benefits to this project.
  - Flood control, reducing costs to city,
  - There are no benefits to Bowness residents of this proposed barrier , only negatives caused by the excess flow proposed - 1200m/sec - to the riverfront owners. Only upstream mitigation and a return of the TAU agreement to keep the flow below 800m/sec will solve the flooding , as it is proven to be groundwater flooding that should be the concern



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- Protects some properties
- There are no benefits that I can see from the proposal. Controlling water and geotechnical is a nightmare and is not an exact science. We would be better off learning to live with the consequences of a flood, have a quick recovery strategy and utilize smart building practices to limit potential damage. In communities along the ocean, they put the houses on stilts several metres high. That would be overkill for the Bow river, but simple building strategies as a high main floor, furnaces and building equipment elevated on the main floor or above (out of the basement), Steel Studs for basement walls, etc.. would eliminate the majority of issues and lead to quick rebuild timelines.
- Virtually none.
- Not sure.....appears to be a political pancea rather than a true effort to change the flooding issues in bowness.....
- Property values will decrease and property owners will have to pay less in property taxes.
- Risks of groundwater flooding at increased flow rates and the trapping of rainwater behind the barrier far outweigh the small amount of "protection" provided to the residents.
- I see none.
- Only benefit would be if COMPLETE study shows no issues with ground water, environmental, financial losses.
- None.
- If your going to make it so the river doesn't flood, make a path for cyclists! Walkers.
- None
- None
- None, one argly berm , that nobody wants, spend the money on something else
- Zero! Until upstream is implemented
- NO benefits - huge cost, socially and economically.
- None
- Great question
- No proven benefits existed in the studies provided.
- I can see none other than the City employing people economically. Possibly the City has a master plan that it would continue to execute regardless of citizens concerns. The City would continue to tax its citizens for another project that not only has no value but will result in damages to the very citizens it vows it is protecting. Gives City access to private property. It also means that the government will no longer be held financially responsible for damages residents have as a result of groundwater. This project could be a poster for the Dr. Seus story of The Emperor With No Clothes on.
- None
- From what I see the only real benefit is money in the pockets of the contractors the city is hiring...
- Elimination of wild animals along the river.
- 3. Community Safety Placing a barrier along the river will give people a place to hide after they rob houses and it will give the homeless a place to place shelters
- 4. Construction Impacts With covid 19 ever present the workers will expose residents to covid 19 that will further spread in Calgary
  - 1/ It would mitigate the risk of overland flooding.
  - 2/ The cost of the land, easements and construction is proposed to be borne by the City taxpayer. By extension, City taxpayers should benefit from a footpath along the top of the berm, giving them access to the riverbank. Otherwise, the affected property owners should be footing the cost.
- None
- Bowness is more protected. We continue to be an attractive community. We can obtain flood insurance.

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- For the city, they can portray to the public, council, and federal government that they “did something” vs. nothing, even though groundwater is no longer considered “flooding” anymore with the barrier intended purpose. Have you done a study to understand what houses and businesses flooded, without overland flooding???
- Could delay the overland flooding since it will impede water flow to homes for a short time which will give residents time to vacate. It could keep waters back in yards and prevent silt and other water carried debris from being deposited into yards.

## Question 4) Concerns of no permanent flood barrier

- Nothing being done after almost 8 years since last flood.
- In the absence of adequate and appropriate flood abatement measures taken upstream (dam management and creation of a "dry reservoir", intermittent overland flooding will continue as it has for the past 120 years.
- None. Leave this ecosystem alone as it is the best stretch of river ecosystem in any city, anywhere in Canada. Keep the TransAlta agreement in place, pursue and financially support property level flood mitigation and lobby the Province for an upstream solution.
- The current residents of that floodplain will need to move if(when) another flood comes.
- Upstream mitigation is very important. Upgrade our storm sewer system so sewer does back flow into our homes. Cover all cost when it does.
- Flood history repeating itself
- Risk to land owner should be defined by City instead of handing out building permits that do not have individual flood mitigation measures in place for new construction
- Widespread flooding
- Flooding is almost guaranteed to happen again. We can't expect other places up stream to be responsible for our flood protection. That's just rude.
- The concern would be how would it be dealt with if another flood happened before the upstream mitigations are in place
- none
- Less protection than without
- Future flood events before the upstream mitigations are in place.
- None if other measures are put in place
- water and floods are natural. with no barrier water will flow back much quicker
- Cost of future remediation of flooded properties.
- status quo. I have overland flood insurance. If I get flooded anyway with the barrier I see no difference
- No concerns as flood barrier without ground water protection is totally ineffective. Upstream mitigation provides a real solution to flood events.
- We need upstream mitigation.
- more flooding, damage to all surrounding areas
- Repeat of flood
- Cost of flooding to all homeowners. Don't want any other property owners to loose their homes.
- None, as long as there is upstream dam mitigation and Trans-Alta agreement
- Bowness being in a flood risk especially until the upper stream reservoir is completed.
- If the dam is managed properly and does not flow about the flooding level, I have no concerns with having no permanent flood barrier. Maybe this effort from the city should be directed at understanding how to operate a dam.



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- There are no concerns with no permanent flood barrier. The damage is essentially the same with or without the flood barrier. The biggest issue that i can see is that the city will then try to blame river front property owners for not supporting real effective flood mitigation. This strategy of division has been employed by the city on this project since it was unveiled 3 years ago. As river front property owners and BRFM we are the only ones that are providing objective information and trying to hold the city accountable.
- That is the next flood is worse than in 2013 I could loose my house.
- none
- No concerns. It's not like flooding in Bowness has a massive economic impact on Calgary the way that flooding downtown did.
- I do not have concerns
- Risk of flood in the future, affecting a large portion of the community and further damaging Bowness Park.
- If you live by Water (Lake Ocean River Stream) you will get Wet! Water will find its own level - man is just a fool thinking different.
- None, as this should be addressed upstream for effectiveness and financial common sense reasons
- Flooding sucks
- will experience another flood event where the water ran through the streets before it was close to the house. had to evacuate because we were getting cut off from leaving despite no water in the house or garage. did not have enough time to move materials out of the basement/ground level
- No barrier will leave Bowness exposed as it was in 2013, with no other plan but to rely on the province.
- The Alberta government says an estimated \$160-million diversion canal and dry reservoir west of Calgary is a "cost-effective" solution to protecting city residents vulnerable to flooding. But the province's own preliminary analysis shows it would be cheaper to compensate homeowners for damages every time the Elbow River overflows its banks during the next century than pay now for the massive mitigation project.
- Home is at risk of flooding again  
May lose property value of our home due to flooding  
Selfishness of a few (not all) riverfront neighbours + BRFM negatively impacting the community at large (NIMBY) which may deny the protection that is needed for my house and property . My home was severely impacted by the flood in 2013 - two floors flooded, basement + ground level floor, in addition to outbuildings. I see flood mitigation as a responsibility of the city to provide effective protection for our homes. I believe a permanent flood barrier is an excellent solution proposed by the city to protect our homes.
- The residents of flood prone areas incurring damages. The voices of the non riverfront owners not being heard. higher insurance costs.
- Which option has less of an enviromental impact to the species and habitats along the river
- A slim chance I need to renovate my basement in my life time.
- Mass flooding within the larger community of Bowness.
- It is likely that, with climate change, the 200 year storm probabilities and quantities are changing. Likely making flooding events more probable. Thus increasing risk to these properties.
- Don't store valuable things in the basement
- The rich have to call their insurance provider?
- My property which was flooded in 2013 could flood again. As first time homeowners, it's a big risk to our first major purchase.



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- Indicates a broken system. Organized NIMBY's prove their campaign effectiveness. Failure to make positive community change and wasted opportunity.
- None. Just work with the Province to expedite upstream Bow River reservoir construction.
- Leaves the community vulnerable to repeated floods. No telling where climate change is taking us either. Might flood more often, maybe less.
- We will flood again, and if Bownesians (or a select few Bownesians) have been obstructionist with regards to a barrier, we may be completely on our own. Goodwill of Calgarians to help with cleanup as we saw in 2013 may not be there, and government disaster relief funds may similarly be withheld if we are the neighborhood that refused a preventative measure.
- People that live in a flood area may get wet
- Rather you keep the area as it is
- None.
- That the 100 year floods are more frequent than thought.
- None!
- flooding
- Maybe there might be another flood?
- On-going flood potential before longer term options are in place
- Massive damage to area
- None
- The possibility of an even more destructive flood damaging infrastructure in the area.
- I am concerned for my house in heavy rains.
- Financial impacts to home owners. Home owners can't obtain insurance. Can't rely on upstream as that could take a decade to obtain. Home owners would need to protect homes and this could have varying affects on properties.
- worry and stress about the next flood
- Only small portions flooded, so I think no barrier is the way to go. If a barrier is constructed have the property owners that want it pay for it. They made the decision to buy the houses themselves, knowing they were located on a low lying area of the Bow river floodplain. Everybody else shouldn't have to pay for their poor decision making skills. Everybody else also doesn't have oodles of money.
- None, money is better spent for Upstream Mitigation.
- Flooding in the event it happens.
- The flood will happen again. The people who were impacted the most have already taken matters into their own hands and solved the problems so the repeat impact is minimal. It's the new residents buying these homes that are not designed for overland flooding that will be impacted. It was a hard lesson to find out that you are on your own financially.
- No flood mitigation.
- People living in the flood zone will have to worry about losing everything they own. They will continue to be stressed out every spring. Families will be ripped apart and forced to live in basement suites while they grovel with the DRP for financial aid. People will have heart attacks while hauling muck out of their basements.
- The clean up and cost of having to repair homes again.
- Repeat of a 2013 flood. The emotional stress each spring with potential flooding is too great and will ultimately force me to see the property if a flood barrier is not completed.
- Waste of money. Would you temporarily fix your leaking water line?
- Unsure of what concerns I would have. More concerns and questions if there is a barrier put in place.

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- That nothing else will be done, including the upstream options. This will leave many residents at risk.
- Relying on plans upstream. Not reliable.
- None
- The risk of overland flooding remains unmitigated, though this is as the river has run naturally through this city as long as it has existed.
- No concerns. We bought on the river for use of the river. We will take our chances with floods. Again without ground water protection it is a useless measure to help the community of Bowness.
- Flood damage would require significant repair to my property. I could struggle to sell it if there is a flood event and buying in Bowness becomes unappealing
- no Bowness barrier makes sense, need an up stream solution, increased flow will flood more of us through an increased groundwater level as was seen in 2013
- This would be a reckless disregard for the safety of the community. It would privilege a select few, who by the way also stand to suffer from flooding, at the expense of the larger community.
- None. The mitigation must be done upstream and with agreements with Transalta to continue the decreased flow.
- Compromising an entire community for the esthetic inconvenience of those that back onto the river.
- There is the possibility of a future flood event, although not likely given the province's maintenance of the upstream dams, the primary reason for the floods in 2005 and 2013 (total mismanagement and overfilling during flood season). Upstream mitigation is the sole answer to Bowness' flood concerns given the groundwater flooding is not addressed AT ALL by the current proposal and design.
- probable repeat flooding with ongoing restoration
- none. risk is known
- Not applicable
- People are left stranded financially if this were to happen again and damage homes and businesses.
- protection of sewers/
- More flooding. We have to all gut our basements AGAIN when a berm could have prevented it.
- overland flooding coming through our neighbours yards and down front street but it would have to be at a level of 2013 because 2005 did not affect our property - no flooding as we had sump pump, the main problem was due to the storm drain lift station stopped working so some people in the neighbourhood got sewer backup and some ground water flooding which a permanent flood barrier would have improved anyhow
- City changes land use or by-laws to restrict developments and / or current owners need to make massive and costly renovations to fit new City by-laws.
- None, a view I've held consistently for over 100 years.
- Financial impacts to home owners and the time required to repair properties. Land use changes could restrict developments and / or require extensive renovations that would negatively effect the community
- Can't think of any
- Then we leave it to the Province to do something upstream
- There is reasonable expectations for more severe weather events. Bowness is quite vulnerable.
- Another flood occurs. I also worry that the riverfront owners will do extreme property level measures and push water more inland. ie erect their own barriers
- Nil - Stop the water before it gets into Calgary
- Property damage. Costly repairs.

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- Damage and loss of property.
- Mental health effects on residents affected by previous flooding suffering more loss.
- Riverfront and previous flood affected residents erect their own temporary barriers and push flood waters further into the community. The residents who weren't affected in 2013 don't protect their properties and now they face issues.
- None
- While the current design for the project does not have a barrier on my property, it appears the City has not made a commitment that the project design will not change.
- 1. Under what circumstances would the City's planning committee recommend change?
- 2. What is the likelihood something will change, when might it change, and why?
- 3. Based on your above two answers: what is the likelihood something will change and impact my property and property values?
- 4. How might the barrier design on nearby properties might affect my property?
- 5. How will the barrier affect water drainage during regular rain events?
- 6. How will your design effect the flora and fauna of our community? What neighbouring trees and habitats will be lost?
- This will save money and stop the side affects of this sad project. You should not build a berm on a gravel pit. My property value has dropped 30% since the project was announced.
- None. Need upstream mitigation projects to be finalized and undertaken
- Another flood event requires me and my neighbours to need to demolish and repair our basements / main floors. It will be emotionally and financially taxing.
- Possible flooding in the future.
- The TA agreement has a time limit.
- 2. Will TA bought out by BAM.
- 3. Will TA agreement get too expensive
- 4. Will TA manage the water to their benefit outside the flood management time frames.
- 5. Will TA maintain the water flow below the safe 800 cms?
- 6. Bowness could be just collateral damage if TA releases too much water at once.
- 7. There is always the possibility of human error or mismanagement.
- The TA agreement has a time limit.
- 2. Will TA be bought out by BAM.
- 3. Will TA agreement get too expensive
- 4. Will TA manage the water to their benefit outside the flood management time frames.
- 5. Will TA maintain the water flow below the safe 800 cms?
- 6. Bowness could be just collateral damage if TA releases too much water at once.
- 7. There is always the possibility of human error or mismanagement.
- I will potentially sell my house and leave the community if there is no added protection. I am getting older and my ability to handle another flood (physically and emotionally) is getting less.
- There is another flood event and NO ONE in Bowness can get insurance even if we aren't affected by the flood directly. This is what happened in Fort Mac, why should we expect it to be any different here.
- None.
- Riverfront residents who don't want the Berm will be first in line to try to get hand outs if their property floods and they will lobby the government to make sure they can still get insurance. They can't have their cake and eat it too.
- Folks are turned away from the community. We have another major event and no one wants to live here. All property values will go down; not just the riverfront or flood affected houses will be effected.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
April 2021

- No one wants to live in Bowness and it becomes a slum.
  - Can other measures (upstream dam) be put in place before another flood takes place?
  - The only answer is upstream mitigation.
  - none, I have insurance
  - Every June or high river season, my anxiety goes sky high, as I live in the flood zone. This would continue. The loud voices of riverfront property do not seem to take the concerns of the other residents in mind (greater community good), who may benefit from a flood barrier. Riverfront folks seem mostly concerned about the impacts to their direct property (understandably so) & protecting their individual investment and concerns. I would have less concerns if the province would get the upstream mitigation / reservoir built!
  - None. Keep the Trans Alta agreement in place, pursue upstream mitigation with the Province in a tenacious manner and implement property level flood protection for the 400 or so properties that were damaged in 2013.
  - build dams upstream where there are no people. this gives a drinking water reservoir, a lake for recreation, and ability to mitigate drought
  - We need to spend money and time to repair from a flood. Government restricts development in Bowness. I will take property level mitigation ie. raise the grade of my house, but my elderly neighbor wont be able to. I will increase the damage to her house.
  - Bowness becomes an unattractive place to live. We can't get any flood insurance.
  - If no upstream mitigation is in place, overland and groundwater flooding could occur in some areas when river flows are very high
  - Berm project team will be out of a "make work" job.
  - None.
  - No concerns...as long as Transalta agreement stays in place permanently.
  - People of Bowness that have been convinced by the city that they need an overland flood barrier may experience psychological issues if a barrier isn't installed.
  - Perception city doesn't care
  - With no permanent barrier, there will be future floods. But with proper upstream mitigation using both the Transalta Ghost dam and proposed new dam, flooding could be mitigated.
  - Not convinced that we will be protected from overland water and groundwater, and from evacuation and loss of utility services.
  - No concerns at all. Permanent flood barrier not needed, wanted, or practical
  - intelligent upstream mitigation with the existing and proposed new dam on the Bow and well designed and well managed, can be done !! The Province committed already a couple of years ago 1 Billion Dollars over 10 years to this project and has initiated further study of potential locations for a new reservoir !!
- Why is the City waisting time and money on a temporary solution with limited outcome.
- The main concern about no barrier is that the city has expended a great amount of money in this project without consulting the community as to what is needed. This expenditure will be spent without value. The city should not take the perspective that not supporting this project does not mean that Bowness does not want or need flood protection. The city should listen to the community and hear that we want protection, but to be effective it must include groundwater protection. Just because this project is not accepted by the community as being effective, the city should still work with the province to continue the development of larger reservoirs and should look at other options such as temporary barriers
  - None other than formulating your questions in proper english
  - City should be actively campaigning to fix the problem with a upstream reservoir.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
April 2021

- Bowness becomes undesirable for home owners. Home owners can't get any flood or water coverage. Home owners need to act individually to push water from their properties...the less financially capable can't afford t...or water is pushed to home owners who aren't expecting it. ie. what if water is pushed to the seniors facilities?
- There WILL be another flood and if we don't act now, we will face the financial and emotional burden that comes along with it.
- None
- Barrier proposed would not protect us against a 2013 scenario and I have no concerns if one doesn't get built as my property is one that is not selected for said barrier.
- Another flood impacts Bowness and it is no longer a desirable community in Calgary. Residents need to spend out of pocket to cover repairs. No one in Bowness can get insurance and / or cost of insurance for others in Calgary increases.
- We would be left to only rely on reservoir management and open the extreme weather events. I live in the flooded area and it is a personal concern to suffer the loss and damages of flood. There is damage each year during flood season from the emotional stress.
- Riverfront owners / flood affected residents erect temporary barriers to protect their properties and push the water further into Bowness. Having researched various measures and started to implement them for my property, I have no doubt others will do the same. This will lead to more damage and catch some residents off guard.
- Riverfront residents put up temporary barriers and push water further into Bowness. Flood event makes Bowness an unattractive community and property values fall (this will affect the WHOLE community).
- Need upstream mitigation and permanent Transalta dam agreement
- We all need to put in property level measures ie raise the grade, put up our own temporary barriers. This means the wealthier home owners have an advantage.
- None. This is the best option.
- if the flood barrier does not protect from groundwater flood damage, then we are better off without the flood barrier. There might be some issue with respect to how or if the city imposes building restrictions in the flood fringe, but this cannot and should not be done retroactively. putting restriction on building now would be like closing the gate after the cows have left the pasture.
- Repeat of 05 and 13 floods with little defense.
- None. The TransAlta agreement protects Bowness from overland and groundwater flooding for up to about a 1:30 year flood probability. Its reacquisition is imperative as without it the barrier is worse than useless. Furthermore, the storage volume available there provides ample time to evacuate portions of the community should this be deemed necessary based on the perceived flood volume. Thirty years is plenty of time to investigate, analyse, negotiate, approve and construct sufficient upstream mitigation to provide Bowness of the same level of flood protection as other communities in the city are being provided.
- It could flood again with the 1/100 chance.
- No concern at all. Most flood affected property owners that I know are more than willing to take the risk of flooding. The TransAlta agreement to keep the flow rate to 800 m3/s protects our community - riverfront and non-riverfront quite well and we will focus on upstream mitigation advocacy that will produce real results for protection. This barrier that is proposed does not protect flood affected properties and is a waste of tax payers money. The City and Alderman Sutherland need to stop fear mongering and lying that this barrier will "protect thousands". The unfounded safety concerns and fear driven marketing of this barrier by the City is unacceptable.
- If no flood barrier what happens when the ghost is full, would residents be once again flooded



# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- None - focus your efforts on changing building code in the area so new developments have additional requirements in the build to prevent pervasive structural issues.
- I don't have concerns.
- No concerns
- None
- None
- We are concerned about the risk of flooding if upstream water flow is not appropriately managed during heavy rainfall and/or snow melt. Since the presence of an overland flood barrier does reduce the risk of damage from a flood we have no concerns about the absence of such a barrier.
- We need to do something to prevent flooding and Bowness residents should not be the only ones who have to bear the weight of this to prevent flooding the city. There should be other solutions presented
- If the upstream reservoir(s) are properly managed there is no concern without a barrier.
- Upstream mitigation is unlikely for 15 - 20 years, if not more. Costs are huge, environmental opposition is likely, plus there really is no ideal place to put a dam without impacting either CP, indigenous land, Glenbow Ranch PP, homeowners along the Ghost..... all of whom will likely appeal and drag out the process. Getting a dam built is not easy now, especially after all the negative publicity around Site C in BC. Costs seem to spiral and AB govt is deeply in debt already. Perception that the berm is just about a few river landowners, and if they don't want it, an upstream dam is not justified based on the relatively small # of people in Bowness who were flooded out.
- Either with or without a flood barrier, I can still see flooding
- with Trans Alta doing its job properly, I am fine with no permanent flood barrier
- do not have any
- Our concern is that without a flood barrier in place we will experience flood damage and financial loss again. Possibly to the same extent as in 2013 which we will not be able to recover from financially. We do not agree with the report or the concerns documented by the Bowness Responsible Flood Mitigation society.
- I have NO CONCERNS.
- Potential for road access and surface damage issues due to high flow down Bow Cres
- Uncertain, upstream reservoir should be completed first.
- None
- We have absolutely NO concerns if we do not have a permanent flood barrier in our backyard.
- We accepted the risk of living by the river when we moved here and have no concerns of living here without a barrier.
- Government departments and individuals may not emphasize and prioritize the need to establish and implement various upstream mitigation projects and operation policies (eg; Trans Alta flow release rates).
- None.
- Continued danger of flooding, continued erosion of public and private property.
- I have no concerns if the barrier is not built.
- Potential damage to some properties
- While flooding remains a concern, a genuine effort from the City and appropriate stakeholders to develop a flood recovery strategy. You miss one hole and the water will find it and it will be absolutely relentless and destructive. Not having the barrier down to bedrock is a mistake and will result in potential washouts of the barrier.
- Support upstream mitigation



# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

April 2021

- Same as now.....another event like 2013 for which the proposed barrier does nothing. Upstream mitigation is so necessary.
  - Not managing the existing controls already in place. Much of the issue in Bowness was because of not lowering the existing reservoirs before the flood and the sudden surge caused by Transalta dumping water from their dam. I grew up alongside the Elbow river and have lived 32 years beside the Bow. I know that although it has not been publicly stated Transalta and the city deserve much of the blame for the 2013 flood because they did not manage existing capacities properly and got overwhelmed by the combination of significant rain and spring run off.  
Focus on managing existing resources and work towards upstream mitigation would be far more effective and cost much less
  - I have no concerns
  - Will city help home owners with property level or will they just leave property owners to decide/deal on their own?
  - No concerns since we can focus on real flood prevention - upstream mitigation
  - N/a
  - None
  - None
  - Continue existing agreement with transalta and focus upstream
  - None - Maybe we could return to normal and start sleeping again.
  - Solve the groundwater flooding
  - Other Bownesians blaming riverfront property owners for a lack of protection.
  - My only concern is that if this plan is turned down by residents that there will be no upstream actions done as the province does not want to commit to spending the money if the city will not.
  - The city may decide not to work with the provincial government for upstream mitigation.
  - None
  - Government will have to take efforts to STOP CLEAR-CUTTING the forests in the headwaters of the Bow River
  - No concerns. Rivers need a place to go and forcing water down stream will just flood other areas.
6. Financial Impacts to Riverfront Property Owners The city has a questionable record of on time and on budget based on other city projects, this one will probably be no different. A contingency of 100% should be added to it to reflect the barrier's potential real cost.
- Both overland and groundwater flooding remain a risk of living along the river.
  - No concerns. I don't believe this area needs one.
  - Suffer financial impacts. Residents need more property level solutions which increase the risk to those less able to protect their property.
  - That no other options will be considered for flood management.
  - If there is commitment to upstream dams and to timely construction, I have little concern. If there is not this commitment, a barrier could provide some protection to overland flooding though probably short lived in any serious flood event as the barrier will be compromised.

### Question 5) Benefits of no permanent flood barrier

- Property owners are allowed to fully enjoy the benefits of the properties that they have purchased. They also have the right to "flood proof" their homes in whatever fashion they choose. It would also prevent the potential introduction of more sojourners through the community.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- No waste of taxpayer dollars, no trampling of private property rights, no destruction of the ecosystem, no damage to Bow Crescent and credibility for the City of Calgary in having the common sense to stop this project in its tracks.
- Preserve the existing ecosystem. Not waste millions of our (taxpayer) money. This would serve as one more reminder that we're not stronger than nature and we shouldn't build our house in a floodplain.
- This long process will end and our property values will stop free falling. Down 30% in last five years. The stress will end.
- None
- Wildlife and fauna undisturbed, ugly construction causing disruption to the river ; look at Bragg Creek. UGLY
- No impact to property values
- Just esthetic.
- Don't see any benefits of no permanent flood barrier
- residents have self mitigated, and along with continuous controlled releases under 800m3 from the ghost dam is all that is need until increased upstream storage is built
- Less expense
- None except traffic during construction phase.
- Privacy and wildlife remain intact
- None
- status quo. I have overland flood insurance
- No financial or environmental damage.
- Tax payer saving, unless the Provincial Government is a partner and signs off on the effectiveness of the barrier.
- This will save money on a ineffective barrier. We will not get caught in the groundwater nightmare experienced by the citizens of Exshaw and Fort McMurray.
- Rich people get nicer yards? I don't really care though.
- None
- Wildlife remains protected and river front properties remain the same.
- Saves taxpayer money

## Esthetics

No long drawn out community battle with the City over compensation for homeowners on the riverside City will be seen as spending taxpayers money to protect 75 houses, with most of the values at over \$1 million.

- Riverfront residents will keep the value of their house.
- I won't have to worry about the city increasing the river levels. I won't have to worry about dealing with construction for the next 3 years. I won't have to worry about my tax dollars being spent on a project that's not even going to protect Bowness from flooding (underland flooding, which apparently doesn't seem to matter to the city?!). The city won't be killing trees and displaying wildlife and changing the flow of the river.
- The city can go back to the province and request that the upstream reservoir be identified, designed and approved before a flood barrier is constructed. The city can advocate that this reservoir be constructed as large as possible. The city can advocate that the province identify other opportunities to attenuate flow upstream of calgary using existing infrastructure with the expectation that these initiatives reduce the peak controlled flow rate in Calgary to below 800 m3/sec. Only after the city as expended all efforts in advocacy for maximum upstream mitigation should consideration of the requirements for community barriers be progressed. This will result in the most cost optimized solution for the taxpayers.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- This will only benefit the selfish people who are worried about an inch of ground water in their basements. And will have no benefit to me.
- no negative impacts on the property values or esthetics or access to the river
- Preservation of the ecosystem. 2. Preservation of the ecosystem. 3. Respect for the property owners along the river. They are the ones who seem to be primarily at risk for flooding. Let them make the call.
- Natural flood attenuation occurs when water moves over low lying land in bends. Natural areas are always more resilient to flooding than engineered ones.
- Riverfront property owners can continue to enjoy the river, at their own risk and risk of the community over an aesthetic.
- Enjoying ones property- Yes - there will be flooding in Bowness in the future, but it is difficult to say what the impacts will be. Generally, the higher the flood levels, the more impact can be expected
- No public funds will be wasted so this is a significant benefit
- None that I can think of
- view, wildlife and green belt undisturbed.
- There is a short term cost savings to the “do nothing” solution but this is short sighted.
- Zero.
- Upstream flood mitigation should be implemented
- Status quo. River front owners happy.
- A beautiful community with nicer properties at a higher value.
- 2. It doesn't screw over some of the hardest working and highest income resident of Bowness who bring a lot of employment and wealth into the community.
- 3. It would keep Bow Crescent as one of the most desirable streets in Calgary.
- None.
- The barriers may be costly, so not constructing them would save money.
- Mother nature and peace
- We aren't donating tax payer money to rich people?
- As a non-riverfront resident, this does not affect me.
- Huge savings for the City. Bow Crescent residents can continue to enjoy their properties
- It lets nature run its course. Maybe it's time humans leave the flood plain.
- No tax money spent, no construction, no disruption to backyards.
- Nature, cost,
- Put the money towards community services, and improving parks.
- Those affected by the prior floods have implemented their own mitigative measures. I.e. Building higher, sewage backup prevention, etc.
- No benefits if we don't fix it
- Direct the funds to upstream solutions
- none
- Bownesians continue to use the river bank areas for living and recreating.
- none that I can see, assume riverfront property owners do not want their land disturbed but I believe with proper consultation/input this can be addressed
- Maintain wildlife
- Taxpayers money will be saved for a project that is flawed. We can be the caretakers of the Bow River and not deal with environmental destruction. { I visited Bragg Creek } Go back to sleeping peacefully at night and watching the wildlife use the river as its home and corridor to travel through the city as it should be.
- Absolutely no benefits whatsoever.



# Bowness Flood Barrier Project Feasibility Study

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- No benefits.
  - None. Benefits of the barrier outweigh the costs.
  - No cost to residents. Important considering the bulk of people who live here are blue collar working class folks that aren't even living on the floodplain.
- No construction equipment. The pile drivers for the Stony trail upgrade are loud enough as is.
- Increased river health, anthropogenic channelization destroys rivers. See the Danube in Europe as an example.
- Retains the unique environment , one of the few remaining in Calgary
  - Cost savings of not having to build one. We aren't exactly flush with cash right now.
  - It will be up to the individual to protect their property . The outcome will be determined by your choices.
  - Status quo for the bow river properties. People are afraid of change. And yet when we read the report that was commissioned in Inglewood, most riverfront people were happy with the berm.
  - There are no benefits for people in the flood zone. For people living on the river above the 6000 block there are benefits. They won't have to have a small berm in their back yard. They know full well that they will never have more than a few inches of water in their basement during a flood. These people were not flooded in 2013 and for the most part do not realize anyone else exists or matters other than them. There are also people in the flood zone that have raised their houses and put in super foundations or can just afford to rebuild their house every 10 years. These people also won't have to have a berm in their back yard.
  - See no benefits
  - Key project in the overall flood mitigation initiative for the Bowness community.
  - It's permanent.
  - River would be allowed to flow as it was intended to flow.
  - The opportunity to come up with a better idea. One that does not involve walls. It may take more landowner property, but increasing the amount of natural solutions instead of hardened infrastructure pays out in the long-run.
  - None for me.
  - Retainment of a somewhat natural landscape already in place.
- Millions of saved tax payer dollars that would be much better spent on social programs to benefit the Bowness community.
- There is a known risk to living so close to a river. You can't ever change or stop or change nature's path.
- The focus for flood mitigation remains on the appropriate avenue of a suitably sized upstream reservoir, which is critical as we face increased risk of climate change, variable weather, and episodes of drought. The rights of affected property owners will be respected, rather than moving toward a governmental model that embraces elements of tyranny, and this may allow a sense of belonging rather than alienation. The decision not to have a permanent flood barrier would be an appropriate repudiation of a planning model that was biased, and did not genuinely engage the community or those affected.
  - We will get our property value back and have liquidity again.
  - None.
  - barriers allow for crime - I was required to place a wall around my dumpster at (personal information) and as a result of this barrier that hides criminal activities I have people sleeping, pooping, dumping garbage on my property
- also overland flooding is covered by insurance and groundwater/sewage back-up is not so a barrier just shifts the cost to residents and does not reduce flooding and damage
- None. No flood barrier would be deeply irresponsible.



# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- Saving money for all including taxpayers and riverside landowners. The flora and fauna will be undisturbed. No threat of increased groundwater damage from barrier. No construction disruption. Our mental health will be improved from no more hassle from the City of Calgary; as if we don't have enough problems.

- Natural esthetics of the area
- City can focus more resources on advocating for additional reservoir capacity on the Bow River upstream of Calgary and renewal of the TransAlta operating agreement. Proceeding with the barrier takes pressure off the Province and may hinder the advancement of additional reservoir capacity and improved dam operations.

Protection of natural riparian environment and the wildlife who live here. Some people say we have a river in our backyard. I like to think we live in the river's back yard and share it with the wildlife here. No barrier provides more certainty than the possible construction of the barrier. This project has disrupted lives and caused anguish for more than 3 years.

- It will force the province to accelerate upstream mitigation (the only real solution) to prevent the need to cover losses for of another event (however unlikely) in Bowness and save the Calgary taxpayer multi-millions in costs (which are grossly underestimated in the glossy brochure the City provided this month).

- no construction (we know the city is horrible at managing construction impacts on citizens)
- I can get DRP flooding for overland floods
- Not applicable
- Bowness retains its functionality, history, and individual properties are not affected. The river itself remains natural and untouched.

- save money
- A few idiots get their way.
- if ground water goes up with high river it wont get trapped in the yard
- None.
- My taxes pause their meteoric rise, riverfront residents are left to their own devices, the city engages in one less make-work project to occupy the union workforce, a riparian landscape is not once again altered for human's cause du jour.

- None.
- The city can now channel the money that would have been spent on this useless, destructive and unfair project more benifical projects like the Green Line or Crowchild Trail Medium Term upgrades; projects which benifit the poorer %99.9 of the cities populataion who do not have the exclusive privalage or money to afford waterfront property in Bowness. Also the river bank is left in natural state. The Bow River itself is an important recreation and tourism oppertunity and should not be negativly affected by a project like this. Get a resiovoir built upstream instead to provide protection for the whole city, generate power and add recreation opertunities.

- We keep the shoreline as it beautifully is
- Peace in the neighborhood
- Equal protection. We don't have do as much at the property level mitigation ie install a sump pump but no barrier fortresses
- Normal CITY BULL SHIT!!!! - we will word this so it gives the answers that we want !!!
- None.
- There are few in the short term. It is more to do with the type of barrier being suggested than the barrier itself.

- None. We need the Berm.
- Money saved for other projects that would actually work. Upstream mitigation would be far more effective. No berm would mean sparing this valuable riverine land from unneeded destruction.



# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- I am curious:

I would like to understand benefits to my property...

... and or if my property is affected in other ways, as I understand the presence of a barrier at lower elevation properties will allow the Province to flow the river above 800 m<sup>3</sup>/s. Will this increase my risk for groundwater flooding on my higher-lying property?

If so how might I mitigate the risk of increased ground-water flooding on my property as a result of the proposed flood barrier on lower-lying properties?

- Stability in area. We can focus on upstream mitigation.
  - Less potential flood damage without barrier. Leaving valuable riverine environment alone
  - None. Unless it accelerates building an upstream reservoir.
  - No further damage to a waterway and the land/forests that surround it. No risk of contamination of the river water, which could affect the land and plant life downstream, aquatic life, and even residents who enjoy activities involving the river. No additional project/construction costs, which impact the City and its residents.
  - Our river view, access, privacy, and trees would be maintained.
2. We would be spared the increased risk of ground water flooding.
  3. We would not be dependent on the city to bail us out if we had excessive rainfall or groundwater trapped behind a berm.
- More advocacy for the upstream reservoir.
  - I think the folks opposed think this will bring an upstream reservoir faster...I get it, but the City has been clear that the berm is necessary with an upstream reservoir.
  - Maintains the opportunity to return land that should have been left as river bank to nature.
  - City may have to look at providing better flood mitigation farther upstream which would be preferable.
  - None. Folks who oppose this are the equivalent to anti-vaxers.
  - None. Some idiots on the River get their way with no regard for anyone else.
  - None. Bowness and it's residents will only benefit. If we build it, the community goes in a positive direction. If we don't and there is a flood, the community could go in a very negative direction.
  - In the event of a flood we will call it an overland flood, caused by the river, not a groundwater flood, even though it's caused by river water sneaking underneath the barrier.
  - Avoiding allocating significant cost to a project that does not address the risk faced by residents.
  - The only answer is upstream mitigation. The riverfront residents would not have to put up with the destruction of their view, put up with extensive construction activity and noise and destruction of the natural habitat.
  - I know my risk
  - save The City the cost of building the barrier.
  - There will not be a waste of taxpayer dollars, respect for private property rights will be enhanced and hopefully a learning opportunity for City of Calgary staff on how to be transparent. This has dragged on for over 3 years now and the consultation process has been sorely deficient.
  - preserve nature and respect private property. use the money upstream and leave it to the provincial government. this should be none of the cities business
  - There aren't any.
  - None
  - Protection of riparian habitat, no need to take out trees or shrubs, better esthetic effect. No use of tax dollars.
  - The cities lawyers can rest easier as they won't be facing multiple law suits.

# Bowness Flood Barrier Project Feasibility Study

## Stakeholder Report Back: What We Heard Report

April 2021

- The focus can be put on a real solution upstream and with continued decreased flows(Transalta). Taxpayers money will not be wasted on this make work project. The people on Bow cres can have at least one stressor removed from their lives during these crazy Covid times.
  - Better monitoring of Bears paw dam, lower river flows in peak years because of this, and less chance of any flooding.
  - The property owners can retain their properties without forced barriers between them and the river. No further stress and anxiety for people who stand to loose property value. No further stress and anxiety for people who believe an overland barrier would act as a barrier and not let the water back into the river once it's inside.
  - We have already self mitigated.
  - Aesthetics; no community division; happier members of the community.
  - Not convinced that we will be protected from overland water and groundwater, and from evacuation and loss of utility services.
  - \$ saved for other projects, riverine environment saved
  - Life will go on hope will remain that the City will make the right decisions based on the residents concerns and recommendations
  - Rejection of this current barrier options will promote increased focus on the upstream reservoir options which are most beneficial. In community engagement the city stated that the barrier is like the icing and the upstream reservoir is like the cake. standing down the barrier until a new reservoir is approved appears to be the rational cost effective choice. By constructing this reservoir large enough, the impacts of groundwater flooding can be mitigated as is done in Elbow River communities through the flood mitigation projects being deployed there. The target flow rate of 1230 m3/sec is much to high and presents significant safety risks. In 2005 a young girl was swept away and drowned at a river flow rate less than 800 m3/sec
  - Focus on upstream mitigation
  - Without a sure to fail solution in the city perhaps city advocating for upstream protection will be more successful.
  - The (offensive language) will feel victorious..or until we are flooded again and angry mobs storm their homes.
  - None. No one benefits...even the few homes that are vocally opposing it...they will change their tune with the barrier protects them.
  - Cost saving to taxpayers.
- No aesthetic or construction impact.
- TransAlta will be more attentive managing and storing flows (not like 2013 where HUMAN ERROR occurred)
- City will be required to pursue proper upstream mitigation with the Province.
- Natural environment remains intact, no loss of aesthetics, no prolonged and costly construction phase which would seriously impact the ability to sell our homes.
  - None. Taxpayers save a bit of money now but will have to pay cleanup costs down the road.
  - A few people keep the status quo at the expense of great stress on many others. Yes the city saves money but at what cost. We all spend money to make our homes better each year and keep a quality of life. Collectively the City spends money for the same reason for the benefit of all of us. That make the City a wonderful place to live.
  - We can protect our properties and it will be every household for ourselves.
  - None.

# Bowness Flood Barrier Project Feasibility Study

Stakeholder Report Back: What We Heard Report  
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- Might force the Province to build upstream mitigation. Esthetically better looking for the community and doesn't disturb wildlife.
- None. We need the barrier.
- This is the best option.
- by not having the barrier, then the economic case to build a sufficiently large upstream reservoir to protect bowness and calgary from all flood damage through reducing the peak flow rate to 800 cms would be maximized.
- Short term savings of money.
- Saving well in excess of \$35MM on an ill-conceived project which will do nothing to protect previously flooded Bowness residents from being flooded again in future. The city Jumped to the erroneous conclusion that they could protect Bowness from up to a 1:200 year flood event simply by building barriers. They reached this conclusion without having any technical data whatsoever in this community. This is inexcusable but perhaps typical of the way governments operate. The Highland Park golf course fiasco comes to mind, Another lesson in the importance of undertaking groundwater and stormwater investigations prior to decision-making.
- Keeping the natural, irreplaceable natural environment that is antifrangible and designed to go through changes so that there are no unintended negative consequences from thinking that 'man knows best.'
- Keep the TransAlta agreement at 800 m3/s protects many many more properties and basements than the barrier, which does not adress our main flooding concerns. Many property owners have re-built or renovated with flood risk in mind and a barrier is not needed, not wanted, and does not protect properties. Stop spending on this project now and wasting tax payer dollars.
- get to enjoy the backyard
- Just as good as barrier minus the extensive cost
- I am more concerned of the impact of putting a berm in.
- Could direct money to more immediate and real problems.
- Prevents waste of taxpayer money
- We love our riverfront community exactly the way it is.

The nature and wildlife in Bowness will not be damaged by the construction or existence of a barrier. Assuming that TransAlta will not start running the river at a rate faster than 800m3/sec (because a barrier has not been built), the erosion on all river banks will not be increased.

Bowness community will less likely be sacrificed for the benefit of downstream Calgary communities (that is, without the barrier, TransAlta will be less likely to more frequently run the river over 800m3/sec – which they might do if there was a barrier in order to preserve capacity to protect other communities downstream from flooding).

Pressure is increased on the Province to build the upstream reservoir.

- Reduced risk of groundwater flooding to our property and other riverfront properties from artificially high river flow rates.

Reduced environmental damage. Preservation of the natural ecosystem, which has received considerable resources on the other side of the river.

Maintenance of the aesthetics of the riverfront.

Continued access of residents to the natural riverfront for swimming, floating, fishing, exercising, relaxing, and socializing.

Reduced financial cost to us directly and to all Calgary tax payers.

Allocation of limited resources to other projects that have a far higher likelihood of benefit to us, to our neighbours in Bowness, and to the city as a whole.

- No land disruption, no construction noise, etc. Land values aren't affected

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- TransAlta will be unable to increase the flow rate of the Bow river to the proposed 1230 cubic m/sec.
- Retain property use, enjoyment, value, no construction messes, keep trees and wildlife. However, this is short-sighted. There are many new homeowners on Bow Cr who did not experience the flood or who built new homes that are more resilient to damage (furnaces and electrical upstairs or minimal basement development, bigger sump pumps). The new houses were built so that they won't experience as much damage, some were even built on higher fill with higher basements. Long time homeowners are not able to do the same. Building a berm is an option for some if sensitively done. Of course we would all prefer no berm and an upstream dam, but a berm is better than being flooded out again.
- I still think the best idea is up river mitigation and for Trans Alta to do a better job of controlling the dams upstream.
- Dale Hodges Park and the fish spawning channel will be at reduced risk for flooding
- status quo
- We do not see any benefits of not having a permanent flood barrier.
- Wildlife habitat and migration corridors remain intact.

Riverbank aesthetics are untouched.

Privacy and safety issues for the community are not breached.

- Greater enjoyment and access to property and privacy. No worry of expropriation and lower property value. No impacts from construction. No loss of trees. No increased groundwater/basement flooding risk at 800- 950 cubic m/sec along high permeability fairways (subsurface streams).
- Not evident.
- Not destroying my private property.
- There are so many benefits of not having a permanent flood barrier in our backyard.

Tax payer dollars can be used towards something the city can truly benefit from (ie. upstream flood mitigation).

There will not be any property damage to private property.

No negative Ecological Factors to the fish and wildlife, trees, etc.

Privacy is kept for all homeowners.

- All levels of government will work more diligently to find and operate upstream solutions that keep the water levels in Calgary at 800 m<sup>3</sup>/s or less.

Less stress worrying about all the unintended consequences of the barrier that may emerge over time

- No undue severe groundwater flooding as the overland flood potential will be well-managed thru upstream mitigation.
- Maintain natural environment, save the city money, not wasting time, resources and money on a project that won't prevent flooding from groundwater, avoid disruption and damage caused by construction, limit stress that this project is causing riverfront property owners, maintain habitat and ecological integrity of river.
- None
- Puts the emphasis on upstream mitigation, where it needs to be. Keeps the flow below 800m/sec
- Save tax payer dollars to be relocated to other city projects
- The City saves some money and can put it to better use for a once-in-a-lifetime event.
- Promoted upstream mitigation
- Ground water flooding will be the same as always.....rather than possibility of more.

EG: the Exshaw project which was supposed to help area residents, but left them with a worse than before problem of ground water flooding....hubris could bring same result to bowness flood area residents.



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- Money will not be wasted protecting million dollar plus properties.
  - Maintain the existing beauty of this waterway.
  - It would maintain the natural appearance of the river.
  - No environmental issues - loss of wildlife corridor, fish habitat left alone.
  - We can focus on upstream mitigation.
  - N/a
  - Shift resources and energy to upstream mitigation
  - No damage to the riverine environment, no huge expense to Calgary taxpayers
  - Wildlife thrives on bow river, you will destroy this important area for ever, all the trees being cut down, really
  - No more wasted time and money on something that will not work!!!!
  - The City saves money and we don't have to worry about our safety and the safety of all the animals that would've been affected. We could relax and not worry about the City wrecking our lives and our properties.
  - Save a whole load of \$\$\$
  - Protect a wildlife corridor, maintain bank stability, maintain the natural river cycle that; brings nutrients into the river, naturally removes detritus and allows the growth of new flora.
  - Other, more effective, options can be pursued such as upstream mitigation in reservoirs. This will be more challenging due to coordination with the current provincial government which has no interest in its constituents. However, it will also be a long term plan with more effective measures and less damage to the properties and community of Bowness.
  - The provincial government will need to address acceptable river levels and hold Trans Alta to reasonable water flows. The focus will need to be upstream mitigation. I am no longer stressed about when the government may decide to flow rates higher arbitrarily. I don't have to worry about significant damage to my person or property due to possible overtopping of the barrier. My tax dollars won't be spent on flood mitigation that doesn't work in Bowness. I won't have to deal with ongoing construction in my neighborhood for three years. I won't have to deal with the issue of the barrier and the stress it has caused. Hopefully I won't have to talk to another City representative telling me I can live safely in my flooded basement.
  - Natural environment
  - Intact habitat for wild creatures and plant life = making Calgary more beautiful
  - All items the city has requested to be ranked are important. To complete the form I have ranked them based according to how I have answered.
- The river will continue to be a natural area and provide a place for all to enjoy when floating on it.
7. Community Equity Bowness is losing retailer business and a disruption of the area will drive more business out and with the increased crime even more will leave. This will result in Bowness becoming a crime ridden slum.
- Taxpayers would avoid the associated expenses.
  - Homeowners are left whole, no destruction of natural habitat.
  - None. We need it.
  - The value of our properties will not be impacted by more taxes, conserving wildlife corridors, maintaining the integrity of the riverbank by not removing 100 year old trees.
  - Yards remain as residents desire. Water will not be trapped behind the barrier after the water level has receded.

**Question 7) What questions do you have about the project?**





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- Why is a BERM not proposed for Elboya and Elbow Park and Rideau? If this project is being conducted largely to protect home owners along the river (75 per The City's brochures) why is it being undertaken by The City when it seems that so few, if any, of those home owners actually want a berm put in place?
  - I would like to know exactly how much has been spent on this project over the past 3 years. This should include all the time spent by City of Calgary employees and council members as well. Who's ideas was this and who is accountable for what is being spent on this project? Why has it taken 3 years to get to this point? Who is responsible for the stress that has been created for riverfront landowners? Who is responsible for the erosion of property values and reduced liquidity for riverfront landowners? Who is responsible for the attempt to sideline BRFM? Who is responsible for the process that has been followed? If you would like to speak to me I can be reached at (personal information)
  - Why are you not recognizing the high cost of groundwater flooding when talking about the berm. Groundwater flooding affects more homes than overland flooding. The berm could cause more occurrences of groundwater flooding. The storm sewer system needs to be fixed so it doesn't enter sewer system and back flow into homes. Spend the money on that.
  - Wouldn't it be more effective to have one construction type throughout rather than homeowners choosing which wall/berm they want. Are homeowners forced to accept if a certain percentage of other riverfront property owners accept
  - Why have you not allayed the ground water fears by answering how a flood barrier could possibly address this issue?
  - Need visual examples of what it would look like
  - None of our concerns about destroying our community come into play. I'm truly disenchanted with living on the street that was always my dream since I was a little girl.
  - What is your real agenda, because we know it isn't to protect the residents of Bowness.
  - When will this really be completed? it has been 8 years since the 2013 flood. One would expect more progress to have been made in that amount of time.
  - Will the city have a program to buy properties from those that want to move as a result of the berm. We'll take the money!
  - waste of time unless you have an alternative motive. you will have to concrete or pave the river banks in order to stop water flowing thru the under ground
  - How many homes along the river in the project area received financial assistance from the province for the 2013 flood? Were the owners offered a buyout from the province like the homes along the Elbow river? What are those home owners expectation of financial assistance if these barriers are not built and there is another flood?
  - If I get flooded anyway through the ground, and with or without the barrier the 1:20 level will not flood my main floor. Who does this barrier actually benefit as my basement gets flooded either way?
  - Why isn't the Provincial Government involved?
  - How will you ensure that construction of such a barrier will be minimally invasive, minimally destructive, and maximally aesthetic?
  - Will the people who own those properties still have access to the river?
  - If Bow Crescent gets groundwater flooding to surface if the river is flowed at 1230m<sup>3</sup>/sec for a length of time, why are you allowing this?
- How many basements will be flooded with the barrier in place at 1230m<sup>3</sup>/sec flow rate> where is the map that shows groundwater levels at 1230 and 1460 (flow rate with 0.5m overboard).
- How are you 3 years in and you still don't have a solution to actually prevent flooding? My question to you is, do you think you have succeeded if you spend 3 years and come up with a solution that will

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cost millions in tax payer dollars and won't even protect the citizens of Bowness from flooding?  
Shameful.

- the city has never shown how this project will deliver protection to the 1:200 year event. it is clear that without the upstream reservoir a 1:20 year barrier even with the TransAlta agreement will not address even a 1:40 year event. The size of the upstream reservoirs being considered today and the design requirements considered by the Province will deliver the city target of 1230 m<sup>3</sup>/sec for a 1:100 year event. There is no clear alignment between the city and the province to deliver flood mitigation, even if this barrier was effective to the 1:200 year event.

- What is better for resale a berm or wall?

If I pick a wall will I have a crib wall as well at (personal information)

- 

- Why not deal with it in the same way that the Elbow River is being dealt with? There seems to be inconsistency here.

2. You have presented results of studies sponsored by the City of Calgary. I know there is a Bowness group that has hired their own geotech consultants to do studies. Why have you not published this information? If their information differs from yours, how do you justify use of yours and not theirs?

- Why are these projects being considered when the homeowners had the option to leave after the last flood but did not?

- Do we have a visual model of what the barrier will look like?

- The level on confidence for contours is poor because they don't have a full understanding of the depth and the composition of the gravels and any bedrock obstructions within the gravels. puzzled about the use of "sheet piling" or other buried wall structures where such an application could divert lateral groundwater flows back towards the main and subsidiary channels in the Bow River.

- In these incredibly challenging times of the oil and gas industry and now covid, why are these funds still being contemplated wasted on a ineffective solution

- None

- The "slow the bow" group is obviously quite vocal but they do not speak for Bowness and their groundwater arguments are silly when compared to the damage cause by water breaching the banks. Furthermore it shouldn't be a question of either a river barrier or upstream damn. That argument is misdirection. It should be both strategies. Also, a continuous pathway on the south side of the Bow would provide immense benefits to Calgary as a whole.

- Why has it taken so long to start protecting this community? I have extreme flood anxiety whenever the river is flowing.

- I'm curious how the concerns of the BRFM (who most certainly DO NOT accurately represent all people who were flooded in Bowness in 2013, including myself) may be balanced with what is best for the entire community. I find the information sharing from the BRFM to be self-serving, abusive, hypocritical, manipulative and, at times, absolutely false.

I'm curious how the city may be helping to advocate for additional flood mitigation, including an ongoing agreement with TransAlta and an upstream reservoir.

- How many properties will be saved by the project outside of river front ones? I feel like those residents voices are just as valuable if not more than riverfront if there are more citizens affected that are not riverfront. How long will it take?

- Is this project about giving the city Calgary the illusion of flood mitigation or is it about helping Bowness. It seems like this project is so non Bowness resident can say something was done to help Bowness residents. When the residents of Bowness don't want the project done.

- The opinions of the wealthy land owners on Bow Crescent should not trump the impact of average residents within the community of Bowness within the flood plain.



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- Thank's (personal information)
  - None
  - I hope you don't get bullied by a few wealthy landowners or business people etc in to doing something that isn't right.
  - Whyyyyyyyyyy, just spend the money making the place better in other ways
  - How soon can this start
  - When are you going to stop waiting time and money exploring the wrong solution?
  - none, get it done.
  - This questionnaire is clearly a measure to placate the residents of Bowness. We know that the decisions have been made and with this timeline they will not be changed. We were fully aware that the previous public forums were meant to sound like we had a say in what happens to our community to save value down river. That is not the case. We are used to being on the bottom of the priority list. Our streets don't even get properly plowed!
  - None
  - Has a fluvial geomorphic assessment been completed to assess the potential increased risk of channel migration/erosion on banks opposite the proposed barriers? In particular the narrow channel section in Area 2. I would anticipate that the proposed barrier would increase shear stress conditions at this constriction under flood conditions exacerbating channel migration/bank erosion.
  - How will you gage the social impact this project has on the community? Why do you put us in a category of elitists who only care about our views? When we are all Calgarians who have supported the community and city and chose to live where we do. I'm offended by that. I have payed taxes and employed people for 30 years.
- Did the company who did the groundwater study recommend proceeding with this project?
- Why hasn't the project started already?
  - Why is it taking so long? Are the riverfront residents so selfish that they can't see this is to everyone's advantage.
  - None
  - Why are the storm drainage systems not being updated along the Crescent? No Backflow devices? Why has the City not informed home owners about installing backflow devices ? Why is there no mention of the set back on the river bank? This land is not owned by the property owners and really it is a community issue along side the provincial bodies.
- I lost my home in the flood and was present when it happened . Im concerned i have never been contacted in any way about this proposal. My confidence is low.
- What is taking so long ?
- Has the city considered giving every house at risk of flooding, individual flood barrier protection - such as that which was quickly erected around the Telus building just before the flood? I am unsure of the cost, but if, for example, it cost \$20,000 per house it could cost only \$3.6 Million for 180 "at risk" houses.
- 2) Why has it taken 7 years to even CONSIDER doing a feasibility study for the upstream protection?
- 3) Given the new Alberta fiscal circumstances, it appears doubtful that this will even be financially possible. Is the City considering the risk of further fiscal problems to these projects?
- Why are a small group of people allowed to delay this project. Go back and refresh your memories about what happened and how devastating the 2013 flood was.
  - If there is resistance from riverfront residents would this be built anyways?
  - What is taking so long to build it?
  - Would like the answer to the question of who will become our insurance provider if the barrier goes ahead? Our insurance has stated they will not accept the risk of continuing to insure us as they feel the

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risk with a barrier would be too great? This has not been answered by anyone front the barrier project or member of the City.

- What other options were considered? A lot of research has shown that hardened structures do not last in the long term and at the very least a blended green/naturalized approach is better in the long run. Is the City will to pay again and again to maintain or fix the failed parts of the barrier? How often will the barrier be inspected for integrity?
- I do not support it.
- Why has the city refused to chare information with those effected, even when this directly requested? Why has the government of this city forgotten that it exists to serve its people openly and honestly, rather than operating duplicitously and secretly.
- Lots but these will be provided when we do the one on one meeting.
- Can construction start this summer?
- is there a large NW groundwater study ?

Both my home on (personal information) and my building at (personal information) have been affected by water & the situation with flooding in bowness is part of a much bigger problem.

Also why aren't others not on Bow Cresc who were affected by the flood in 2013 not invited for a one on one consultation.

- Why would we compromise on safety just because some extremely selfish residents don't like the solution that is supported by clear technical rationale?
- Will the following options also be done? And will the city PUT IT IN WRITING:
  1. Maintaining TransAlta agreement that lowers water in Ghost damn during flood season and
  2. Additional upstream mitigation.
- Is the basis of this design a 100 year flood / event? Does the design factor in climate change and the potential for greater frequency of an event?
- I have many questions that have not been answered in the virtual sessions that I will be sending by email.
- I want to know why we cannot access the raw data from the groundwater study so that I can have it analyzed by some friends in the Geology Department at the U of C and the Queensland University in Australia (experts in underground fluid dynamics).
- why don't you tell everyone who would be overland flooded without the barrier, if they will be flooded by groundwater. That would seem like the honest thing to do for people to evaluate the impact of the barrier
- In addition to Riverfront areas in Bowness, what considerations are there for overland flooding from the hillside along the west end of 33rd Ave in Bowness - many residents along the south side of this avenue have been significantly impacted by flood damage from this hillside over many years.
- What exactly will these look like?
- no
- Can you confirm that the biggest dissidents aren't even expected to have a berm on their property? They just want to fight the City because they like to fight and need a hobby?????
- City should still push for the upstream reservoir for the added layer of protection. City should not be complacent once the Berm is in place.
- Ya I don't have questions, just would appreciate the ability to contribute in a democratic capacity (beyond electing once guy to represent myself and 100,000 other residents in every matter for several years).

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- The focus is too much on the few riverfront residents who are taking issue with the project. The project benefits the community and should be a community decision, not on a handful of outspoken residents who are and can direct extensive resources to fight it.
- Why can't you put a Multi Use Pathway along this barrier if you decided to build it. Why can't they just wait for an upstream reservoir to open? Why is this more important than the Green Line? If you're ruining the river anyway, why not just extend Sarcee across the river too while you're at it?
- Why are a few people trying to derail something that is clearly the best solution.
- Tell Ward to stop Lying!! "We've done a survey and over 87 per cent of Bownesians want it (the berm)," said Sutherland "So 10,000 people want protection, and it's also the city's duty. This was part of council's decision as a whole, including the Elbow and the Bow River, of what (flood) mitigation we would take."

In the City of Calgary's 2012 municipal census, Bowness had a population of 11,012 living in 5,313 dwellings - so 87% would be 9,580 - that's the first LIE - SHOW us how he can make that claim of 87%!!!

2nd LIE - it will not protect us! that is shown in the report and the MAPPING on ground water. Keep the water out of Calgary!

In 2005 and 2013 the DAM had new - Green operators that added to the flooding!

- Hope you guys could make this better and I wish there were a canal but still have a river going through for example Santiago Chile they have it there and I believe it works there, then compare to our Bow River System then it's more likely to overflow here in Calgary
- I'm a flood area resident and this only benefits me. Let's get going on the project.
- Why this type of berm versus a more permanent type? Why is this only addressing overland flooding? An earth berm will not protect from sewage and other flooding issues that are not covered by many insurance companies and tend to do as much, if not more damage than overland flood waters. If the other areas of concern in the city get permanent, more complex solutions why is Bowness left with a dirt berm? If the waters rise the volume and flow rate will easily damage and erode a dirt berm. This will need extensive, yearly maintenance.
- Ward Sutherland stated there had been a survey of "1,000s of Bowness residents" about this. I don't know anyone who was asked to take part in this supposed survey. Would like to see it published on your website.
- Just a few more questions:

Does the City anticipate needing access to my property for any reason? For example: Will the City need access to my property for any future studies or for construction access? How will The City compensate landowners for access?

I have stated my most pressing questions above and look forward to your responses to me.

Please confirm receipt of my engagement on this website by email to [PERSONAL INFORMATION REMOVED] ...AND...Please answer all my questions IN WRITING BY POST, addressed directly to me, [PERSONAL INFORMATION REMOVED]

- Why are you not respecting property owners who suffer from groundwater flooding?
- Why are you so hell bent on pursuing this ineffectual "solution"
- I'm tired of this neighbor vs. neighbor rhetoric that is being cultivated by slow the bow. It's time to let the science speak.
- What are the protection measures in place concerning the negative environmental impact this project will definitely have? How costly is the project? Is this flood barrier guaranteed to stop flooding - or is it simply a protection measure that cannot ensure 100% effectiveness, all while taking an environmental and economic toll on residents and waterways?



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- If get water trapped behind the berm we will be dependent on the city to bail us out in a timely manner. Where would we be in the priority list?
- 2. Will TA release water above the safe 800 cms just because they can when a berm is in place?
- 3. Will TA fill there dams before dumping when there is a potential flood situation.
- 4. If we have proper flood management in place and use all the existing upstream infrastructure, do we really need a berm? Are the risks associated with a berm worth it?
- 5. When will the berm height be finalized?
- 6. I've been trying to favor a berm over no berm and am looking for answers to gain an understanding and level of comfort. We don't have to like all the answers, are you at liberty or in a position to help
- 6. The current proposed berm height on our Property close to the house is 1.5 feet above the 2013 flood level. Why is this so high? This also puts our main floor in danger of flooding if water backs up behind the berm.
- 7. The current proposed berm is now broken into two separate lengths, but the berm height is now higher. Why is that?
- 8. Will construction be broken up so that riverside residents will not have to endure the full three years of disruption? Will there be compensation for the disruption, as I expect we may have to occasionally relocate.
- 9. Construction means we lose the best time of the year to enjoy our backyards and could last for 3 years. Is there any way this could be sped up?
- If we have proper flood management in place and use all the existing upstream infrastructure, do we really need a berm? Are the risks associated with a berm worth it?
- 2. Our basement along with many others will flood from GW sustained above the flow of 800 cms, with or without a barrier. Will this maximum flow be maintained unless of an emergency?
- 3. If we have a heavy local rain when storm drains are closed, will some homes get overland flood water in their basement?
- 4. The berm height, footprint and alignment will all have a direct negative impact on our property value. How will we be compensated for our loss?
- 5. The city could go back to the original plan of one continuous road allowance from one end of the crescent to the other.
- Why don't people educate themselves with facts?
- Why are taxpayers funding this? This will just serve to boost property values for a select few people. This money could be better spent elsewhere, like in the school system.
- Why does slow the bow even exist?
- Please just do this and stop engaging the people who oppose with no scientific merit or sense of community.
- Why is this so controversial? Other areas seem to have no issues protecting their communities.
- In an attempt to water trees last summer I left a hose running at 5 gallons per minute for 24 hours and it never even left a 12" diameter puddle. I believe it drained into a porous gravel strata back into the river. I would like to know how a berm would prevent backflow underneath it. (personal information)
- Having recently purchased property in Bowness, I would like to see ongoing engagement of residents. I understand that information and information sessions have been held previously. There is a high degree of mistrust with this process and ongoing engagement. I kindly ask for ongoing information and clarity and different forums for this discussion.
- 7 1/2 Years have passed since the last major flood and the city / province have only made minor progress towards protecting residents of Bowness. The real answer is to provide an upstream reservoir, not place a bandage on a major wound, such as earth berms or flood walls to offer little or no protection for the majority.

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- why isn't equity of protection on this list to rank where protection includes GW
- What has been spent on the Bowness flood barrier project since City Council approved this project in 2017? Who is the individual responsible for the spend? Has the amount spent adhered to a budget that should have been established in 2017? As to the rankings I require more detail on community equity and community safety as I am unsure what exactly they mean, thus my low ranking for those 2 areas. If someone could explain that better it would be helpful
- why do you insist of this manifest destiny project? all feedback has been negative but the city officials made the decision from the very beginning and the rest is just justifying that decision regardless
- What will the City do to mitigate overall neighbourhood disruption on Bow Crescent as a result of such a massive construction project to build this river barrier?
- How can it be such a fight in Bowness when Inglewood and Sunnyside are good to go?
- This is the most ridiculous questionnaire / survey you could ever devise. What are you trying to achieve with this? Justify your job and the millions spent on salaries / studies and useless questionnaires!?

Bottom line is a berm is so you can purposely run the river higher and faster and is going to increase the likeliness of property damage. The city WILL be liable for this fiasco.

- If they say they won't allow the river to flow faster and that the Transalta agreement will be maintained permanently at the same stringent levels since 2013, then provide these guarantees and put it in writing. Why can't they do this? How can you trust someone when they just say, no that won't happen, but we can't put it in writing or give you a guarantee or accept liability in any way.
- So many
- It seems that despite the opposition to the permanent flood barrier by most of the community, the City seems set on recommending it. Why not push for the upstream mitigation before any barrier concept. Also, will City release the requested data gathered by the City? Field notes and detailed data calculations have been requested, both through the City and now through legal channels, and they have not been provided. Why? Should the City not be transparent?
- How can this project be stopped?

How do we confirm that the barrier will not affect our property?

- Why is Alderman Sutherland lying about some supposed survey that was previously done with "1000s of Bowness residents" who expressed great support for this fiasco?
- My questions have been submitted during the recent Virtual meeting

Absolute Transparency in providing information in all areas of the project from the City is paramount !

- How much money has the city spent on this project so far and how does the city expect to finance this project given the difficult economic situation. I cannot support a project that provides no benefits to this community while extracting ever increasing levels of taxation and service fees. Why is the city pushing this project so hard when it does not protect bowness?
- Why are you wasting tax payers money we don't want your help
- Please follow the science and not the misguided politics of a few who don't speak for the majority.
- I do not believe the community has gotten an adequate ability to speak to the city re: the project. Covid has provided the scapegoat to allow the city to not properly engage. Please don't even suggest the hour long presentations were adequate. I attended all six, submitted questions in most of them, none of which were addressed.
- More of a comment: The few opposing the project aren't interested in the facts. Please ensure their misinformation doesn't destroy an important project.
- I've asked numerous questions, in Virtual sessions, at public events and on site. Assured of answers, I've received none. Why?

The Social Criteria ranking portion is seriously flawed, as positive and negative impacts are unclear. For

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example, it appears in guiding questions that the financial impact is a positive attribute, when in fact nothing is guaranteed about what a barrier will look like, how high it will be, or where it will go, so how to rank it; a cost benefit or negative? How to rank mental health? I would still be scared of a big flood if the City is only building to 1230m<sup>3</sup>/sec. Not to mention the stress and worry of seeing my property damaged by the City. Can you fix the Social portion of TBL feasibility ?

Can I see economics?

- When is the city going to come clean with a full and honest accounting of the costs to construct this?
- Don't let a few dissidents speak for the community. This is a project where the benefits outweigh the costs dramatically..
- Will the barrier be sufficiently high enough to the the job. Why not make it .5 m higher. to extend the protection to cover something closer to the 2013 flood level. Also How will the City assure that the barrier will be maintained. If one person compromises it we all are at risk of it failing.
- We appear to need the berm and other communities are already moving forward with flood mitigation efforts, let's not be fools and do the same in Bowness.
- Our community needs this project to protect against the flood. I'm dissatisfied that the City has drug their heels on the approval because a few homeowners on the river have vocally opposed it and ignored the science/research presented by the City's River Engineering team.
- The barrier doesn't protect groundwater flooding , so is very costly to protect just 75 homes
- I have asthma. How are you going to protect the residence along the river from toxic material that will be disbursed into the air during construction. Further, since when is it acceptable for Ward Sutherland and others in City Hall to publicly denigrate, discredit and spread misinformation about the riverside residents?
- No questions, just a comment that the anti-barrier people are misrepresenting the groundwater study. They imply that since groundwater rises in a berm-protected flood event, there is no use in having a berm. This is nonsense as this proposed berm would have meant no flooding in my house (7003) for a 2005-level event (by my reading). This should be communicated more clearly to residents.
- As I have read and fully understand all of the relevant reports produced for this project by various consultants I have no questions.
- Why would taking down the plants that are holding the soil intact?

Why had the city built houses on a flood plane?

- What are the costs spent to date on this project?

Why has the barrier team not answered many questions asked by many citizens who have legitimate concerns over this project going forward?

Why does the city information package I received not recognize the new home on my lot or the new home next door despite the City claiming they have done so much research?

- The time frame for construction. how long will it be. Public using the area to trespass into yards during construction. heavy equipment driven on property, current riverbank could fail if to much weight is put on top. loss of backyard garden.
- None
- No e
- Why would you design a project that will not address groundwater flooding?
- Why are you wasting tax dollars on a flawed design that is doomed to fail?
- We chose not to rank the social criteria because we do not want our response to be interpreted as in support of the barrier. We do not support the barrier.

Will the City do as it has said and not build the barrier if the majority of riverfront property owners are against building it

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What is the effect on the north banks (for example, on the erosion) if the river is run more frequently at a higher rate than 800m<sup>3</sup>/sec?

Will there be any changes to the stormwater system, like installing gates, (if yes, what and where), and what will their impact be in case of a flood?

- Why is this project being pursued in the absence of demonstrable benefit to anyone in the city? Who is driving this project forward? Why have so many resources already been allocated to this project when it does not achieve its stated purpose, when it is not supported by the majority of property owners affects, and without the support of the provincial government when this is support is necessary to provide effective flood mitigation for the city.

- Is it not true that, by the City's own assessment, "If a new Bow reservoir is not built, fortification of the Bow River by barriers is not desirable."?

2. Why is a barrier being considered (at great taxpayer expense!) which will not protect the Bowness riverside community from the greater threat which is groundwater flooding?

- This has to be a group compromise. Some homeowners have rebuilt almost flood-proof homes and do not want any berm at all. Some have larger or smaller backyards and will be impacted differently depending on the height and location of the berm on their site. However, homeowners who are very concerned about a berm are not selfish! It is pitting neighbours against each other: those on the interior of the Cr have nothing at all to lose by a berm, but river owners stand to lose a great deal plus put up with potentially years of mess. We have to take their concerns seriously. A greater focus on how to minimize their disruption, assurances of re-landscaping might go a long way. Also respect from the City. Do not assume we know nothing!

- The cost and privacy, access, appearance and enjoyment of the river .

- When will Alberta be in an economic position for the City and Province to look at effective upstream flood mitigation>

- If the City pays attention to the data they have, why would they go ahead with a permanent flood barrier that does not effectively resolve the problem?

- We would like to know when the project can get started.

The longer it takes for a permanent flood barrier to be constructed the greater our risk is to significant flood damage occurring again.

- Why would the City promote a permanent flood barrier that fails to resolve the risk of groundwater flooding for Bowness?

Why would the City support a proposal for a permanent flood barrier within the community of Bowness, when an upstream option for flood mitigation (partnering with the Province) is a more effective, fiscally responsible and longer term solution?

Under these pandemic conditions and poor economic times for Albertans, why does the City appear to be in a hurry to build a barrier before all the relevant studies connected to the project have been completed?

- How can the City financially justify such a major expense on something with such limited benefit, to so few people, especially under current financial conditions, before upstream mitigation is undertaken?

- Why exclude our area of Bowness, (personal information), when the City has a documented history of 311 calls to address the aging infrastructure, thawing frozen sewer pipes, leaking drainage pipes, and fixing sinkholes in the street? Why exclude placing monitoring wells in this area? Why exclude the priority of groundwater flooding in all areas of the community, made only worse when river levels rise?

These data gaps in the study point to proposed solutions that are flawed, and cannot provide any confidence in their proposed effectiveness.



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- Why is the city not working with the Provincial and Federal Government to expedite a solution upstream in regards multiple holding facilities which is the only real solution. The overland flooding barrier is just a bandaide.
- Why isn't the city listening to the riverfront residents of Bowness - based on the majority, if not all, of the residents opposing the barrier? As a riverfront resident, we accept certain risks associated with where we choose to live.

Why isn't the city concerned about the groundwater issue?

- When can we see the cost breakdown and how the benefit is derived?

How is construction and yard access going to be managed?

How long will there be construction traffic / parking on Bow Crescent

Will bike and jogger traffic be shut down on the Bow Crescent portion of the bike path?

- Extensive, diverse upstream mitigation appears to be the only longterm, realistic solution to limit overland and groundwater flooding. What will it take for the City of Calgary to drop the illusion of having a flood barrier for flood protection in Bowness and endorse and enact mitigation measures similar to those applied to the City's Elbow region?

- Why are you still going ahead with this project when the groundwater study and presentation confirmed that it will not prevent groundwater flooding if we have a large flood event like 2013?

- As a daily user of Bowmont Park I am concerned about the effects of a barrier on one side of the river but not the other. It would seem that there will be greater flooding and erosion on the park side. How will the park be protected? I have been very concerned about continued development on Bow Crescent and hope bad decisions of owners is not going to be rewarded with compensation. The barriers should be placed to protect all property owners in flooded areas of Bowness. Present rip rap placed on the bend below Varsity will NOT be sufficient to prevent erosion if the water is faster and deeper caused by a new barrier!

- I am strongly opposed to this ill conceived barrier. The City has wasted enough taxpayers money doing studies that are ignored by the proponents of this barrier within the City.

- How long would this project take and what are, if any, impacts on local riverfront trails?

- Overall, I am not convinced that the proposed project will prevent flooding in Bowness. Supposedly the max flow rate was  $1750\text{m}^3/\text{s}$  during the 2013 floods, should this occur with the barrier in place the barrier will hold till a certain point and then ultimately fail, resulting in swifter damage. I highly expect proposed costs to skyrocket once the project starts. It wouldn't surprise me if they were to easily double based on soil conditions. That should be made clear to taxpayers and residents that the estimate is just that and the nature of this type of work can be extremely volatile. ex. Site-C in BC doubled their costs due to soil conditions and they are still years from being completed. Spent the money on need social services and our roads

- How can we support upstream mitigation better?

- If the project goes ahead, how does the city plan to keep construction sites safe, quiet, liveable for the riverfront residents.

How does city plan on joining the different choice of berm vs wall if project goes ahead.

Will city reimburse property owners for ground water flood damage?

Will city reimburse riverfront owners for lost value in property?

- Why is money being wasted on protecting property that is in a flood plain that only floods once every 70 years. Also people should take personal responsibility when they buy a property in a flood plain. Also I don't want my tax dollars to pay for a flood barrier to protect the million plus dollar properties on Bow Crescent.



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- None. The city and individuals on this project have clearly communicated the work they have done, the results of the studies and potential design and construction elements. I have not been convinced of the merit of this project. I think the mess and disruption of construction, damage to the existing environment, wishes of homeowners on the riverfront and significant capital expenditure alongside increased risk of groundwater flooding make a case for a strong no!
- It's only a matter of time before we will need to significantly increase upstream reservoir capacity to provide drinking water. Why not do it now and permanently eliminate the food/flow risk?
- Why is the city still going forward with this project? As has been shown benefits do not outweigh the costs. Why resistance on sharing full study results with residents? Why decide some now get the barrier and others not? Is this a divide and conquer concept?
- Why are millions of dollars being spent on this bandaid approach when there is a viable upstream option
- If you're spending so much here, please connect the bike paths better through here. Bow crescent biking and 85th crossing is broken and poorly connected to Baker and Bowmont. Narrow and this land is a gap in infrastructure.
- Why is councillor Sutherland and city employees so committed to such a flawed initiative?
- Why is the City focusing on this berm building project instead of working with the Province on upstream flood mitigation
- After discovering that the barrier would be of no use, have an exorbitant cost and that the residents who were flooded don't want it, why would you pursue this project. The City can't afford and the taxpayers don't want it. Why don't we wait for upstream mitigation before even thinking about pursuing this? Why aren't we treated like the residents of Rideau and Roxboro? Would our barrier end up resembling the catastrophic barrier in Bragg Creek?
- No one directly impacted by this project, without an ulterior motive wants this project. This project is being considered because of the socioeconomic status of Bowness, and is a cop out from the city instead of adamantly pursuing upstream mitigation. You're putting a bandaid on a wound. And I get the argument of having this done in conjunction with upstream mitigation, so FINISH THAT FIRST. Why waste taxpayers money on a potentially ineffective berm, when the province is billions of dollars in debt, if the solution is upstream.
- This survey on the TBL is poorly orchestrated with no clear meaning, definition of question or transparency on how it is being utilized or interpreted? Why did the administration not respond to feedback given them by both working group members and the sample public recruited to test this on? Why is the administration downplaying the significant groundwater issues that residents will have at flow rates higher than currently regulated by the province? Given the significant financial strain our City is under, and if it doesn't protect residents from groundwater flooding why proceed? Why is the city reluctant to push upstream mitigation when it is already on the table? When and how will the city respond to residents' concerns?
- Why do you think it is essential to make a change to the River front for a 100 year event.
- So construction of the berm will affect the river-front properties of the residents above, but what about the staging area for the equipment? Where will that take place and what impact will it have on the critical ecosystem there (river-bottom cottonwood forest)?
- What was the original budget estimate and what is it now? How much has the city spent to date? How many man hours have been spent on all work to date including, consultants, contractor and, city employees? How will the city keep workers from straying off the designated work area? How will contractors enter the work area? What will be the hours and days of work and days? When will equipment be started and turned off each day? What equipment will be used? Will work be done in the winter? How will the city prevent vandalism to equipment and residents? How will the city keep the



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general public from entering the area?

If the city can place contractors in peoples yards why can the city meet residents in their yards

- I am not a Bowness resident, but I do appreciate the river valleys. As a taxpayer funded project, why should the proposed berms not feature public pathways along the riverbank?
- Given the cost benefit analysis, groundwater studies and general state of our municipal and provincial economy why is the city still pursuing this ineffective option?
- Bowness like other communities along the Bow need the berm as part of the city's flood mitigation strategy.
- How is the feasibility of the project actually calculated? 100 year old trees values, expropriation for land owners, damage to properties if the barrier does not work? What are the metrics?
- 1) What guarantees can you provide landowners that this project and subsequent increase in the 'managed' river flow rate, and the redirection of underground water flows, will not cause in-ground flooding of basements (e.g., what has happened in Exshaw)? 2) Yard access for construction equipment will be very challenging as there is limited passage. How are you addressing? 3) Given the potential of different placements of the barriers (with the options) for adjacent properties, the barrier will be jagging across properties and the esthetics will be poor. How do you plan to address this? 4) How are you going to compensate the landowners for the deterioration in market value of their properties because the poorer aesthetics?