

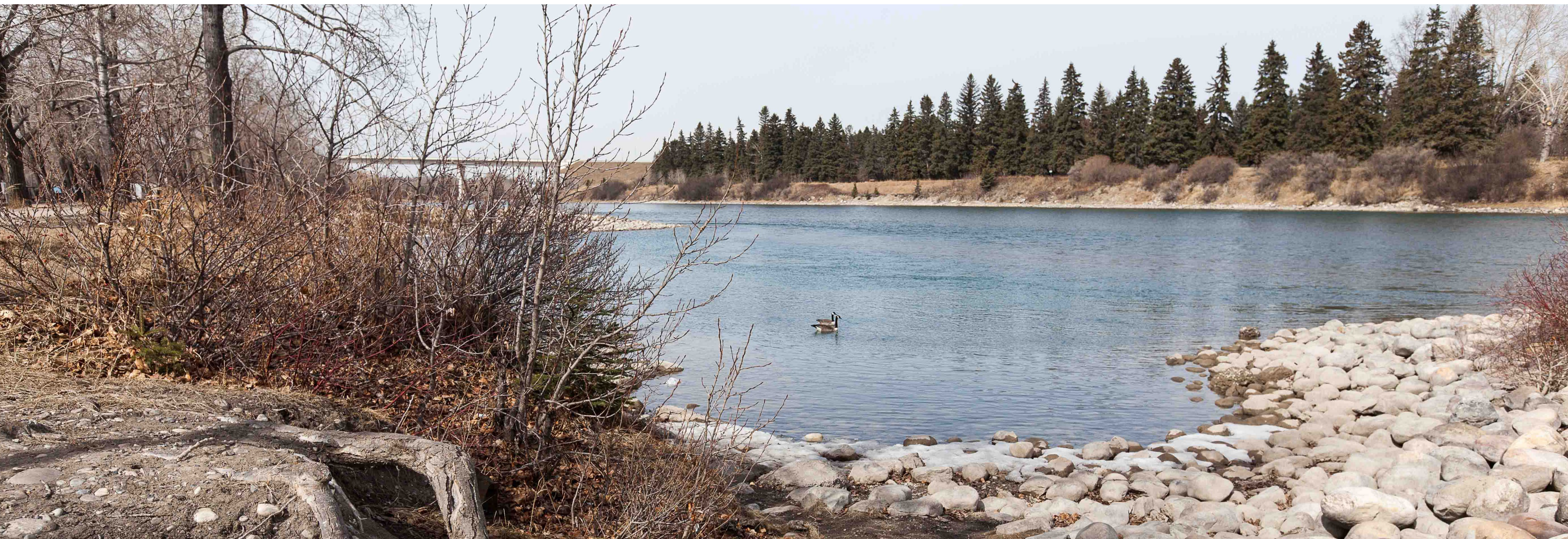
Welcome and sign-in

Thank you for attending.

At this event you will learn about:

- The project background
- Recent project milestones
- Upcoming engagement opportunities

Team members are available to answer your questions.



Understanding Calgary's flood risk

- Calgary is located in the foothills of the Rocky Mountains, the home of the Bow River Basin, where the Bow and Elbow rivers begin.
- Flooding can impact all communities within Calgary. However, the risk of communities next to the Bow and Elbow rivers is greater.
- Flooding can occur at any time with little to no warning.
 - May 15 to July 15 is when we receive our largest rainfalls and are most likely to experience river flooding.
 - While flood risk can be reduced, it cannot be eliminated entirely.
- The City's priority when planning and responding to flooding is to protect its citizens, critical infrastructure, civic property, the environment and the economy.
- It's important to understand the flood risk for your community and your property so you can be prepared and take action in the event of a flood.
 - The City and The Province have several flood maps and resources available to help you understand your river flood risk.

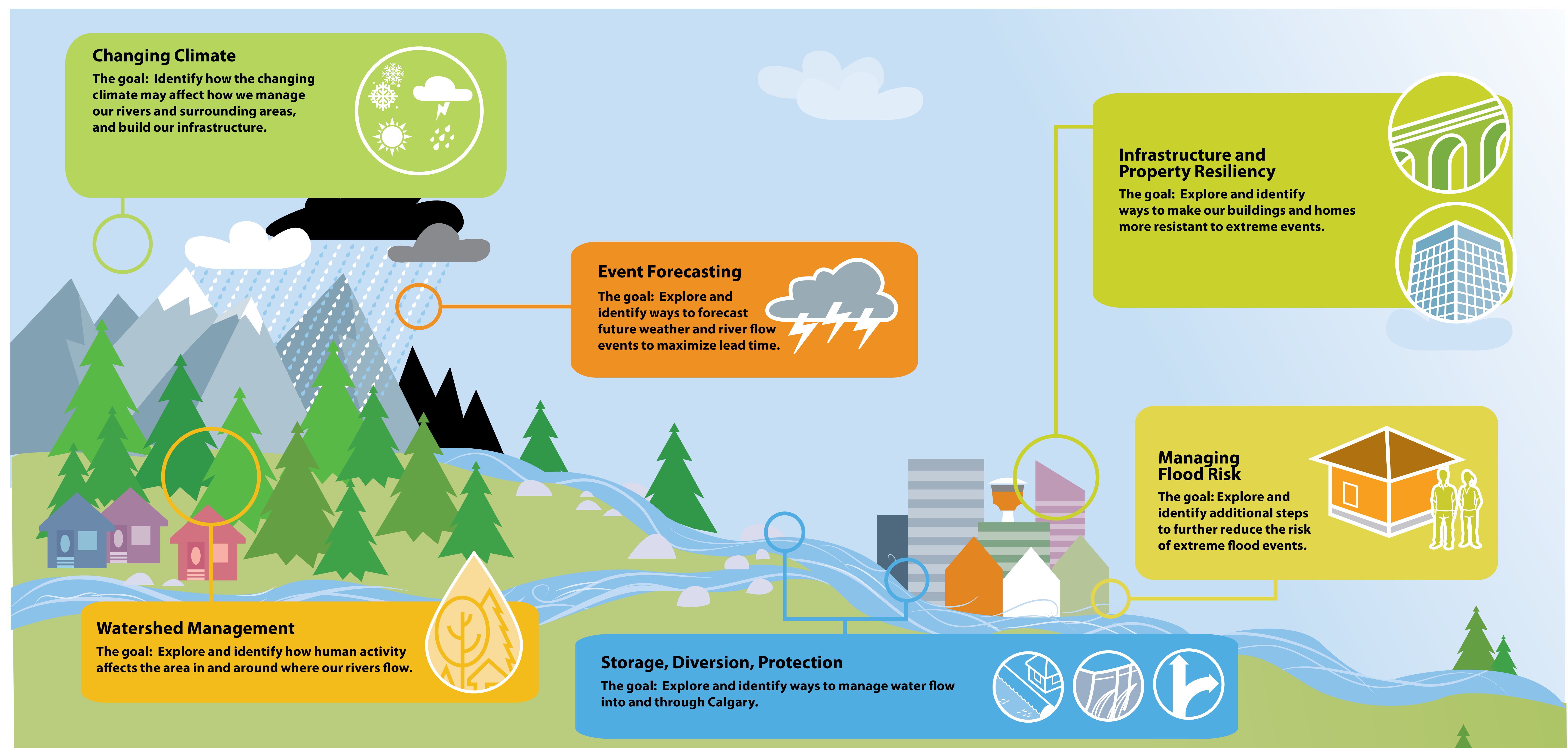
For more information on flooding in Calgary visit [Calgary.ca/floodinfo](https://calgary.ca/floodinfo)



Building flood resiliency for Calgary

- After the 2013 flood, the City established the River Flood Mitigation Program and Expert Management Panel to recommend ways of managing future river flood risks in Calgary.
- The Expert Management Panel identified six themes to mitigate future river flood risks.
- Building flood resiliency is a long-term process, requiring a detailed understanding of our rivers, structural flood protection, strong flood policy and many partnerships.
- As part of the Expert Management Panel's recommendations, in 2016, The City conducted the Flood Mitigation Measurements Assessment to gain a better understanding of Calgary's flood risk and develop strategies to reduce it.
- Based on the study results and community input, Administration made recommendations on long-term flood mitigation to Council, which were approved in April 2017.

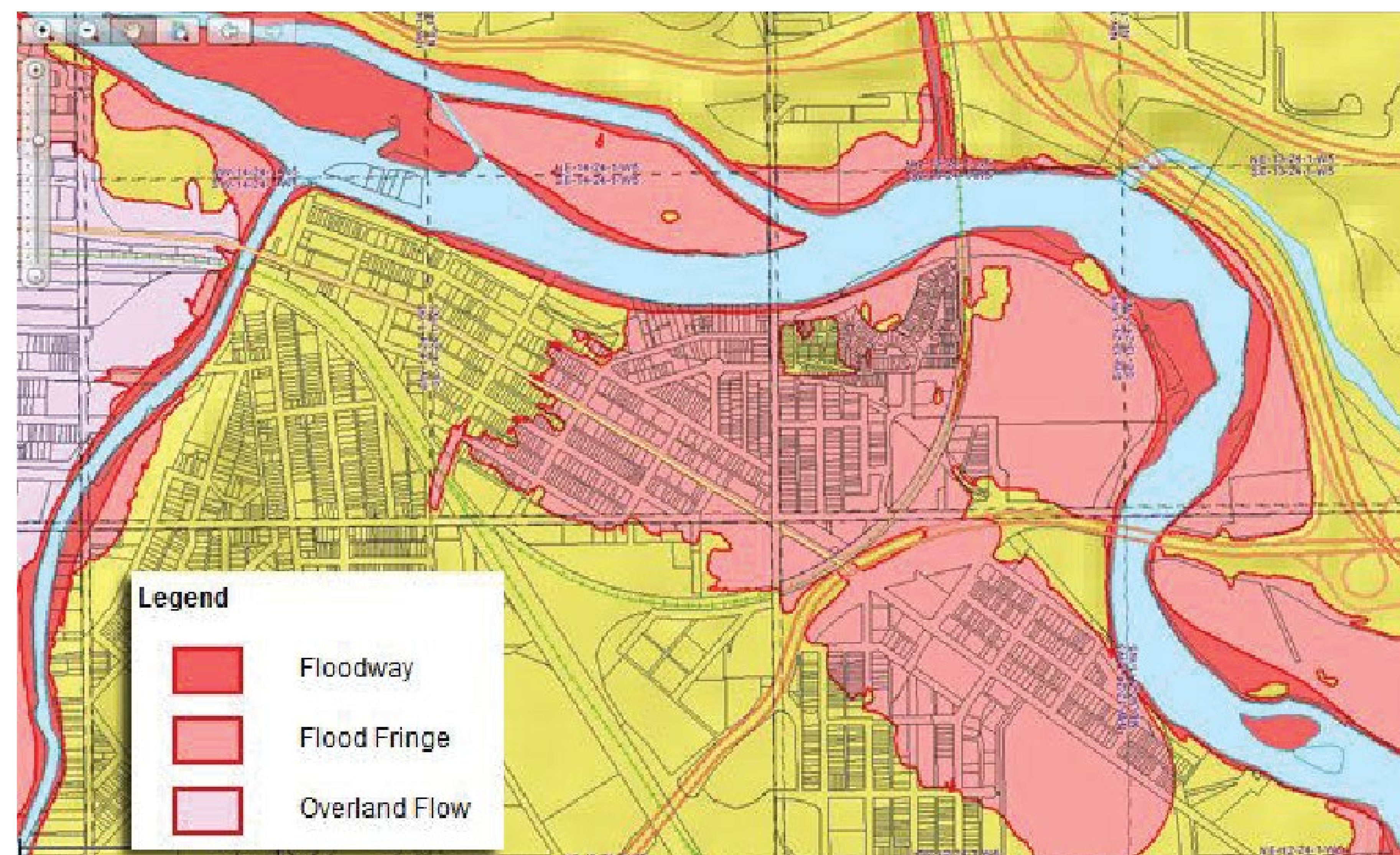
For more information on flooding in Calgary visit Calgary.ca/floodinfo



Building flood resiliency for Bowness

- As a riverfront community, buildings and infrastructure in Bowness are impacted when river flows reach levels of 850 m³/s. There is a 12 per cent chance of this occurring each and every year.
- The Flood Mitigation Measurements Assessment recommended a combination of watershed-, community-, and property-level mitigation solutions to create a flexible and adaptable flood mitigation program. Solutions that affect Bowness are:
 - Watershed-level mitigation (The Province):
 - Modified operations at Ghost Reservoir as part of the current 5-year agreement between the Government of Alberta and TransAlta.
 - Construction of an upstream reservoir on the Bow River.
 - Ultimately, these measures are intended to reduce the risk of Bowness flooding to 0.5 per cent in any year.
 - Community-level mitigation (The City):
 - Flood barriers are proposed in Bowness roughly between the CP Rail line and the Shouldice Bridge.
 - The height of the barriers will vary depending on the location.
 - Property level and policy mitigation (The City):
 - Policies, bylaws, land use regulations, building codes, incentive programs for flood proofing, and public education can help build a greater level of resiliency to flooding.

For more information on flooding in Calgary visit Calgary.ca/floodinfo



Engagement to date

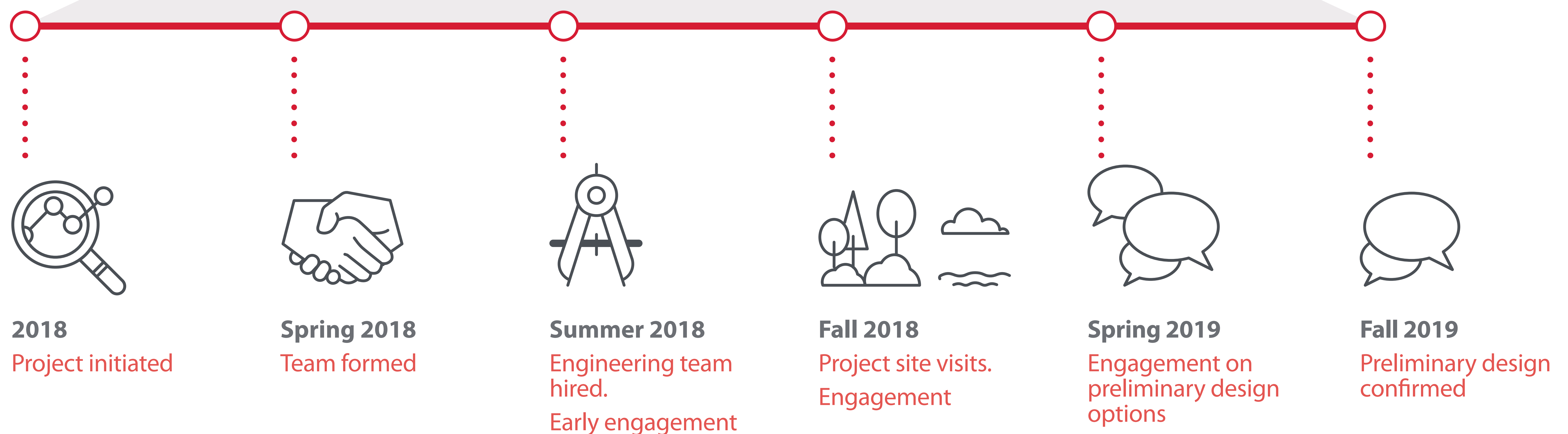
- 2014** ○ River Flood Mitigation Program
 - June 2014, Expert Management Panel on Calgary's Flood Resilient Future

- 2016** ○ Flood Mitigation Measures Assessment
 - January 2016, Community Advisory Group
 - April 2016, telephone survey
 - October-November 2016, community events and online engagement

- 2018** ○ Bowness Flood Barrier project
 - January 2018, Bowness Community Information Session
 - January-February 2018, Bowness Community Information Session online engagement
 - August 2018, initial meeting with Bowness Community Association and the Bowness for Responsible Flood Mitigation Society
 - September 2018, riverfront property owners meeting
 - October 2018, start of riverfront property owners site visits and follow-up meeting with Bowness for Responsible Flood Mitigation Society

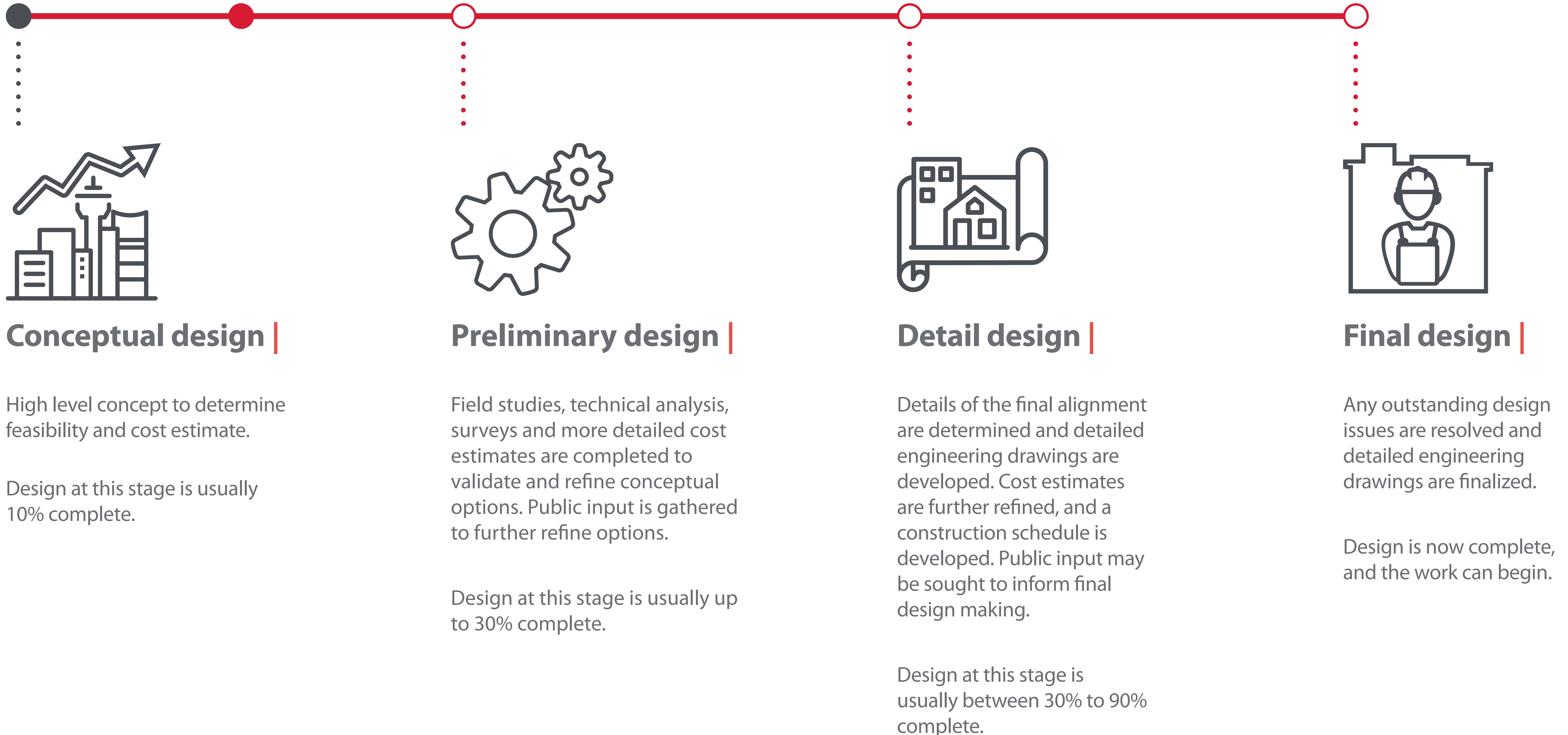
Bowness flood barrier project timeline

The City of Calgary is undertaking the study, design and construction of flood mitigation barriers within communities. The City will be engaging with residents and business owners throughout this process. Please see a timeline of activities below.



Stages of design: Community flood barrier projects

We are here

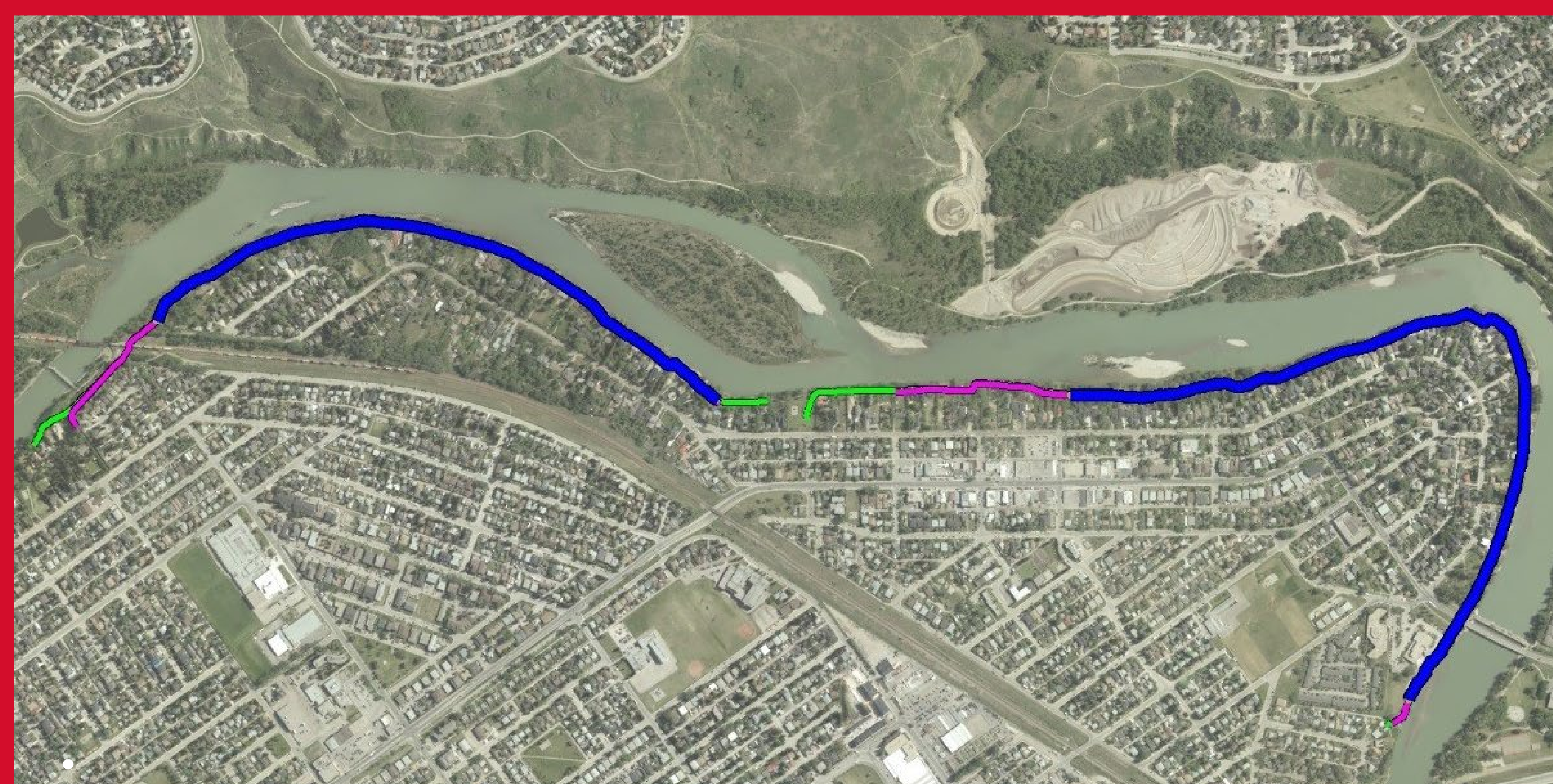


Barrier alternatives

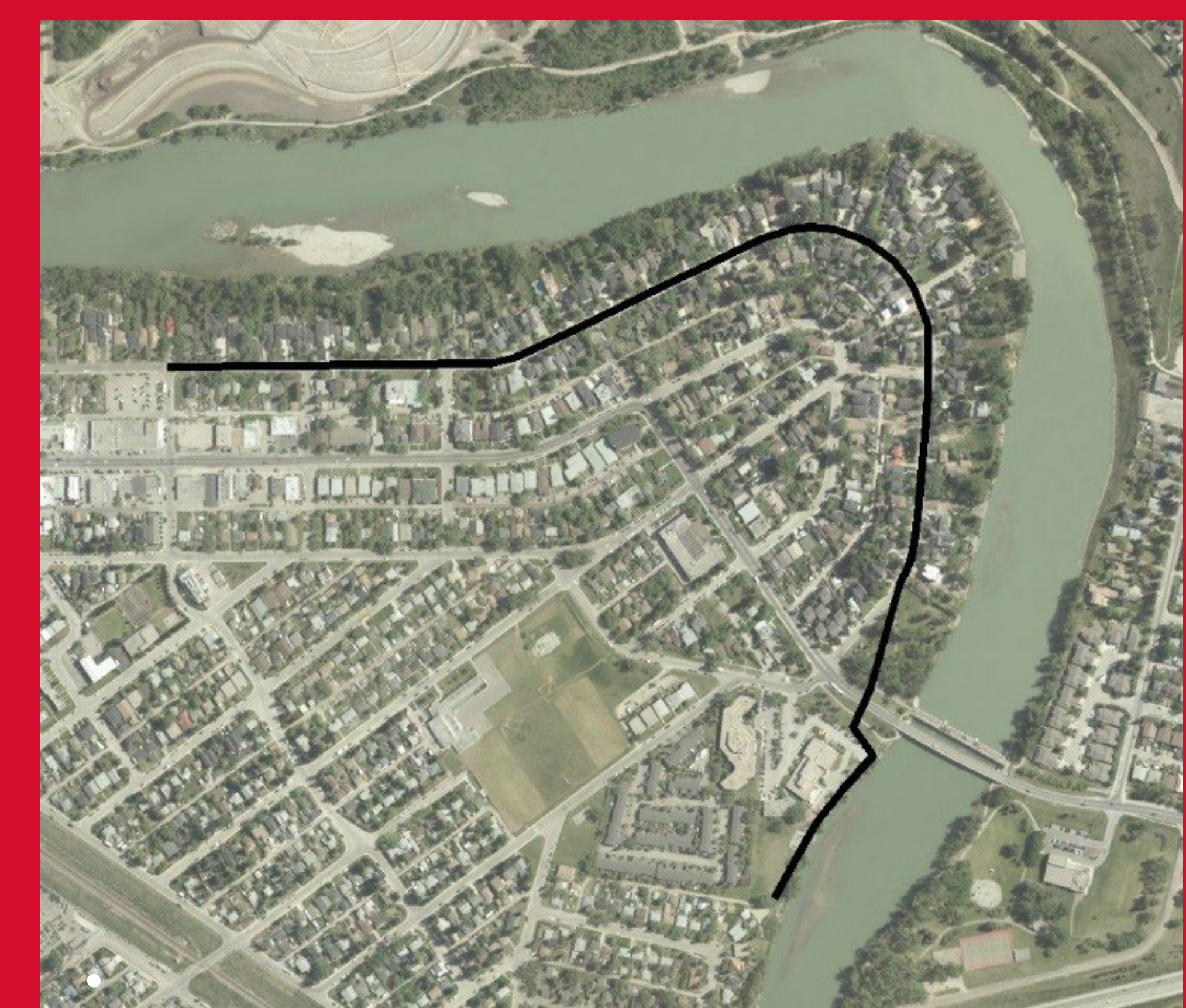
As part of the Flood Mitigation Measures Assessment, The City considered multiple options for flood barrier protection for the community of Bowness. Some of the options that were reviewed were:



Recommended concept
adjacent to the riverbank and high enough to be 0.5 m above the 1:20 flood level



Evaluated alternative
adjacent to the riverbank with barrier segments for 1:20 (blue), 1:100 (purple) and 1:200 (green) flood levels



Evaluated alternative
a 1:20 barrier inland from the river or along Bow Crescent

Bow River flows



Understanding flood mitigation scenarios

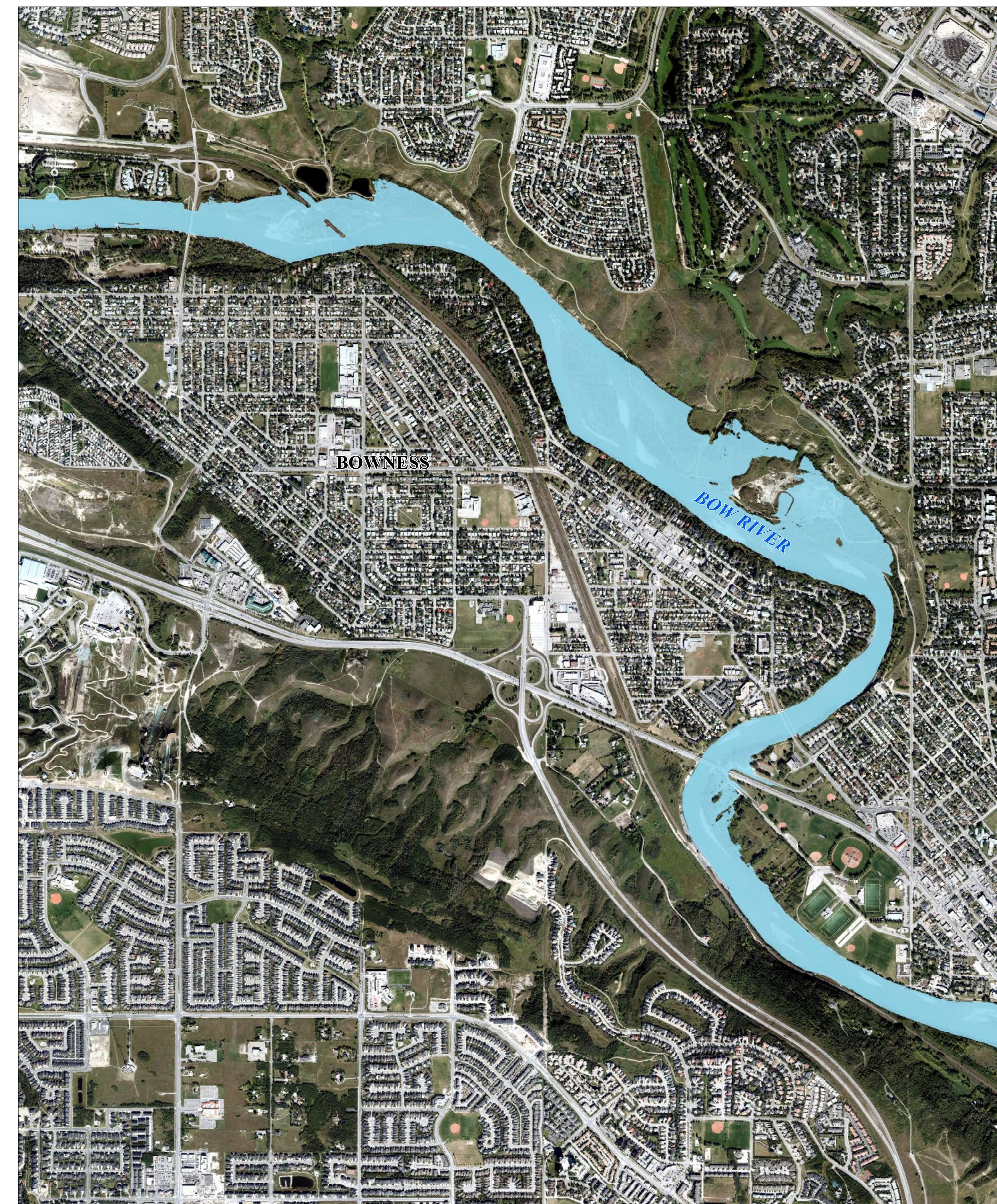
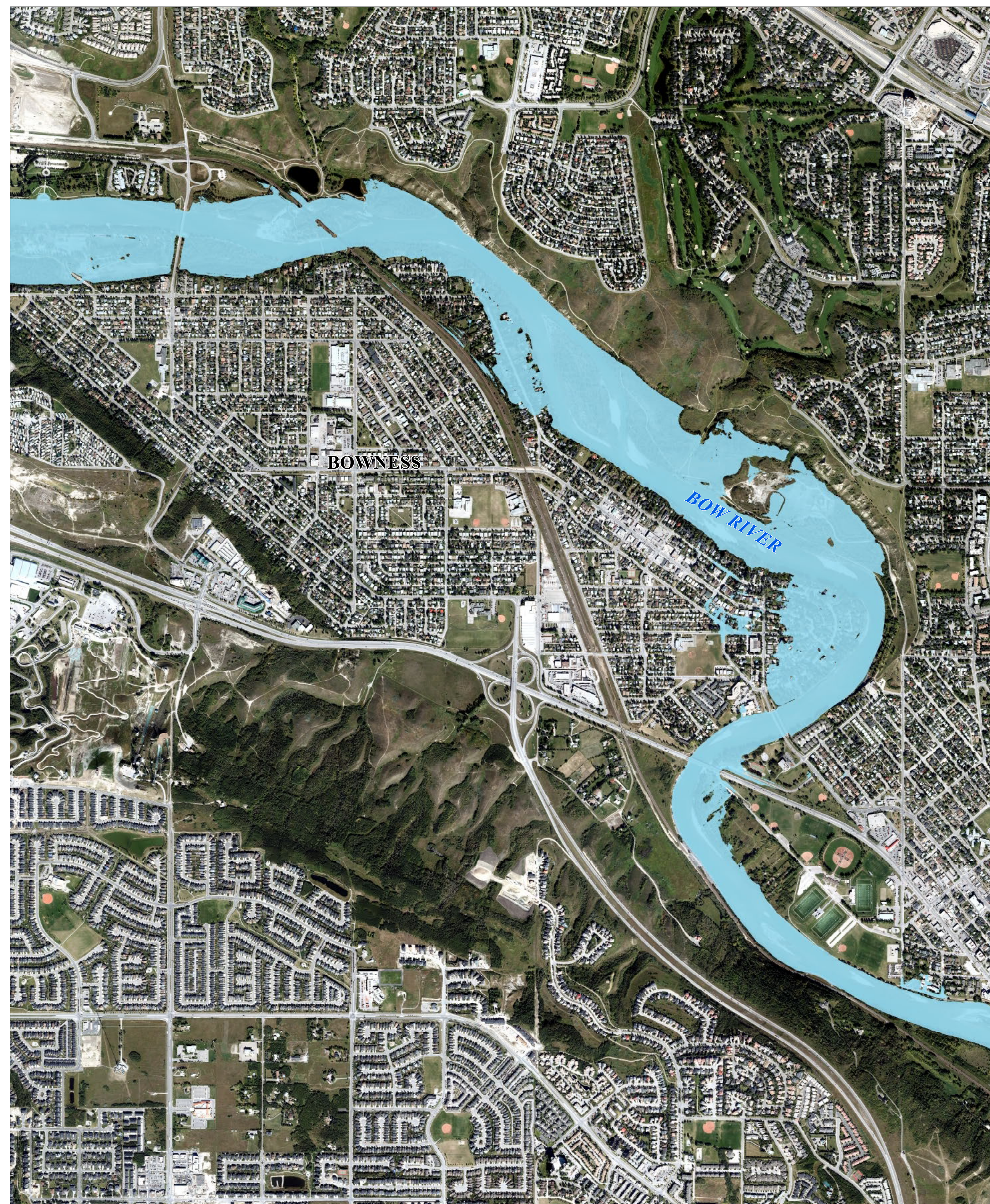
How Bowness would be affected by a 2013-level flood

Flood mitigation measures:

- Upstream reservoir on the Bow (The Province)
- TransAlta agreement - Current operations on the Ghost Reservoir (The Province)

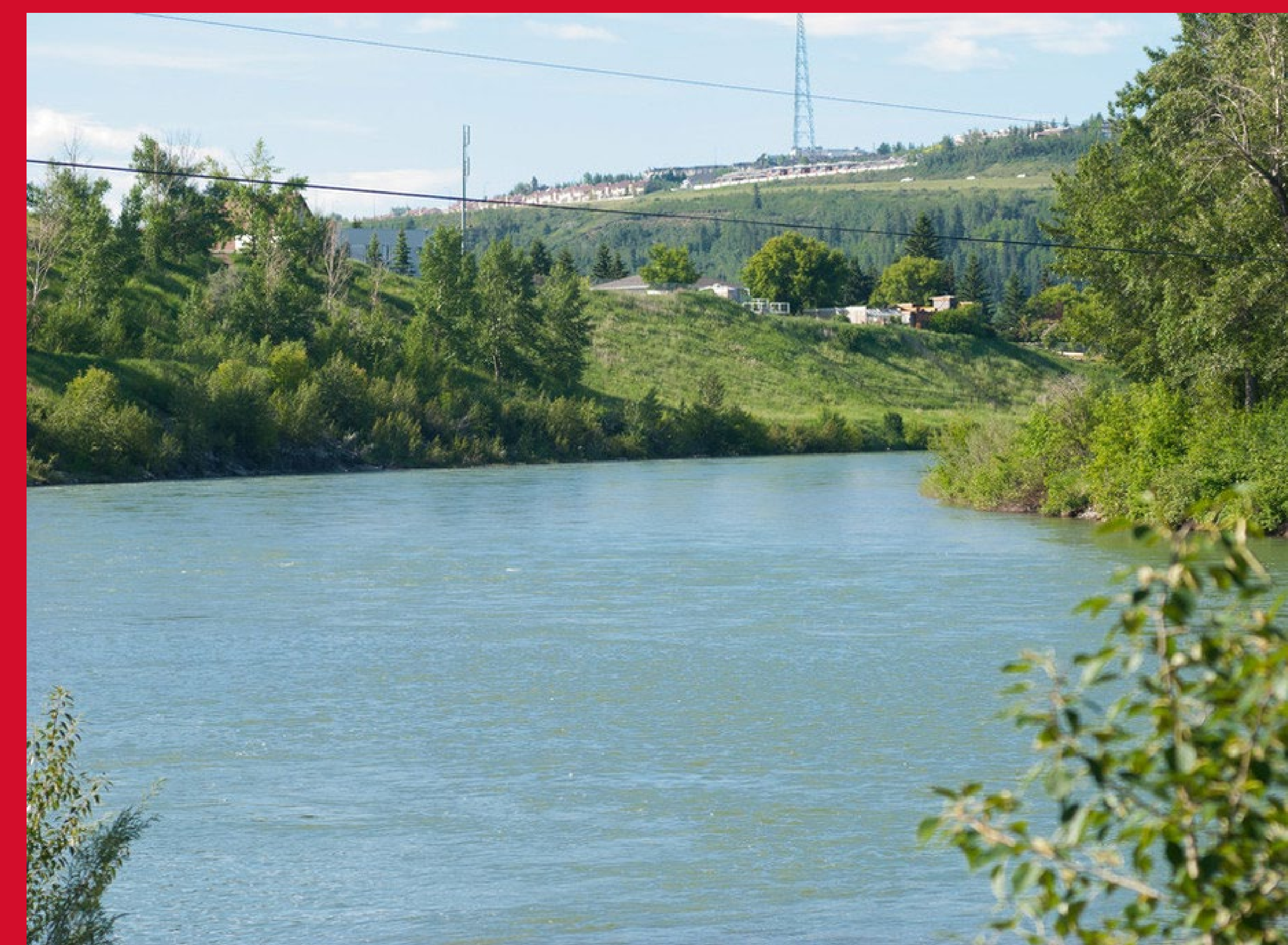
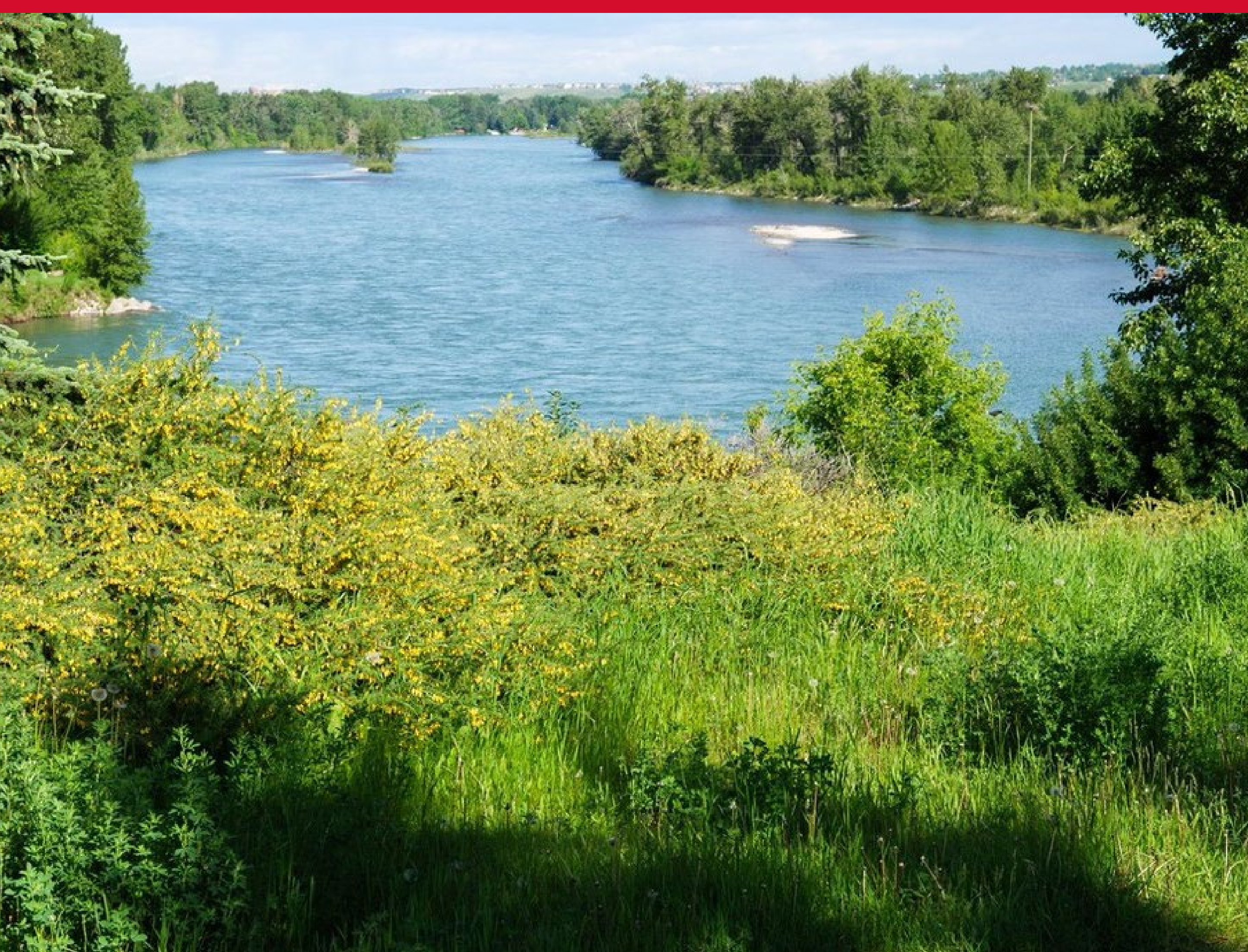
Flood mitigation measures:

- Permanent flood barriers in Bowness (The City)
- Upstream reservoir on the Bow (The Province)
- TransAlta agreement - Current operations on the Ghost Reservoir (The Province)



Preliminary design: studies & analyses

- Hydrogeological (groundwater studies)
- Site surveys
- Geotechnical investigations
- Flood modelling
- Stormwater management
- Landscape architecture and design
- Biophysical impact assessments
- Revised cost estimates and Triple Bottom Line
- Value engineering



Groundwater studies (November 2018 – October 2019)

Why it's important

- By studying how groundwater and the river interact we'll better understand the potential impact of groundwater flooding in the community.

What we expect to learn

- Site specific details on the ground conditions, geology, aquifer(s) and groundwater-surface water interaction.
- How quickly groundwater levels respond to increased river water levels.
- How high the groundwater level rises from various river flood events.
- To what extent do changes in the river level affect groundwater.

How it will help with the flood barrier design

- This information will help evaluate the effectiveness of various flood barrier designs in reducing the impacts associated with rising groundwater levels during floods.

Calgary



Media sign-in

Calgary



Evaluation/ Feedback

Riverfront residents:
one-on-one
site visits

For more information about the project, and to stay up to date:

- Visit [Calgary.ca/BownessBarrier](https://calgary.ca/BownessBarrier)
 - Subscribe to receive project e-newsletters
 - View the 'FAQ' section on the project web page
- Email us at BownessBarrier@calgary.ca
- Check the Bowest'ner community newsletter
- Phone 311