



Bow and Elbow River Hazard Study

Study update notice

We would like to provide an update on the status of the Bow and Elbow River Hazard Study.

The multi-year study started in fall 2015 and we recognize there is tremendous interest in new flood mapping products.

Public engagement for draft flood inundation maps and related technical reports is complete. In response to feedback we received, revisions have been made to hydraulic modelling and flood inundation mapping to incorporate and reflect the impact of new flood berms in the Bragg Creek and Calgary areas.

We are currently seeking public feedback on draft flood hazard maps that implement our new approach to mapping floodways and updating flood hazard maps. The new approach better balances flood adaptation and resilience priorities and provides expanded flood hazard information to enhance public safety and inform local decision-making.

The current version of the draft study is based on naturalized design flood flows that do not take into account the effect of flow regulation by reservoirs with a dedicated flood mitigation purpose. Hydraulic modelling, flood mapping, and flood risk assessment along the Elbow River downstream of the Springbank Off-stream Reservoir and along the Bow River downstream of the Elbow River confluence will be revised to account for the joint effect of Springbank Off-stream Reservoir and Glenmore Dam operations in early 2025. Until such time, draft flood hazard zones along the Elbow River between Glenmore Dam and the Bow River confluence, where the impact to landowners is expected to be most significant, are not being displayed in the online flood map viewer and information related to flood hazard zones in draft reports has been removed. We are committed to releasing revised flood maps in the affected areas when the Springbank Off-stream Reservoir is fully operational.

Participate in the engagement process and submit feedback by **Monday, February 12, 2024 at 4:30 pm**.

- <https://www.alberta.ca/bow-elbow-river-flood-study-engagement>

The Bow and Elbow River Hazard Study is being completed under the provincial Flood Hazard Identification Program, the goals of which include enhancement of public safety and reduction of future flood damages through the identification of river and flood hazards. The provincial study was co-funded through the federal National Disaster Mitigation Program, with support from Indigenous Services Canada.

More information about the Alberta Flood Hazard Identification Program can be found at:

- www.floodhazard.alberta.ca

If you have any questions regarding this work, we can be contacted at:

- Email: epa.flood@gov.ab.ca

Project background and study progress

The Bow and Elbow River Hazard Study assesses and identifies river-related hazards along 72 km of the Bow River and 66 km of the Elbow River, as well as 1 km of Bragg Creek and 7 km of Lott Creek. The study extends along the Bow River from Bearspaw Dam to the Highwood River confluence, and along the Elbow River from Bragg Creek to the Bow River confluence. The study area includes Calgary, Bragg Creek, Foothills County, Redwood Meadows, Rocky View County, and Tsuut'ina Nation.

The main study components outlined below include new hydraulic modelling and flood mapping, but all deliverables support local emergency response and land-use planning needs.

- **Survey and base data collection** – Public engagement complete

Hydraulic models and flood maps require high-accuracy base data. Field surveys and LiDAR remote sensing were used to collect river and floodplain elevations, channel cross section data, bridge and culvert information, and dedicated flood control structure details.

- **Hydrology assessment** – Public engagement complete

The hydrology assessment estimates flows for a wide range of possible floods along the Bow and Elbow Rivers, including the 1:2, 1:5, 1:10, 1:20, 1:35, 1:50, 1:75, 1:100, 1:200, 1:350, 1:500, 1:750, and 1:1000 floods. The analysis includes data from the 2013 flood.

- **Hydraulic river modelling** – Public engagement complete, future revisions planned

A new hydraulic computer model of the river system was created using new survey data and modern tools. The model was calibrated using surveyed highwater marks from past floods to ensure that results for different floods are reasonable.

Revisions have been made to incorporate the impact of new flood berms in Bragg Creek. Work on future revisions that account for joint Springbank Off-stream Reservoir and Glenmore Dam operations is underway.

- **Flood inundation mapping** – Public engagement complete, future revisions planned

Flood maps for thirteen different sized floods, based on the hydraulic model results and the hydrology assessment, have been produced. Flood inundation maps can be used for emergency response planning and to inform local infrastructure design. These maps identify areas of direct flooding and areas that could be flooded if local berms fail.

Revisions have been made to reflect the protection provided by new flood berms in the Bragg Creek and Calgary areas. Work on future revisions that account for joint Springbank Off-stream Reservoir and Glenmore Dam operations is underway.

- **Flood hazard mapping** – Under public engagement, future revisions planned

Flood hazard mapping divides the 1:100 floodplain into floodway and flood fringe zones, to identify where flooding is deepest and most destructive. These maps can be used to help guide long-term development planning.

Alberta's new approach to mapping floodways and updating flood hazard maps has been implemented, including reflecting the protection provided by flood berms and providing information about a wider range of flood hazards. Work on future revisions that account for joint Springbank Off-stream Reservoir and Glenmore Dam operations is underway. Until such time, draft flood hazard zones along the Elbow River between Glenmore Dam and the Bow River confluence, where the impact to landowners is expected to be most significant, are not being displayed in the online flood map viewer and information related to flood hazard zones has been removed from this draft report.

- **Flood risk assessment and inventory** – Under public engagement, future revisions planned

An inventory of structures at risk of flooding for all of the mapped flood scenarios can support future flood damage assessments.

Work on future flood risk assessment revisions that account for joint Springbank Off-stream Reservoir and Glenmore Dam operations is already underway. Until such time, statistics along the Elbow River between Glenmore Dam and the Bow River confluence, where the impact to landowners is expected to be most significant, have been removed from this draft report.

- **Channel stability investigation** – Public engagement complete

This investigation provides insight into general channel stability along the Bow and Elbow Rivers, and compares current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.