

Bow and Elbow River Hazard Study Update

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 technical work on all components is now complete.

We recognize there is tremendous interest in the study and new flood mapping products. We are currently seeking municipal and First Nation feedback on major study components as part of our study finalization process, including flood inundation maps that will support local emergency response this flood season. We are exploring opportunities for future public engagement, and will provide an update when more information becomes available.

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.

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, the project engagement specialist, Julia Frohlich, can be contacted at:

- Email: julia.frohlich@gov.ab.ca
- Telephone: 403 355-2494

Project Background and Study Progress

The Bow and Elbow River Hazard Study assesses and identifies river-related hazards along 80 km of the Bow River and 70 km of the Elbow River, as well as lengths of Bragg and Lott Creeks. 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 & Base Data Collection – 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 – Complete**
The hydrology assessment estimates flows for a wide range of possible floods along the Bow and Elbow Rivers, including the 2, 5, 10, 20, 35, 50, 75, 100, 200, 350, 500, 750 and 1000-year floods. The analysis includes data from the 2013 flood.
- **Hydraulic River Modelling – Complete**
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.
- **Flood Inundation Mapping – Complete**
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 show areas of isolated flooding or areas that could be flooded if local berms fail.
- **Flood Hazard Mapping – Complete**
Flood hazard mapping divides the 100-year 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.
- **Flood Risk Assessment & Inventory – Complete**
An inventory of structures at risk of flooding for all of the mapped flood scenarios can support future flood damage assessments.
- **Channel Stability Investigation – 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.