



# Sheep River Hazard Study

## Study update notice

We would like to provide an update on the status of the Sheep 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 assessing public feedback on a number of study components as part of our study finalization process, including flood inundation maps that support local emergency response. In response to feedback we received, revisions to hydraulic modelling and flood mapping are underway to better represent Highway 22 bridge hydraulics in the Black Diamond area. We are exploring future municipal review and public engagement opportunities for other study components, including flood hazard maps used to inform long-term planning, and will provide an update when more information becomes available.

The Sheep 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](http://www.floodhazard.alberta.ca)

If you have any questions regarding this work, the project engagement and education specialist, Alyssa Robb, can be contacted at:

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## Project background and study progress

The Sheep River Hazard Study assesses and identifies river-related hazards along 60 km of the Sheep River upstream of the Highwood River confluence, and 35 km of Threepoint Creek upstream of the Sheep River confluence. The study area includes Foothills County, Black Diamond, Millarville, Okotoks, and Turner Valley.

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, assessing feedback

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, assessing feedback

The hydrology assessment estimates flows for a wide range of possible floods along the Sheep River and Threepoint Creek, 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, assessing feedback

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** – Public engagement complete, assessing feedback

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.

- **Flood hazard mapping** – Under internal review

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.

- **Flood risk assessment and inventory** – Under internal review

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

- **Channel stability investigation** – Public engagement complete, assessing feedback

This investigation provides insight into general channel stability along the Sheep River and Threepoint Creek, and compares current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.