

Drumheller River Hazard Study

We would like to provide an update on the status of the Drumheller River Hazard Study.

Substantial progress has been made since the multi-year study started in summer 2018. Survey and base data collection and the hydrology assessment work are complete. Hydraulic modelling is in late stages, and the focus of our consultant over the next months will shift to flood mapping, risk assessment, and channel stability investigation. Technical work is expected to be complete by spring 2020.

We recognize there will be tremendous interest in any new flood mapping. Our study finalization process includes municipal review and public engagement for major components, as appropriate. Our goal is to provide useful tools to communities and the public as soon as possible.

The Drumheller 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 is being co-funded through the federal National Disaster Mitigation Program.

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:

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Project Background and Study Progress

The Drumheller River Hazard Study will assess and identify river and flood hazards along 53 km of the Red Deer River, 8 km of Kneehills Creek, 5 km of Michichi Creek, 10 km of the Rosebud River, and 3 km of Willow Creek, through Drumheller, Kneehill County, Starland County, Wheatland County, and Special Areas No. 2.

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 are 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 Red Deer River, Kneehills Creek, Michichi Creek, the Rosebud River, and Willow Creek, including the 2, 5, 10, 20, 35, 50, 75, 100, 200, 350, 500, 750 and 1000-year floods.
- **Hydraulic River Modelling – Late Stages**
A new hydraulic computer model of the river system will be created using new survey data and modern tools. The model will be calibrated using surveyed highwater marks from past floods to ensure that results for different floods are reasonable.
- **Flood Inundation Mapping – Early Stages**
Flood maps for thirteen different sized floods, based on the hydraulic model results and the hydrology assessment, will be 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 – Early Stages**
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 – Early Stages**
An inventory of structures at risk of flooding for all of the mapped flood scenarios will be created. This flood risk assessment and inventory can support future flood damage assessments.
- **Channel Stability Investigation – Early Stages**
This investigation will provide insight into general channel stability along the Red Deer River, Kneehills Creek, Michichi Creek, the Rosebud River, and Willow Creek. It will compare current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.