Red Deer River Hazard Study

Study update notice

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

The multi-year study started in fall 2017 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. 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 Red Deer 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.

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 and education specialist, Alyssa Robb, can be contacted at:

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Project background and study progress

The Red Deer River Hazard Study assesses and identifies river-related hazards along 51 km of the Red Deer River, 33 km of Waskasoo Creek, and 20 km of Piper Creek, through Red Deer, Lacombe County, and Red Deer County, including Penhold.

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 Red Deer River and Waskasoo and Piper Creeks, 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.

- **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 Red Deer River and Waskasoo and Piper Creeks, and compares current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.

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