Upper Red Deer River Hazard Study

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

Substantial progress has been made since the multi-year study started in fall 2017. Survey and base data collection is complete and the hydrology assessment work is in late stages. The main focus of our consultant over the next number of months will be building the hydraulic model, which will form the basis of all flood mapping products. Technical work is expected to be complete by spring 2019.

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 Upper 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 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, Ruth DeSantis, can be contacted at:

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Project Background

The Upper Red Deer River Hazard Study project will assess and identify river and flood hazards along 75 km of the Red Deer River and 18 km of Bearberry Creek, through Red Deer County, Clearwater County, and Mountain View County, including Sundre.

The main study deliverables outlined below include a hydrology assessment, new hydraulic river models, updated and new flood inundation and flood hazard mapping, a flood risk inventory, and a channel stability assessment – all of which will be provided to each community within the study area to support their 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 – Late Stages**
  The hydrology assessment estimates flows for a wide range of possible floods along the Red Deer River and Bearberry Creek, including the 2, 5, 10, 20, 35, 50, 75, 100, 200, 350, 500, 750 and 1000-year floods. The analysis includes the 2013 flood.
- **Hydraulic River Modelling – Early Stages**
  A new hydraulic computer model of the entire river system will be created using new survey data and modern tools. The models 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 potential isolated 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, which show 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**
  The main goal of this study component is to provide insight into general channel stability along the Red Deer River and Bearberry Creek. We will compare current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.

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