Sheep River Hazard Study Update

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

Substantial progress has been made since the multi-year study started in fall 2015. Survey and base data collection and the hydrology assessment work are complete, and the hydraulic modelling and channel stability investigation work are in late stages. The main focus of our consultant over the last number of months has been building the hydraulic models, which will form the basis of all flood mapping products. Technical work on the study is expected to continue through fall 2018.

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 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

If you have any questions regarding this work, the project engagement specialist, Ruth DeSantis, can be contacted at:

- Email: ruth.desantis@gov.ab.ca
- Telephone: 403 355-2493

Project Background and Study Progress

The Sheep River Hazard Study will identify and assess river-related hazards along 50 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 the Municipal District of Foothills, Black Diamond, Millarville, Okotoks, and Turner Valley.

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 reach 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 – Complete**
  The hydrology assessment estimates flows for a wide range of possible floods along the Sheep River and Threepoint Creek, including the 2, 5, 10, 20, 35, 50, 75, 100, 200, 350, 500, 750 and 1000-year floods. The analysis will include the 2013 flood.
- **Hydraulic River Modelling – Late Stages**
  A new hydraulic computer model of the entire 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 show areas of isolated flooding or 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 – Late Stages**
  The main goal of this study component is to provide insight into general channel stability along the Sheep River and Threepoint Creek. We will compare current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.