

Fort McMurray River Hazard Study Update

We would like to provide an update on the status of the Fort McMurray 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 seeking municipal feedback on major study components as part of our study finalization process, including flood inundation maps that will support local emergency response this flood season. We are exploring opportunities for future public engagement, and will provide an update when more information becomes available.

The Fort McMurray 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:

- Email: julia.frohlich@gov.ab.ca
- Telephone: 403 355-2494

Project Background and Study Progress

The Fort McMurray River Hazard Study assesses and identifies river-related hazards along 15 km of the Athabasca River, 20 km of the Clearwater River, and 5 km of the Hangingstone River, through Fort McMurray and the Regional Municipality of Wood Buffalo.

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 were 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 Athabasca, Clearwater, and Hangingstone Rivers, including the 2, 5, 10, 20, 35, 50, 75, 100, 200, 350, 500, 750 and 1000-year floods.
- **Hydraulic River Modelling – Complete**
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 – Complete**
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 show areas of isolated flooding or areas that could be flooded if local berms fail.
- **Ice Jam Assessment – Complete**
Ice conditions are known to have caused significant historical flooding in Fort McMurray. This assessment includes an evaluation of the historic 1875 ice jam flood and a review the flood level caused by the event. This assessment also includes an analysis of the ice jam flood history in the area and flood inundation maps for the 50, 100, and 200-year ice jam floods.
- **Flood Hazard Mapping – Complete**
Flood hazard mapping divides the 100-year floodplain into floodway and flood fringe zones, to identify where flooding is deepest and most destructive. The flood hazard mapping reflects the worst-case flood hazard of the open water and ice jam scenarios. These maps can be used to help guide long-term development planning.
- **Flood Risk Assessment & Inventory – Complete**
An inventory of structures at risk of flooding for all of the mapped flood scenarios can support future flood damage assessments.
- **Channel Stability Investigation – Complete**
This investigation provides insight into general channel stability along the Athabasca, Clearwater, and Hangingstone Rivers, and compares current and historic riverbank locations and channel cross sections as far back as 1949 using historic aerial photos.