

Athabasca flood study details



This document provides answers to common questions about the Athabasca flood study.

What area does the flood study cover?

The Athabasca flood study assesses and identifies flood hazards along 8 km of the Athabasca River, 8 km of Muskeg Creek, and 6 km of the Tawatinaw River through Athabasca and Athabasca County.

When was the flood study conducted?

The study started in spring 2019 and technical work was completed in spring 2022.

Will flood maps from this study replace any older flood maps?

Yes. When the draft flood study is finalized, it will not only replace the older Athabasca flood study (which was completed in 1993) but will expand coverage. The new study will replace 10 km of older mapping and add 12 km of new mapping through areas never mapped before.

Was the draft study shared with my local authority?

Yes. Draft reports and flood maps were provided to affected municipalities between May 2020 and March 2022, for information and to obtain feedback as the first step of the study finalization process.



What reports and flood maps are included in the study?

The study includes a main report that documents the collection of survey and base data, summarizes the hydrology assessment, describes the hydraulic model creation and calibration process, presents the open water and ice jam flood modelling results used to create flood maps, illustrates the information used to define the floodway and flood fringe, and includes the flood hazard maps. Open water and ice jam flood inundation maps are provided in separate flood inundation map libraries.

Is this the first public engagement for the study?

No. Public engagement on draft flood inundation maps, which show areas at risk for different sized floods to help with emergency response, and related reports was completed in January 2021.

Were any changes made since the last round of public engagement?

No. No significant revisions were required based on the feedback we received. Please note that the main report now includes additional flood hazard related information that was redacted from the version shared for the last round of public engagement.



What is the purpose of this round of public engagement?

This round of public engagement focuses on draft flood hazard maps, which define floodway and flood fringe areas to help with long term planning.

If you are interested in learning more, the “Floodway Determination” section of the main report documents how the draft flood hazard maps were created. Copies of the draft flood hazard maps are also included in the report, but they are easier to explore using our online flood map viewer.

What causes flooding along the rivers covered by the study?

Flooding typically occurs because of high river flows or ice jams. We are aware that there may be other sources of flooding in the area, including groundwater flooding or flooding caused by local drainage issues, but the focus of this study is on riverine flooding caused by high river flows or ice jams.

What is the difference between open water and ice jam flooding?

Open water floods are typically caused by high flows driven by heavy rainfall, either alone or combined with snowmelt runoff, and are typically more of a risk in the spring and summer. In contrast, ice jam floods are caused by river ice breakup in the early spring season.

What type of flooding is shown in the draft flood hazard maps?

Flood hazard maps are based on 1:100 ice jam design flood levels where ice jam flooding is more severe than open water flooding. Ice jam flooding is the design condition used for flood hazard mapping along the Athabasca River. Ice jam design flood levels were calculated assuming that a fully developed ice jam occurs along the length of the Athabasca River. A combination of open water and ice jam flooding is the design condition for Muskeg Creek and the Tawatinaw River.

Why don't the maps match the flooding we experienced in past years?

It would be unusual for a flood map to perfectly match a past flood, due to different river flows, variations in local conditions, and assumptions made for the study. Flood maps are based on theoretical floods with different chances of occurring, including the 1:100 design flood used for flood hazard mapping. Draft flood maps from the new study do not represent any specific recent or historic flood.

Will flood maps be updated if flood berms are built or upgraded in the future?

Flood studies are based on river conditions, floodplain topography, and flood mitigation infrastructure present at the time a study is conducted. If new community-level flood berms are constructed in the future, or existing flood berms are upgraded, we will assess the potential impact on calculated flood levels and flood maps. If impacts are significant, revisions to the flood maps will be considered.

How has climate change been considered?

The potential effects of climate change were assessed as part of the hydrology assessment. In general, the effect of climate change on Athabasca River, Muskeg Creek, and Tawatinaw River flood flows is uncertain. Given this uncertainty, various climate change scenarios were not explicitly modelled. However, the potential impact on flood levels from increased 1:100 flood flows was assessed, and this information can be considered by communities if desired.

Where can I learn more about provincial flood studies?

Review our “General information about flood studies” fact sheet to learn more about provincial flood studies, including how flood maps are developed and how flood inundation and flood hazard maps are used.

Visit www.floodhazard.alberta.ca for more information about the Flood Hazard Identification Program.

The website includes more details on different types of flood maps and how to view them using our online flood map viewer, as well as individual web pages listing our draft and final flood studies.

Contact

Email us at epa.flood@gov.ab.ca for more information about our public engagement for draft flood studies, or if you have questions about the Flood Hazard Identification Program.