

Grande Prairie flood study



This document provides information about the draft Grande Prairie flood study to support engagement.

Flood study background

The Grande Prairie flood study assesses and identifies flood hazards along 58 km of the Bear River through Grande Prairie and Grande Prairie County. The study started in spring 2023 and both technical work and local authority review were completed in 2025. It 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 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. Flood inundation maps are provided in a separate flood inundation map library.

When the draft flood study is finalized, it will replace the older Grande Prairie flood study (which was completed in 2007) and expand coverage. The new study will replace 20 km of older mapping and add 38 km of new mapping through areas never mapped before.



Public engagement information

Draft reports and flood maps were provided to affected municipalities in 2025, for information and to obtain feedback as the first step of the study finalization process.

This public engagement focuses on the draft flood inundation maps, which show areas at risk for different sized floods to help with emergency response, and the draft flood hazard maps, which define floodway and flood fringe areas to help with long term planning.

The Floodway Determination section of the report documents how the draft flood hazard maps were created. Copies of the draft flood inundation and flood hazard maps are also included in reporting; they are easier to explore using our online flood map viewer.



Causes of flooding in the study area

Flooding typically occurs because of high river flows driven by heavy rainfall, either alone or combined with snowmelt runoff, and is more of a risk in the spring and summer. This type of flooding is often called open water flooding. There may be other sources of flooding, 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.

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.

Climate change considerations

The potential effects of climate change were assessed as part of the hydrology assessment. Given the uncertainty of impacts on Bear River flood flows, various climate change scenarios were not explicitly modelled. Rather, the potential impact on flood levels from increasing 1:100 flood flows by 10% and 20% was assessed, and this information can be considered by communities if desired.



Learn more about provincial flood studies

Review the *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 engagement for draft flood studies.