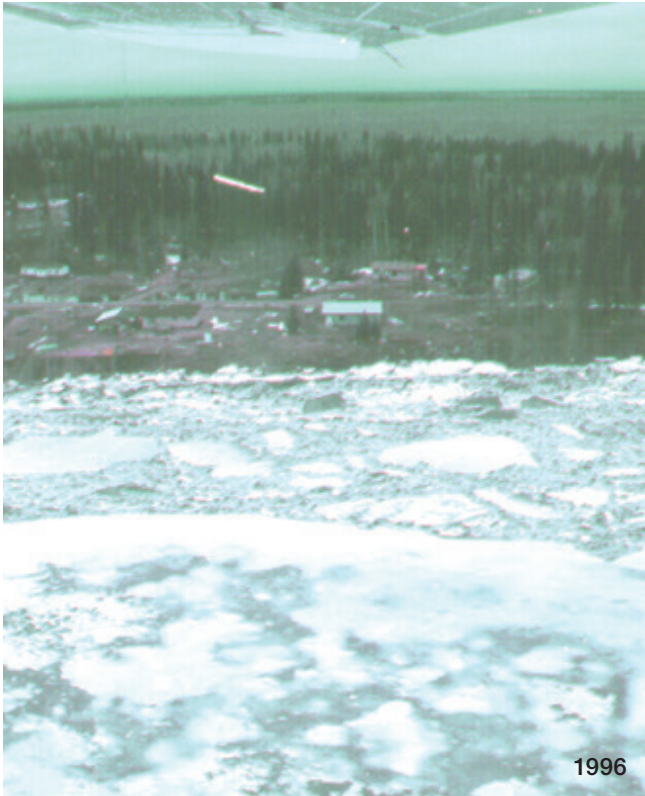


Garden River flood study



This document provides information about the draft Garden River flood study to support engagement.

Flood study background

The Garden River flood study assesses and identifies flood hazards along 34 km of the Peace River and 19 km of Garden Creek through Mackenzie County, Improvement District No. 24, and the Little Red River Cree Nation community of Garden River, which is located within Wood Buffalo National Park.

The study started in 2024, technical work was completed in 2025, and local authority review was completed in 2026. 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. Open water and ice jam flood inundation maps are provided in a separate flood inundation map libraries.



This is the first provincial flood study in the Garden River area. When the draft study is finalized, it will create 53 km of mapping through areas never mapped before.

Public engagement information

Draft reports and flood maps were provided to affected Indigenous communities and 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 or ice jams. Open water floods occur because of high river flows driven by heavy rainfall, either alone or combined with snowmelt runoff, and are typically more of a risk in the spring and summer. Ice jam floods are caused either by river freeze-up in the early winter or by river ice breakup in the early spring season. 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 or ice jams.

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 the Peace River and Garden Creek 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.