Peace River flood study details

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

What area does the flood study cover?

The Peace River flood study assesses and identifies river-related hazards along 54 km of the Peace River and 1 km of the Heart River through Peace River. The study extends from the end of the Shaftesbury Trail to just past the Mercer pulp mill.

When was the flood study conducted?

The study started in fall 2015 and technical work was completed in fall 2022.

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

No. This is the first provincial flood study in this area.

Was the draft study shared with my local authority?

Yes. Draft reports and flood maps were provided to affected municipalities between December 2016 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 multiple reports that document the collection of survey and base data, summarize the hydrology assessment, describe the hydraulic model creation and calibration process, present the open water and ice jam flood modelling results used to create flood maps, illustrate the information used to define the floodway and flood fringe, include the flood hazard maps, assess and inventory flood risks, and investigate channel stability. 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.

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.

Most of the draft reports were shared with the public in our first phase of engagement. Reports being shared for the first time include the flood hazard mapping and risk assessment reports. Copies of the draft flood hazard maps are also included in the "Governing Design Flood Hazard Mapping 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 either by river freeze-up in the early winter or 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 for this study. Peace River design flood levels were calculated assuming that a fully developed ice jam occurs along the length of the Peace River. Heart River design flood levels were calculated assuming that an ice jam occurs along the length of the Heart River and are influenced by Peace River ice jam levels in the confluence area.

Why are there large areas of flood fringe behind our flood berms?

While existing flood berms in Peace River provide protection for the 1:100 open water flood, they do not provide complete protection for the more severe 1:100 ice jam flood. When flood berms are partially overtopped during the 1:100 ice jam flood, flood water can pool behind berms to the same level as the river itself. This is why relatively large areas behind flood berms are mapped as flooded in your draft flood hazard maps. However, to recognize the intent of existing flood berms and accommodate any future berm improvements, the draft floodway does not extend beyond the berms. Areas behind existing flood berms that do not provide complete protection are mapped as either flood fringe or high hazard flood fringe depending on flood depth.

What will happen 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. Revisions to flood maps will be considered if impacts are significant, including remapping areas as protected flood fringe.

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.

Does the study include Pat's Creek or the Smoky River?

No. Flood mapping is based on modelling of the Peace and Heart Rivers. The study does not assess capacity, blockage, or urban flooding-related issues for the culvert system which conveys Pat's Creek flows beneath downtown Peace River. Although flow from the Smoky River is accounted for in Peace River hydrology and modelling, any mapping along the Smoky River reflects backwater flooding from the Peace River.

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 Peace, Smoky, and Heart 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.