SPRING 2022 FLOOD LEVEL MAPPING
IN THE COMMUNITIES OF HAY RIVER AND K'ATL'ODEECHE FIRST NATION

EXECUTIVE SUMMARY

PURPOSE OF THE REPORT

The Spring 2022 Flood Level Mapping Report describes the survey methods and elevation data for High Water Marks (HWMs) identified and marked in May 2022, following the flood event in the Town of Hay River and on the K'atl'odeeche First Nation (KFN) reserve. It also includes photographs, location coordinates and descriptions of the HWMs.

HOW TO USE THIS REPORT

Data from this report will be used to inform the development of future flood maps.

The Government of the Northwest Territories (GNWT) has existing flood maps for this area that were adopted in 1980s and these maps remain the authoritative maps until new maps are developed. It is anticipated that preliminary inundation maps for Hay River will be completed in Spring 2023; this is the first step towards the completion of new flood maps for the area.

As part of recovery efforts, the Department of Municipal and Community Affairs (MACA) is recommending that, where warranted, homes be elevated at least 40 cm above the 2022 flood elevation, subject to any additional requirements that apply in the Town of Hay River due to their by-laws.

METHODOLOGY AND SUMMARY OF FINDINGS

In May 2022, a multi-day ice jam flood event occurred over several days along the Northwest Territories (NWT) stretch of the Hay River, resulting in damage to many homes, properties, infrastructure and businesses.

Surveys of the water levels experienced during and, most importantly, at the peak of the flood were required to inform future planning and mapping.

Working with representatives of the Town of Hay River, KFN and the West Point First Nation (WPFN), 88 HWMs were identified and marked by the GNWT Department of Environment and Natural Resources (ENR) and Environment and Climate Change Canada's Water Survey of Canada (WSC).

Following the identification and marking of HWMs, Ollerhead and Associates Ltd. (O&A) was contracted by MACA to survey the HWMs. This involved using specialist survey equipment to establish the elevation of each of the HWMs.

In total, O&A established the elevations of 83 HWMs: 62 in the Town of Hay River, 5 within WPFN on Vale Island, and 16 on the KFN reserve. Of the 88 HWMs originally identified and marked by ENR and WSC, it was not possible to survey 6 due to overgrowth, restricted access, or the HWM structures had been moved. One additional HWM was added by O&A.

There is a large spatial variation in the elevations of HWMs. This is not a result of measurement accuracy, but is due to the gradient of the channel along the river reach as well as due to multiple ice jams and movements driving localized variations in the flood water levels.