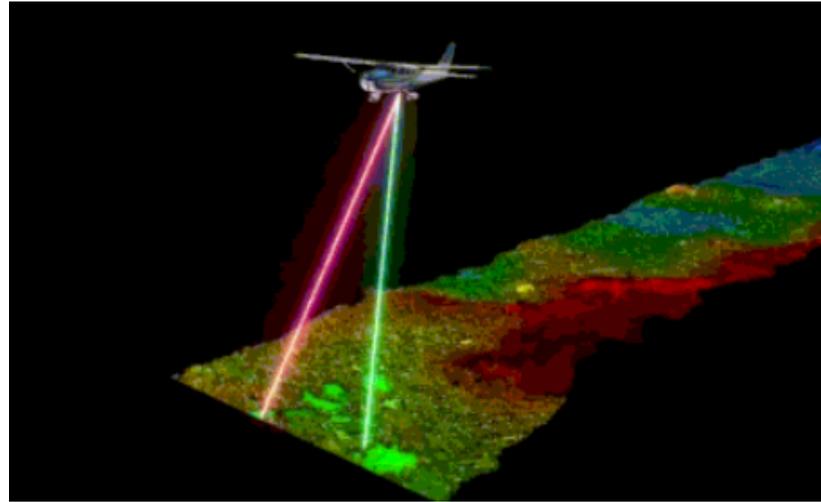# More Floodplain Mapping for Muskoka

This article is part of the Ripple Article Series. Every other week, an article will be posted on the Engage Muskoka website that dives deeper into one of the twelve technical projects in the Making Waves: Integrated Watershed Management initiative.

The Muskoka River Watershed is one of the wettest areas in the Province, with the watershed receiving approximately 1,000 millimetres of precipitation per year, including 300 centimeters of snowfall. Compare that to Toronto, which receives approximately 830 millimetres of precipitation per year. Not to mention, nearly 17% of the Muskoka River Watershed is covered in water, with over 2,000 lakes in the region. This water provides life to all types of species that call Muskoka home and draws outdoor enthusiasts from boaters to snowmobilers and everything in between. The water in Muskoka also drives the local economy through tourism and hydro-power generation. Needless to say, water in Muskoka is incredibly important.

However, it seems like Muskoka has almost too much water in recent years, especially when the calendar flips from winter to spring and the winter snowpack starts to melt. This process, called a spring freshet, can cause flooding in some areas, resulting in property and infrastructure damage and may put public health at risk.

The District Municipality of Muskoka (the District) has taken proactive steps to better understand the movement of water through the watershed, which starts with identifying where the floodplains are using geographic information systems (GIS). These maps show the areas most vulnerable to flooding.

From 2018 to 2020, the District completed the first phase of it's flood plain mapping project which consisted of 1,509 square kilometers of LiDAR Mapping and 1,404 kilometers of shoreline floodline mapping. LiDAR is an acronym for Light Detection and Ranging, and is used to gather detailed ground elevation information. A LiDAR device is mounted to the bottom of a plane, and the device scans the ground with millions of laser pulses. These laser pulses generate a three-dimensional representation of the ground. This information, together with water level data and hydrological modelling (see article 1 for more information), produces a map of floodplains, or areas that are susceptible to flooding.

Check out this LiDAR StoryMap by the District's GIS team to learn more about LiDAR and its amazing capabilities, and visit the Muskoka GeoHub to see the 2018 Floodplain Mapping results.

In 2021, as part of the "Making Waves" Integrated Watershed Management Initiative, the District launched another phase of floodplain mapping. This phase of mapping will cover over 910 square kilometers, including large areas in the Township of Georgian Bay, the Lake of Bays, the Moon and Musquash Rivers, along with a number of lakes and river sections not captured in the first phase. Also, the District has committed to providing the LiDAR and Flood Plain mapping to Moose Deer Point First Nation and Wahta First Nation to help inform their planning and emergency management decisions.

The outcomes of the floodplain mapping project will assist in emergency management and response plans and help inform land use planning policies by determining what areas are at risk of flooding.

The results of this round of floodplain mapping will be completed by October 2022, and will be made available to the public through the Muskoka GeoHub in Winter 2023.