



## Existing Conditions Fact Sheet: Climate Change Adaptation

Issued: October 2023

Climate change is a growing concern in Canada and across the world. Reducing greenhouse gas levels that contribute to climate change will slow down the pace of climate change and avoid climate shifts that will be too large for people, animals, plants and ecosystems to adjust to. For these reasons, it is important to evaluate how a project, like the Community Access Road, will stand up against the long-term changes resulting from Climate Change including severe weather events.

In dealing with climate change there are two broad approaches. One is referred to as mitigation and this is reducing the amount of greenhouse gas emissions (reducing fossil fuel use), this approach is discussed as a component of our Atmospheric Environment work. Adaptation is the other approach and this is preparing both our assets and ourselves for the our future climate. To evaluate climate change adaptation for the Community Access Road, we will assess the future climate so we can design the Community Access Road infrastructure to cope with the new climate conditions it will be exposed to during its lifetime and, with an understanding of changes expected to occur in the future climate, assess the effects of these climate changes on other areas of the Community Access Road including but not limited to peatlands, vegetation or mammals.

Climate and weather are often used interchangeably but there is a difference. Both climate and weather describe conditions such as temperature, wind, and precipitation, but weather concerns a much shorter time of hours and days. Climate on the other hand looks at these conditions as averages over a longer period of time, typically 30 years.



### Study Areas

Study areas identify the geographic limit where potential effects of the road may occur. The existing conditions are documented for three study areas:

- Project Development Area (PDA): the area of direct disturbance
- Local Study Area (LSA): the area where direct effects of the road are likely to take place
- Regional Study Area (RSA): the area where indirect effects are likely to occur



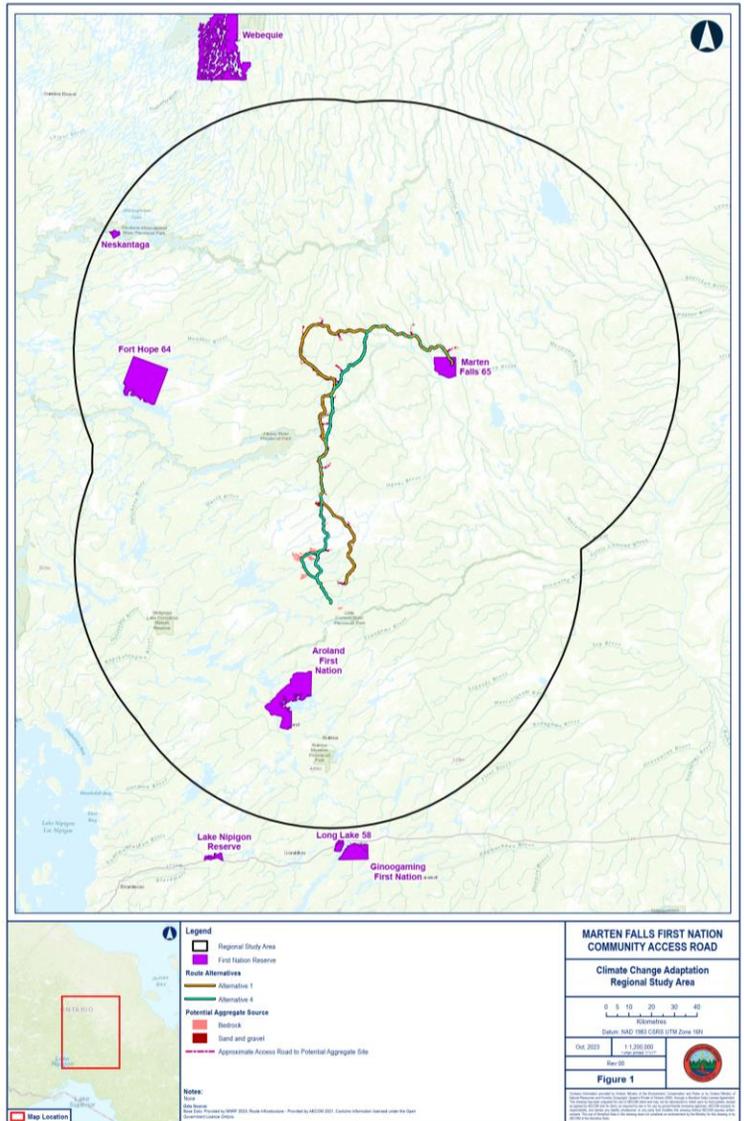


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When the usual and expected weather changes from what was considered normal ranges in the past, those changes affect the timing and amount of rain, snow, timing of open water seasons, amounts of stream flows and rates of vegetation growth. These changes can affect access to resources, as hunting and fishing seasons shift. It may also affect the habits of some animals, such as birds appearing in the spring or not migrating south.

The climate change we are experiencing and anticipating now is caused by human activity. The global population in 5000 BCE was estimated at around 5 million and at the end of 2023 it was just over 8 billion. This growth in population has burned more and more fossil fuels (gas, diesel, coal etc) and converted vast areas of lands from forest to farmland and urban areas. The burning of fossil fuels releases carbon dioxide which has been building up in the atmosphere and absorbing more of our sun's radiation leading to increases in the global temperatures and more extreme events. Carbon dioxide is referred to as a "greenhouse gas" as it creates a warming effect, similar to a greenhouse. Climate change is occurring as both extreme weather events (shocks), such as drought, flooding or heat waves and in changes in our averages (stresses) such as temperature and precipitation.





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## **Our Studies**

Climate change studies for the Community Access Road are ongoing, but Marten Falls First Nation can expect that the number of days per year over 30°C to increase from a historical 3.4 to 11.9 in the 2050s, along with days per year below -30°C from a historical 31.0 to 15.4 in the 2050s. By 2050 it is expected that the growing season in Marten Falls will increase to 172 days from the current 142.

AECOM, will be looking at the future climate to ensure the Community Access Road is prepared for and can withstand the future climate. This will be accomplished by a climate change risk assessment (PIEVC High Level Screening Guide – PIEVC Program) under the most likely emissions scenario (RCP 8.5) for the future climate in two time horizons (2050s and 2080s) compared to the historical climate.

## **Contact Information**

You are welcome to contact the Project Team at any time with questions or comments.

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