MARTEN FALLS FIRST NATION
ALL SEASON COMMUNITY ACCESS ROAD

CLIMATE CHANGE ADAPTATION
PLAIN LANGUAGE SUMMARY

Climate change presents many challenges for infrastructure projects, particularly in remote areas like Marten Falls First Nation. This study is intended to look at how climate change may affect both the construction and long-term use of the Community Access Road. Climate events such as increased rainfall, flooding, wildfire risks, extreme heat and changes in the ecosystem were considered in this study.

Existing Climate Conditions

The climate history (from 1981 to 2010) in the area of the Community Access Road has had cold winters and mild summers. General climate trends include:

- An average temperature of 5.5°C;
- Approximately 600 mm of rain each year, mostly in the summer;
- The most rain in a month was 82 mm in September;
- January was the coldest month, averaging -20.3°C, and July was the warmest, averaging 17.1°C;
- The coldest temperature recorded was -46.7°C in December 2008, and the hottest was 39.8°C in June 1995;
- September had the most rain, while February was the driest month with 22 cm of snow and 1 mm of rain; and
- The heaviest daily rainfall was 82 mm on October 10, 1993.

Community members shared their observations on changes in climate over time and noted less snowfall in winter and more thunderstorms in summer, which brought heavy rain and strong winds causing damage to buildings and trees. They also observed more tornadoes in Northwestern Ontario. These observations match scientific measurements and expectations. As temperatures rise, the atmosphere has more energy, leading to more severe thunderstorms and tornadoes. Records show that only one tornado occurred from 1981 to 2010 in the area of the Community Access Road, but from 2017 to 2024, there has been about one tornado per year.

Potential Effects and Mitigations

Climate change is affecting the weather along the Community Access Road. Future climate models predict:

Higher average temperatures and more heat waves

Warmer temperatures mean milder winters with less snow and shorter frost seasons, but longer growing seasons. Heat waves in summer could start in the spring and last until fall, raising wildfire risk. Dry and hot weather makes it easier for fires to start and spread, which can impact Indigenous communities, air and water quality, ecosystems, and increase the risk of flooding and landslides after fires.

More frequent and intense rainfall events / extreme snowfall events

Heavier and more frequent rain can cause floods. In winter, there will be less freezing rain but more heavy snow, leading to more snow on the roads.

Increased risk of wildfires

Climate change increases risk of wildfires to the Community Access Road. Higher temperatures and heat waves pose risks to construction workers and road users. Wildfires can create dangerous driving conditions and reduce air quality. Heavy rainfall can cause flooding and damage the road. Heavier snowfall can lead to high snow accumulation. If climate events result in the closure of the Community Access Road, it will also affect Marten Falls First Nation and potentially other communities which depend on it.

Biodiversity and ecosystem changes

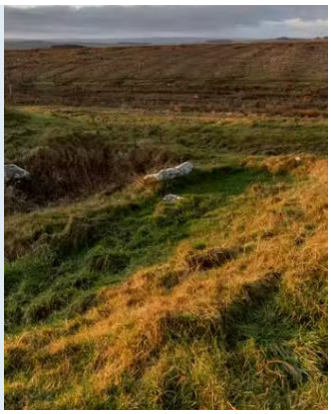
Climate change will impact the area's plants, animals and ecosystems. Species are at risk because of higher temperatures, changing rainfall, and more pests and diseases.

The ecosystem will slowly change over many years due to things like seed spreading, soil moisture, and events like wildfires and droughts. Climate change will also affect water supply, food, medicinal plants and cultural traditions.

Climate change is a significant consideration with the design of the Community Access Road. Ways to avoid or reduce negative impacts and enhance positive ones include following industry standards, government regulations, best management practices and recommendations from Indigenous communities and experts.

To reduce the risk of climate change-related effects on the construction and long-term use of the Community Access Road, the following measures are recommended:

Extreme Temperature and Heat Waves:



- Give workers more frequent breaks in activity and implement flexible work schedules during heat waves, and provide protective gear and air conditioning in camps;
- Set up an alert system for hot weather and heat waves;
- Inform construction workers about the health risks of extreme heat; and
- Provide cool, shaded, or air-conditioned areas for workers.

Extreme Rainfall:

- Design drainage systems to handle heavy rain;
- Use larger culverts to manage increased flooding;
- Regularly maintain the road to handle heavy rain better; and
- Inform the public about road conditions, especially during floods. For example, share the location and status of floods or road washouts in construction camps and in the community.

Wildfire:

- Avoid using timber in bridge structures; use steel or concrete instead;
- Regularly clear and inspect the road and its surroundings to prevent fire hazards;
- Set up early warning systems for wildfires; and
- Develop an Emergency Preparedness and Management Plan for wildfires.

Thunderstorms:

- Create a storm warning system to alert road users; and
- Provide guidelines on what to do during a thunderstorm.

Residual Effects

The climate change assessment does not consider residual effects as the objective of this study was to assess the impacts of climate change on the Community Access Road.

Cumulative Effects

The climate change assessment looked at each climate event independently and not how one event might impact another. Therefore, no cumulative effects of climate change were considered for the Community Access Road.

Want to learn more?

If you are interested in learning more about this topic, please review the technical report available in the appendix of the Final Environmental Assessment / Impact Statement.

Contact Info

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