

# Addressing the Impact of Climate Change on Indigenous Communities' Transportation Infrastructure

## DESCRIPTION

For remote communities in Canada, winter brings a vital network of ice roads. However, climate change continues to threaten the seasonal transportation infrastructure relied upon by many remote Indigenous communities, leading to socioeconomic challenges that will only worsen as increasingly warmer temperatures further reduce winter road access.

## BACKGROUND

For remote northern Indigenous communities across Canada who are otherwise inaccessible by permanent conventional roads or railways, networks of seasonal "winter roads" made of ice or snow provide temporary access to a permanent provincial and territorial highway or railway system. These seasonal roads are used by individuals and businesses from freeze-up until spring thaw. They are of significant socioeconomic importance, allowing for goods to be moved at a cost two to three times lower than air transport, which is frequently the sole alternative. As well, the winter roads are often the only option for the transportation of heavier items such as vehicles, equipment, and building materials into these remote communities. For instance, in Northern Ontario, 30 First Nations communities depend on thousands of kilometers of winter roads as a lifeline for transportation and shipment of goods.<sup>1</sup>[1] These are also a key avenue for resource development projects such as the Ring of Fire, whose century-long project value-estimated at more than \$60 billion could address revenue sharing that could see a combined annual savings of \$5.2 million on all-season road maintenance <sup>2</sup>[2] and would create a transportation corridor that would connect the development's mineral deposits and remote First Nations communities who currently rely heavily on the use of winter roads.<sup>3</sup>[3]

---

<sup>1</sup> <http://www.republicofmining.com/2016/03/08/invest-north-ontario-and-canada-needs-full-inclusion-of-firstnations-to-kick-start-the-economy-by-ontario-regional-chief-isadore-day-metro-toronto-convention-centre-march7-2016/>

<sup>2</sup> <https://www.cbc.ca/news/canada/thunder-bay/ring-of-fire-road-study-1.3730976>

<sup>3</sup> <http://www.nan.on.ca/article/winter-road-network-2018-1904.asp>

Another example is the world's longest ice highway, the Tibbitt to Contwoyto Winter Road, a 600-kilometer network of frozen lakes that connects lucrative diamond mines in Canada's Northwest Territories to supplies from the nation's not-quite-so-far north. Warmer winters and earlier springs have shortened the road's open season by up to two weeks over the past decade. The loss of the road for even such a short time is costly due to the mine's remote fly-in location.<sup>4</sup>[4] This is similarly seen throughout Canada: in northern Manitoba, 30,000 people live in 28 remote communities otherwise inaccessible by conventional roads.<sup>5</sup>[5]

There has long been a push to develop a permanent road system in many of these regions, in light of the obvious economic and social benefits. This call has become more pressing as climate change continuously shortens the duration of the winter roads, which in turn threatens the economic viability of nearby resource projects as well as the communities themselves; access to goods and services is reduced, and the window for specific project activities is shortened considerably. For many such communities, winter roads have traditionally been functional for upwards of 80 days per year, a figure that has in some cases shrunk to as low as 20 days in recent years.<sup>6</sup>[6] In northern Saskatchewan, warmer temperatures through early 2016 rendered winter road access unsafe for three northern communities, preventing the transportation of crucial supplies.<sup>7</sup>[7]

This year, communities in the territory's North Slave region have seen temperatures rise well above zero.<sup>8</sup>[8] The climbing temperatures prompted the Department of Infrastructure to recently restrict road use of the Mackenzie Valley and Tlicho winter roads to night travel only.<sup>9</sup>[9] With limited access to winter roads and having to rely more heavily on air transport, many within these communities are facing rising costs of living.<sup>10</sup>[10]

This problem is only expected to worsen in the coming years: various climate studies, such as one undertaken by the province of Manitoba, the Prairie Adaptation Research Collaborative, and the University of Winnipeg, which projected the winter road season would further shrink by another 10 days in the 2050s, and 14 days in the 2080s.<sup>11</sup>[11] Additionally, temperature warming is threatening the reliability of winter roads in Manitoba's Northern communities, which are essential for access to provisions and transport meaning these communities will face greater challenges with accessing food and other supplies.<sup>12</sup>[12]

As indicated by former Ontario Regional Chief Isadore Day, "Far too many northern communities rely upon winter roads as critical transportation links in order to receive larger items such as building materials and food items in bulk that can last for months. Building permanent roads and bridges in the far north must become a priority so all First Nation communities can achieve the quality of life standards that their non-First Nation counterparts within this province and country currently enjoy,"<sup>13</sup>[13]—a sentiment of concern also expressed by countless other Indigenous leaders across the country. This has

---

<sup>4</sup> [republicofmining.com/2019/04/18/climate-change-threatens-ice-roads-satellites-could-help-by-nick-stockton-wired-magazine-april-18-2019/](http://republicofmining.com/2019/04/18/climate-change-threatens-ice-roads-satellites-could-help-by-nick-stockton-wired-magazine-april-18-2019/)

<sup>5</sup> Enhancing the Resilience of Manitoba's Winter Roads System: International Institute for Sustainable Development, 2014.

<sup>6</sup> <https://news.vice.com/article/canadas-ice-roads-are-melting-and-that-is-terrible-news-for-aboriginalcommunities>

<sup>7</sup> <http://www.cbc.ca/news/canada/saskatoon/fsin-climate-change-first-minsters-meeting-1.3472278>

<sup>8</sup> [http://climate.weather.gc.ca/climate\\_data/daily\\_data\\_e.html?StationID=49369&timeframe=2&StartYear=1840&EndYear=2019&Day=27&Year=2019&Month=3#](http://climate.weather.gc.ca/climate_data/daily_data_e.html?StationID=49369&timeframe=2&StartYear=1840&EndYear=2019&Day=27&Year=2019&Month=3#)

<sup>9</sup> <https://www.cbc.ca/news/canada/north/wekweeti-winter-road-late-1.5062005>

<sup>10</sup> Ibid.

<sup>11</sup> Enhancing the Resilience of Manitoba's Winter Roads System: International Institute for Sustainable Development, 2014.

<sup>12</sup> <https://www.theweathernetwork.com/news/articles/canada-by-2030-earth-climate-change-manitoba-ontario-quebec-invasive-species-farming-skiing-forests-blackout-heat-wave/106341>

<sup>13</sup> [http://www.chiefs-of-ontario.org/news\\_item/regional-chief-isadore-day-on-north-caribou-lake-first-nations-grand-opening-of-all-season-bridge-opening-doors-to-new-opportunities/](http://www.chiefs-of-ontario.org/news_item/regional-chief-isadore-day-on-north-caribou-lake-first-nations-grand-opening-of-all-season-bridge-opening-doors-to-new-opportunities/)

been echoed by Crown-Indigenous Relations Minister Hon. Carolyn Bennett, who has committed to continuing work with Northerners and Indigenous and territorial partners to address this issue with “long-term solutions.”<sup>14</sup>[14]

The effects of climate change are more dramatic in the North than in the rest of Canada. Global warming and fluctuating climatic conditions are causing the premature deterioration of transportation infrastructure. More pronounced freeze-thaw cycles are causing airport tarmacs to buckle and dip. Additionally, permafrost degradation due to warming temperatures poses challenges for road construction and maintenance, since it is increasingly difficult to ensure stability.<sup>15</sup>[15] While we are pleased to see the federal government has taken important steps in recognizing remote and northern realities, most notably, the Canada Infrastructure Program's Rural and Northern Stream, more is needed.

## RECOMMENDATIONS

That the federal government:

1. Continue to advance work with industry stakeholders and Indigenous communities to determine the full impact of climate change on their transportation infrastructure, continue to work with local, provincial and territorial governments to subsequently advance economic development by forming partnerships, and continue developing strategies to implement all-season road networks where appropriate.
2. Build on recent budget announcements with a dedicated Northern Infrastructure Fund and ensure the Arctic Policy Framework has a strategic implementation plan and is appropriately funded under the Infrastructure Bank of Canada.

## SUBMITTED BY THE TIMMINS CHAMBER OF COMMERCE

Co-sponsored by the Greater Sudbury Chamber of Commerce, North Bay and District Chamber of Commerce, Sault Ste. Marie Chamber of Commerce, and the Thunder Bay Chamber of Commerce

---

<sup>14</sup> <https://www.rcaanc-cirnac.gc.ca/eng/1553021710453/1553021765428>

<sup>15</sup> [http://www.tc.gc.ca/eng/ctareview2014/CTAR\\_Vol1\\_EN.pdf](http://www.tc.gc.ca/eng/ctareview2014/CTAR_Vol1_EN.pdf)