



Climate change adaptations for northern First Nation communities & individuals

WINTER ROAD TRAVEL



CLIMATE CHANGE

warmer temperatures
 especially winter, spring & fall

changing rain & snow
 more winter rain



IMPACTS ON LAND, ICE & WINTER ROAD

later freeze up

earlier break-up

shorter winter road season

permafrost thaw

more mid-winter thaws

weaker, thinner ice

unexpected road closures

delay in road opening

worse road conditions



IMPACTS ON THE COMMUNITY

energy insecurity

higher cost to fly in goods

food insecurity

unable to attend events/appointments

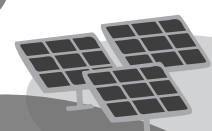
social isolation



Share daily road information in the community



Consider an all-season road feasibility study



Reduce dependence on shipped goods



Harvest from the land when you can

Realign the route



Seek funding for equipment



Install permanent bridge crossings

Add bridges at increasingly risky water crossings



Produce energy in the community

Reduce the need for fuel tankers

Gather winter road information



Improve winter road flooding methods



UP NORTH ON CLIMATE
Climate Change Impact and Adaptation Study for the North of Ontario

WINTER ROAD TRAVEL - ADAPTATION OPTIONS



Permanent bridge crossings



- Bridges over river and creek crossings can make winter roads less dependent on ice conditions allowing roads to open sooner and stay open longer.
- This option is likely to be expensive.

Realign the route



- Winter road builders, guided by local knowledge or their own experiences, may be able to make small-scale changes to the winter road routes like: avoiding steep slopes, limiting south-facing exposures, finding better creek-crossing locations, etc.
- Large-scale changes to the route involving big stretches of road (and likely more than one community) would be a big project involving consultants, engineers, government, etc.

Reduce need for fuel tankers



- Fuel for diesel generators is a big part of the goods shipped over winter roads.
- Energy from renewable sources, like wind or solar projects, reduce the need for diesel in communities.
- Wataynikaneyap Power is also connecting some remote communities to the provincial electricity grid.

Share information



- Climate change is making winter road conditions less predictable.
- Share daily winter road information in the community. Many communities and community members already do this using social media.
- Conditions can vary over different sections of winter roads. Information about road conditions over long distances, like the entire route from major centres in the south to communities in the north, could be very useful.

Better equipment



- Equipment upgrades could allow some road construction to start earlier. Graders, for example, could allow land sections to be built quickly without needing to wait for plentiful snow to create a smooth road bed.
- Seek funding for new equipment.

Reduce need for shipped goods



- It may be possible to harvest some goods, like logs or food, from the land.
- Consider foods that can be grown in your community with gardens, greenhouses, etc.
- Traditional ways of building may better incorporate materials from the land and strengthen cultural connection.

All-season road feasibility

- As the winter road season gets shorter, Tribal Councils, regions, etc. might explore the option of an all-season road.
- Communities may want to support an all-season road feasibility study for their region.
- Planning and building an all-season road is a long, multi-million dollar process that will require engineers/consultants, impact assessments, a coordinated plan, etc.

Winter road flooding



- It may be possible to change or improve road flooding methods to get better results.
- Newer water pumps, more water pumps, or other types of equipment could be helpful. Seek funding if equipment could be updated or improved.
- Ice-penetrating radar machines (like used in Smartice) could be helpful for determining safe ice thickness for flooding and travel.

Gather information



- Gathering information about the winter road (road condition, road usage, opening/closing dates, etc.) can be important for future decisions.



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*Adaptations vary in scale (small to large), focus (individual to community) & cost (low to high). Find what works for you and your community.