

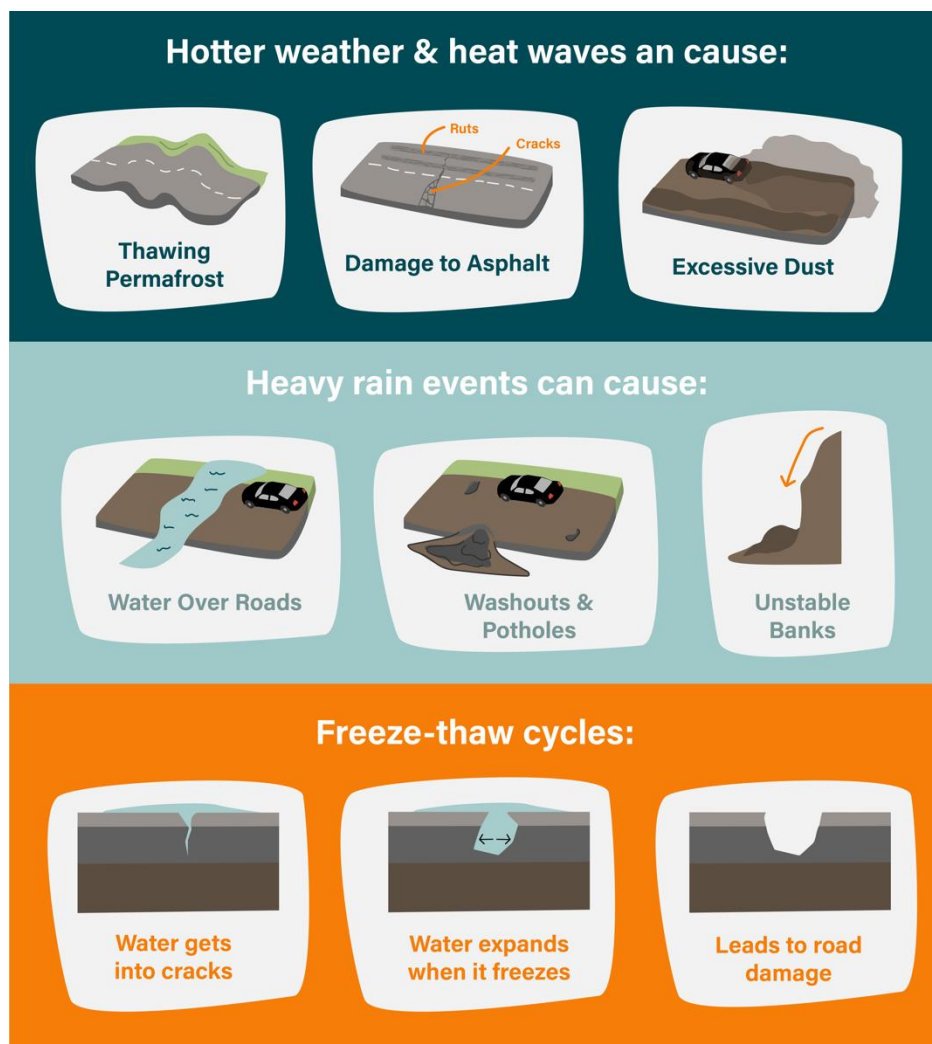


# Community Roads & Climate Change

Community roads are essential links that people use every day, but changing climate can damage the roads in the north by bringing more mid-winter thaws, more heavy rain, and other extreme weather events to the region. How can communities prepare?

## How can climate change impact roads?

Weather can be hard on the roads of northern Ontario. Heat, rain, and freeze-thaw cycles can damage both paved and gravel roads, and climate change will likely intensify these weather events in the north. With climate change, we can expect warmer temperatures, more heatwaves, an increase in heavy rain events, and milder winters with more freeze-thaw cycles.



## What are people noticing?

Already, people in many First Nation communities across the north say that heavy rains are damaging their roads, causing potholes and even washouts. In some cases, people point to poor road drainage as the problem. Washouts on provincial highways have also impacted people's ability to travel to other cities and communities.

## How can we prepare?

### *Know what roads in your community are most at risk*

Knowing which roads could use improvement and which could be vulnerable to climate change impacts in the future is a good place to start the adaptation process. Roads that already have problems with flooding or washouts, or roads in low lying areas, could all be considered. Roads for emergency access and evacuation should also be prioritized. Keep climate change in mind when planning future community roads; for instance, plan new roads on high ground to reduce the risk of flooding.

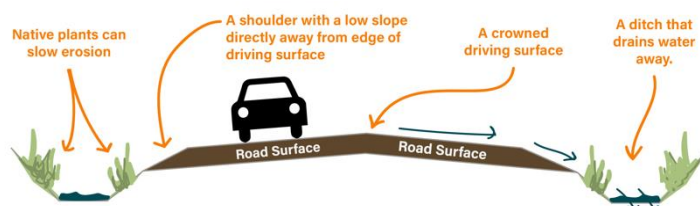


*Dirt and gravel roads can become marked with potholes when water doesn't drain away properly.*

### *Culverts and water control*

Heavy rain and excess water can cause a lot of problems for both paved and gravel roads. Make sure drainage and culvert systems can handle the amount of rain and snow melt expected for your region now and into the future. Keep ditches and culverts clear of blockages and repair or replace pieces as needed. Where roads cross streams and creeks, make sure culverts are big enough for the width of the stream and work with the natural flow of the water instead of trying to divert it elsewhere.

When water gets under the surface of roadways, potholes can form. To help promote drainage, roads are slightly higher in the middle (called the 'crown') and sloped down towards the edges to help water flow off the road surface. This sloping is especially important for dirt and gravel roads, which absorb water more readily than paved ones. The crown on gravel and dirt roads will need to be maintained and a machine with a grader blade is a good way to do that.



### *Limit erosion*

As water from rainfall runs over the land, it can move soil, sand, and other materials along with it. This process is called erosion, and slopes and embankments along roadsides can be particularly vulnerable. When erosion happens on a large scale, road washouts can be the result. One cost-effective way to help limit erosion is by planting native plants. Plants help by slowing down the flow of water over the land, letting more soak into the ground, while their roots help hold the soil in position preventing it from being washed away. Keeping the slopes of roadside ditches as gentle as possible can also help lessen erosion.

### *Dust control*

Traffic on dirt and gravel roads produces dust, a problem that can be made worse by periods of dry weather. If dust is a problem on local roads, communities can try: limiting traffic, suggesting people drive more slowly, watering the roads, changing road materials, or using a chemical to bind the road material together.

**Want to know more** about gravel roads? <https://westfordvt.us/wp-content/uploads/2014/09/Appendix-B-Answers-to-Frequently-Asked-Questions-About-Gravel-Roads.pdf>