

Transformative adaptation

is needed to address the Northern infrastructure gap and worsening climate impacts.

Northerners currently lack access to safe and reliable infrastructure that people in the rest of Canada take for granted. The warming climate creates both a need and an opportunity to **fundamentally rethink** how infrastructure is built in the North, for Northerners.

SAFE AND RELIABLE TRANSPORT

Transport systems can be reimagined to move supplies to where Northerners need them, even in an environment that is constantly shifting because of climate change impacts.

RUNWAYS are warping and cracking due to permafrost thaw and extreme weather. When permafrost erodes, runways can lose the ability to support an airplane's weight.

"Here's the runway... And this entire area is marshland. It's been sinking for I don't know how many years due to permafrost thaw."

DEPENDABLE AIRPORTS

Airports can be designed to operate in the changing environment and better support reliable delivery of health services and supplies.

More than half of **WINTER ROADS** could become unusable in the next 30 years as temperatures warm. Permanent roads are also cracking and collapsing because of permafrost thaw.

"The ice gets thinner and thinner. Last year, the year before, it barely brought in the fuel. The ice was not thick enough."

THRIVING COMMUNITIES

Communities have reliable food transport and storage, and access to country food.

CASCADING IMPACTS: Unreliable transportation infrastructure can have a ripple effect on the availability and cost of store-bought food, and on access to country food (meat, fish, and berries).

"Up until a couple of years ago, we had an ice cellar. It's actually unusable now because it keeps accumulating water. Even though we had it boxed in, insulated. It just couldn't keep food frozen."

Damage from permafrost thaw is leading to damage to **HOMES AND BUILDINGS** and pipes and gas lines.

"My house is shifting. My drywall has cracked. And a window has cracked twice. So, we've replaced it twice due to shifting of the house."

LIVABLE HOMES AND BUILDINGS

Homes can be designed to withstand climate change with adaptations like thermosyphons or space-frame foundations, while reflecting cultural values and needs.

Transformative adaptation, supportive policy, and funding can leapfrog the challenges of an existing infrastructure gap and worsening climate change.

All quotes from people who participated in the Firelight Report 2022 | Design by Voilà: chezVoila.com