FOR ACTION: ANNUAL SURVEY

Transport Canada is required to report on NTAI performance.

Please take 2-3 minutes to answer this [two-question survey](#).

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**Spring 2020 Update**

**NTAI EVENTS**

- **NTAI workshops** – We had been looking to host two workshops this summer – a marine workshop in Iqaluit and a permafrost workshop in the Yukon. Due to current circumstances, these events will not be held in 2020-21. Transport Canada will look to opportunities to hold them in summer 2021.

- **Fall/Winter 2020 NTAI annual network meetings** – As the situation remains fluid, we are exploring options for virtual meetings as well as opportunities to coordinate with other events (e.g. TAC, ArcticNet, etc.) for an in-person meeting. Let us know if you have any suggestions for event coordination.

**WHAT’S NEW?**

We are planning to undertake some preliminary work on pre-thaw in the new fiscal year. If you are interested in being part of a small task team to advise on the approach, please contact us.

Below are a number of projects the NTAI initiated in 2019/20.

*Operational Analysis and User Engagement for Product Development in the Arctic Heavy Shipping Sector* (University of Victoria and Department of Fisheries and Oceans): UVic and DFO are working to better understand how greater variability in key climate variables can be better incorporated into projections and predictions about conditions of interest to shipping operators to enhance safe and efficient operations; and in general, how modeling can be improved to better represent Arctic conditions. The research team is working with FedNav, a Canadian vessel servicing and cargo handling company. (Expected completion by Fall 2020)

*Engineering Climate Simulations and Thresholds for Nunavut* (McGill University): This project seeks to produce downscaled climate projections to 2050 and related information of relevance to transportation infrastructure development for locations of interest in Nunavut. It will also look to identify potential applications of this kind of information for other northern transportation infrastructure. (Expected completion by March 31, 2021)

*Analysis of Vessel Ice Strengthening Relative to Arctic Ice Navigational Conditions* (University of Ottawa): The objective of this project is to support priority knowledge gaps identified by Transport Canada, related to key Arctic shipping risks. The project will identify specific instances where a vessel’s ice strength (Ice Class) was weak relative to the ice regime (POLARIS) that vessel encountered, in order to inform policy design and operational decisions, such as the need to improve ship operators’ awareness or capacity to assess ice operational risks, or the need to plan for potential search and rescue pressures. (Expected completion by March 31, 2021)

*Northern Transportation Technical Documents Review* (National Research Council): The NRC is conducting a preliminary review of available literature and documentation which support the design, construction, operation and maintenance of surface transportation (all-season roads, rail and runways) in the Canadian North. This work will provide a landscape scan to inform future work on standards, guidelines and other technical documents. (Expected completion by March 31, 2020)
NEW NTAI GRANTS

In 2019/20, the following grant projects were approved for funding (approximately $50,000 each):

The **University of Alberta** will develop a quantitative decision-support model to investigate how the benefit-cost relationship for the Slave Geological Province Corridor all-weather road changes when uncertain factors such as climate change and freight transport demand are considered. The results aim to support decision makers on infrastructure investment decisions – more specifically whether to replace the winter road with an all-weather road.

**Yukon College** will examine an active retrogressive thaw slump (RTS) adjacent to the Alaska Highway to better understand RTS impacts on road corridors in the North. The project aims to inform mitigation strategies, develop and test a monitoring approach for the RTS, and engage with transportation professionals and northern students to help them strengthen their understanding of the threats posed by RTSs to transportation systems in the North.

With a focus on northern Baffin Bay and the Northwest Passage, the **University of Ottawa** will examine where sea ice and iceberg navigability has changed in the past and how it is projected to change under future warming scenarios. It will also study the impacts of changing sea ice and icebergs on the resilience, sustainability and integrity of northern shipping.

The **CSA Group** will develop best practices and guidance material for airport operators for assessing climate change vulnerabilities of Northern airports. The project would include a literature review and stakeholder interviews.

The **Government of the Northwest Territories** will investigate and characterize the relative resiliency of winter road construction methods and road base material to current climate change impacts, in particular short periods of unseasonably warm temperatures.

The **University of Waterloo** will compare the magnitude and rate of downward heat transfer of various road surface materials commonly used in the North; determine whether a significant relationship exists between previously collected airport pavement temperature and air temperature; and outline a set of best practices for material selection for territorial governments, municipalities, contractors, and private builders.

WHAT’S ONGOING?

**Canada’s Arctic and Northern Policy Framework – TC’s National Trade Corridors Fund:** Up to $400 million in transportation infrastructure funding for Arctic and northern regions was committed in the 2019 federal budget. The NTAI team will share information about a new call for proposals when it becomes available. Under the previous northern call, a number of studies that relate to adaptation were funded.

**NRCan** continues to advance its work on the Permafrost and Surficial Materials Active Archive for climate change resilient northern infrastructure (PSMAA). We welcome your views and comments on the [Permafrost Information Network website](https://www.dropbox.com/sh/ckttei05845i90b/AAAyUT8KoGK3yQjXEj99Ua?dl=0) (in development).

Below are a number of other ongoing NTAI projects, to be completed by March 31, 2021.

- Climate change impacts and adaptations for Canadian highways built on permafrost (Yukon Government)
- Supply and installation of thermosyphons and monitoring stations at km 1841 (Dry Creek) of the Alaska Highway, Yukon (Yukon Government)
- Development of a product for ice cover reinforcement (National Research Council)
- Design and implementation of early detection and warning systems for transportation infrastructure impacted by permafrost-related geohazards (Yukon College)
- Permafrost Data Management and Analytical System for the Dempster and Inuvik to Tuktoyaktuk Highways (Government of the Northwest Territories)

Contact Us

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NTAI reports resulting from research contracts:
https://tcdocs.ingeniumcanada.org/

Key network documentation generally posted at:
https://www.dropbox.com/sh/ckttei05845i90b/AAAyUT8KoGK3yQjXEj99Ua?dl=0.