



Inuvik Tuktoyaktuk Highway 10

Arquluk Symposium – February 21, 2018

Government of
Northwest Territories

Presentation Overview

- History and Construction
- Some Key Construction Statistics
- Benefits
- Environmental
- Research and Development
- Questions?



History and Construction



- Highway 10, more commonly known as the Inuvik Tuktoyaktuk Highway (ITH), is a road between Inuvik and Tuktoyaktuk in Canada's Northwest Territories.
- It is the "first all-weather road to Canada's Arctic Coast".
- The idea for the highway had been considered for decades; however, final approval was not until 2013, with construction beginning in 2014.
- It was officially opened on 15 November 2017, and opens up Tuktoyaktuk to year-round vehicle traffic.



Some Key Construction Statistics



- On Budget
- Highway Length 120 Km
- 8 Pullout bays
- Primarily winter construction
- 5 million cubic meters of embankment
- 8 Bridges
- 19 Large diameter SPCSP culverts
- 40 Stream size culverts
- 300 Standard culverts



Benefits

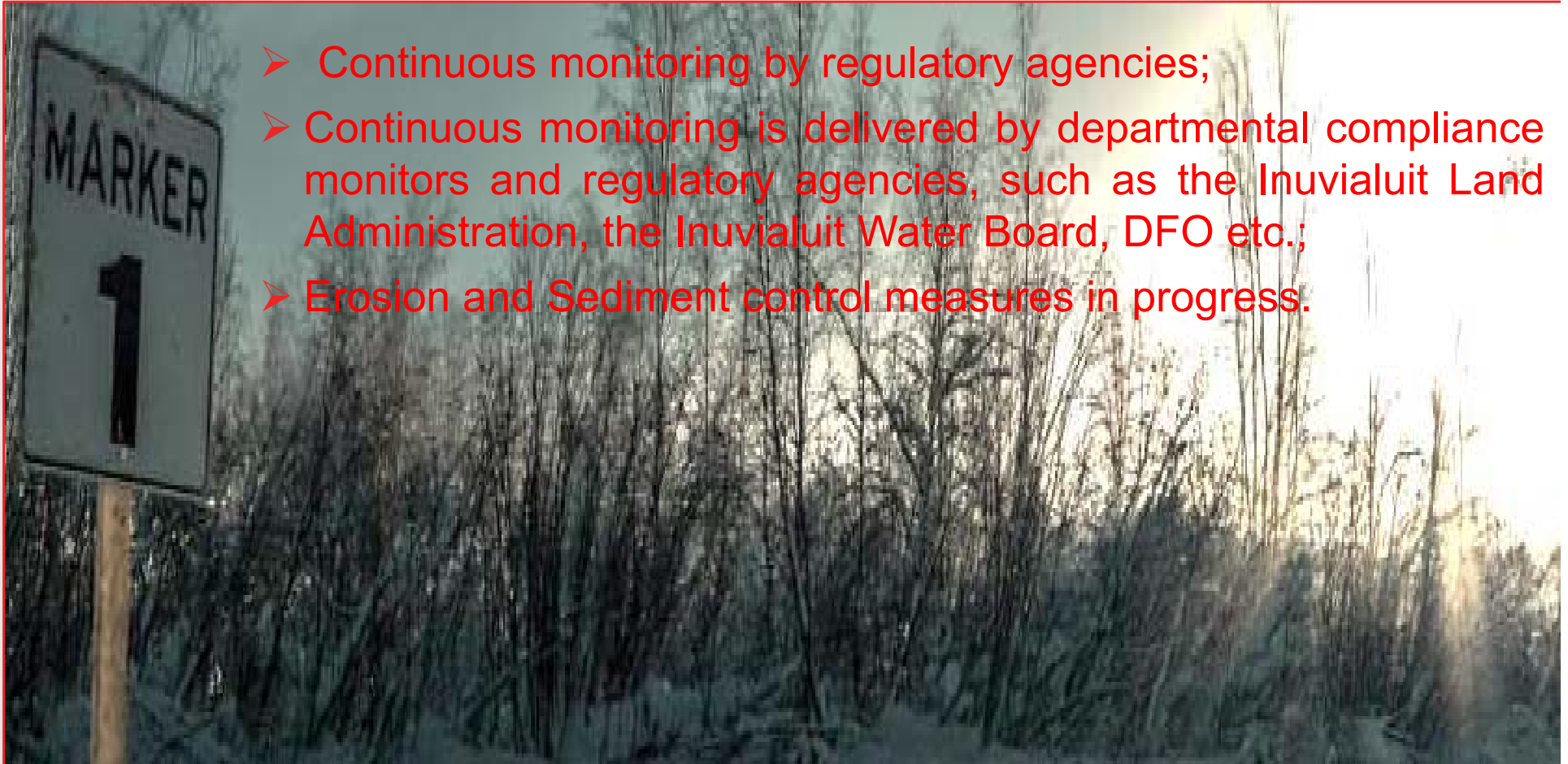


The construction completion, operations and maintenance of the ITH brought many benefits to the people of the region and to the rest of Canada, such as:

- Employment for more than 600 people at the peak of construction;
- Residents of Tuktoyaktuk have been benefiting from a reduced cost of living (approximately \$1.5 million in savings), as goods have been shipped year-round;
- Tourism is projected to increase by \$2.7 million annually, creating 22 full-time equivalent jobs in the NWT;
- Inuvik's role as regional commercial and business hub will be strengthened and expanded.



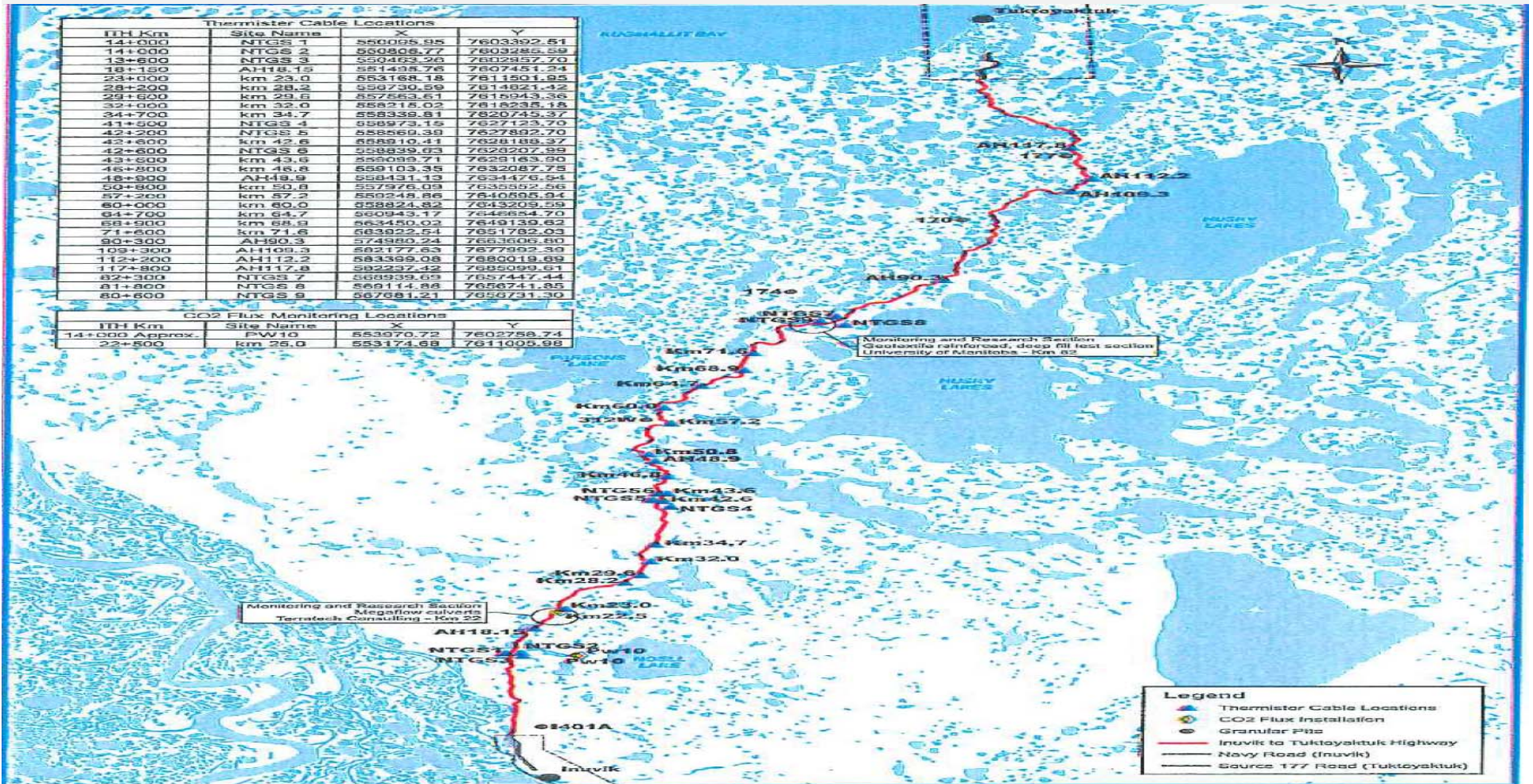
Environmental



- Continuous monitoring by regulatory agencies;
- Continuous monitoring is delivered by departmental compliance monitors and regulatory agencies, such as the Inuvialuit Land Administration, the Inuvialuit Water Board, DFO etc.;
- Erosion and Sediment control measures in progress.



Research & Development Atlas



Research & Development

➤ Two test sections:

1. Performance of a geotextile-reinforced deep fill embankment section located at Km 82+380 to 82+420; and
2. Performance of an alternative drainage culvert structures located at Km 22.



Alternative Drainage Structures - High Density Polyethylene Drainage Culverts

- High density polyethylene drainage culvert was constructed at km 22:
 - 15b - HDPE Megaflow Culverts.



Alternative Drainage Structures – Large CSP and SPCSP

- Two other culverts were constructed at km 22:
 - 15a - 1810mm dia. SPCSP, and;
 - 15c – 3050mm dia. SPCSP
- Data collection is in progress.



Research and Development

- Research projects along the ITH—like Permafrost Monitoring Program and the Alternative Drainage Structures Sites—have provided valuable data that will help improve highway construction techniques and minimize environmental impacts;
- In partnership with the Department of Infrastructure (INF), and Northwest Territories Geological Survey, the Wilfred Laurier University is conducting a research along the ITH to better understand the relationship between ground temperatures and the draining of watersheds;
- As of August 2017, instrumentation has been installed to monitor ground temperature, water temperature, and water depth at various sites near Havikpak Creek, Bridge A3 and Bridge 18.



Research and Development



Aufeis gauges were installed in early August 2017 to facilitate the monitoring of icing accumulation. Bridge icings were present at Bridges 3, 8, and 18 in the winter of 2016/2017.

Instrumentation for monitoring ground temperature beneath and adjacent to streams was installed in early August 2017.

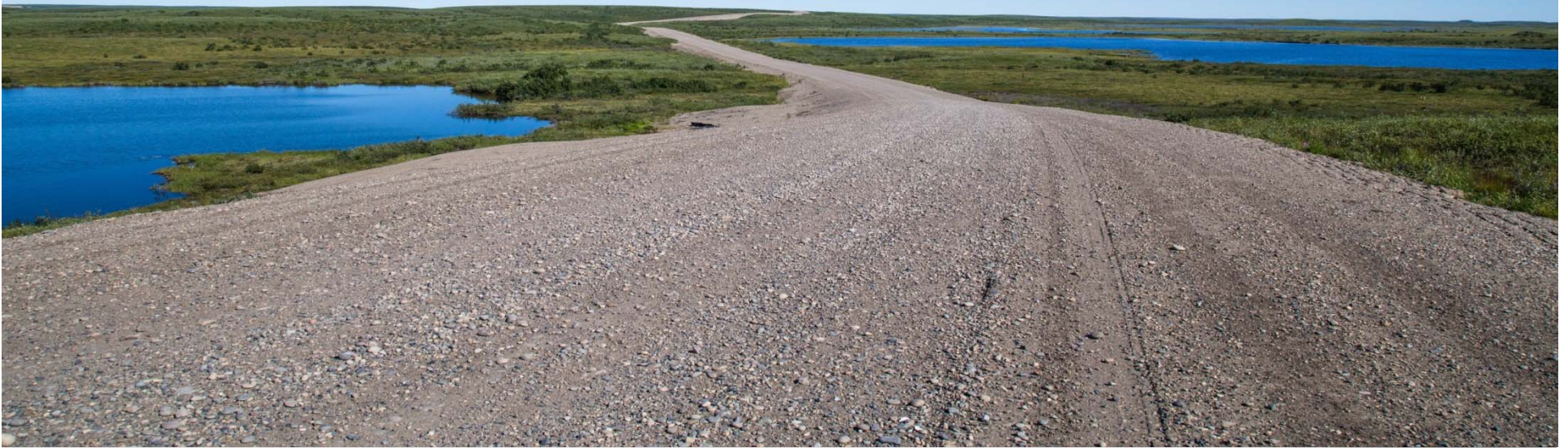


Stream ice was sampled with a Cold Regions Research and Engineering Laboratory (CRREL) drill upstream of Bridge 18 on 8 March 2017.



Research and Development

- Government of Northwest Territories (GNWT), Department of Infrastructure (INF) has a strategic approach to R & D on the ITH Corridor:
 - INF has joined with Yukon, as part of the Council of Deputy Ministers (DMs) for Northern Infrastructure, and;
 - INF is working with Transport Canada (TC) and Infrastructure Canada on best practices, and coordinating with a variety of universities for R & D opportunities.



Questions?



Inuvik  Tuktoyaktuk
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