



# Impact of Climate Change: An Owner/Operator's Perspective

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# Overview

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## Iqaluit International Airport

- Owner Government of Nunavut
- Department of Economic Development and Transportation
- Operator Iqaluit International Airport Division
- Regulators:
  - The Aeronautics Act
  - Canadian Aviation Regulations
  - Canadian Aviation Security Regulations



# Airport Role

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Essential roles on 4 distinct levels:

- Local
- Territorial
- National
- International



# Local Role

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- Serves Capital of Canada's newest Territory, Nunavut
- Primary connection for Territory and eastern Arctic to Canada



# Territorial Role

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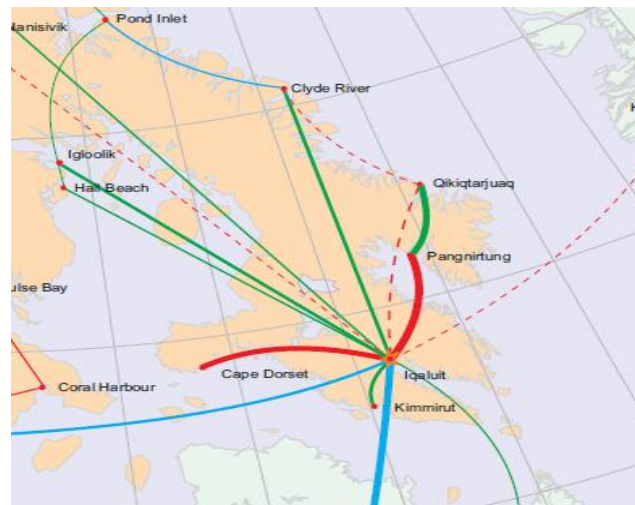
- 20,178 aircraft movements in 2010
- Projected to be 27,500 by 2015
- 50% of all Nunavumiut rely on Airport for:
  - Perishable food
  - Mail
  - Cargo
  - Medical travel
  - Economic activity





# National Role

- Designated by Transport Canada as a National Airport System (NAS) Airport
- Key component of arctic search and rescue
- Integral to the support of North Warning System, CFB Alert, and Thule AFB



# International Role

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- Designated as international alternate use airport by ICAO and Transport Canada
- Other roles include:
  - Wide-Body Medical Diversions
  - North American Air Defence
  - Medical Evacuation Base
  - Scientific Research
  - Cold Weather Testing (Airbus, Boeing, Dassault, Eurocopter)



# Climate Change Impact on Arctic Infrastructure

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## *Climate change could limit Airport's ability to perform role*

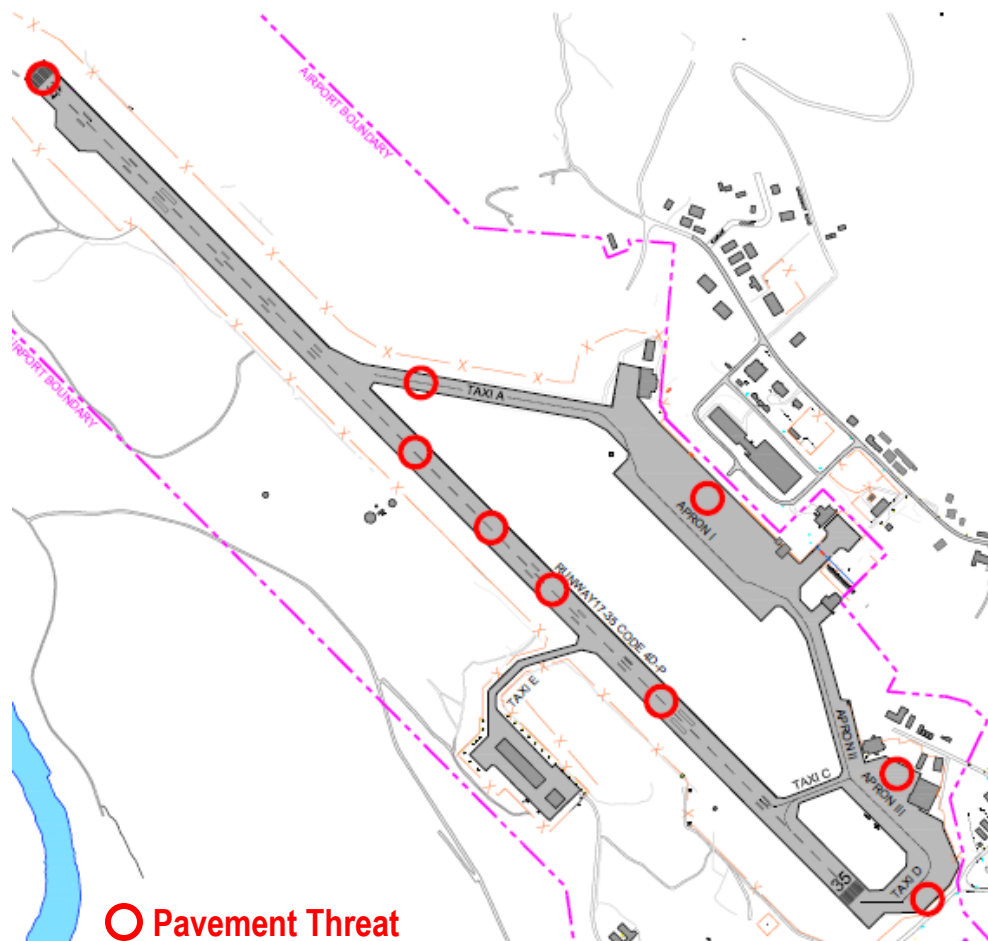
- 2006 Arctic Aviation Experts Conference (Winnipeg) outlined impact of climate change on northern air transportation
  1. Permafrost is melting
    - could result in damage to airport facilities
  2. Ice roads are less stable
    - could be a larger demand for aviation to deliver goods
  3. Precipitation
    - changes in snow loading on buildings could cause structural damage





# Observed Impact at YFB

- Effects of climate change observed at Iqaluit International Airport
- Areas affected by melting permafrost coincide with historical watercourses



# Apron I and Taxiway 'A' Rehabilitation - 2008

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Iqaluit International Airport Division – Northern Transportation Conference 2011

# Apron I and Taxiway 'A' Rehabilitation - 2008

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# Taxiway 'A' – 2010

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Failed section of Taxiway 'A'  
replaced with gravel

# Apron I - 2011

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Failed section of Apron I



# Apron I - 2011

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Failed section of Apron I

# Apron I - 2011



# Action Plan as of 2011

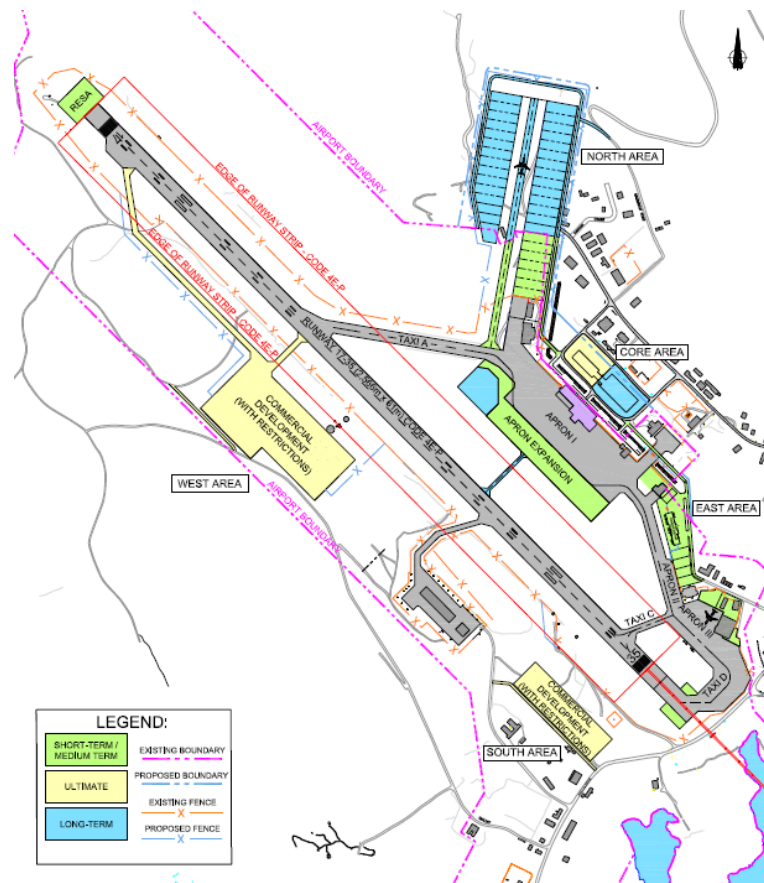
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- Collaboration on research:
  - **Governments** (GN Department of Environment, Canada NRCan)
  - **Universities** (Université Laval, University of Alberta, Carleton University, etc.)
  - **Research Institutes**
- Projects underway:
  - **The Atuliqtuq Project** (GN, Government of Canada, Canadian Institute of Planners)
  - **The Iqaluit Climate Change Adaptation Project** (City of Iqaluit, Canadian Institute of Planners)
  - **Arctic Development and Adaptation to Permafrost in Transition (ADAPT)** (10 Universities)



# Iqaluit International Airport Development

- Airport Development 2012 – 2016 :
  - New ATB
  - New Fire Hall and Maintenance Facility
  - Improvements to Airfield Electrical
  - Upgraded Approach Lighting
  - Establishment of RESAs
  - Creation of new commercial lots



# Iqaluit International Current Airport Development

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# Iqaluit International Current Airport Development

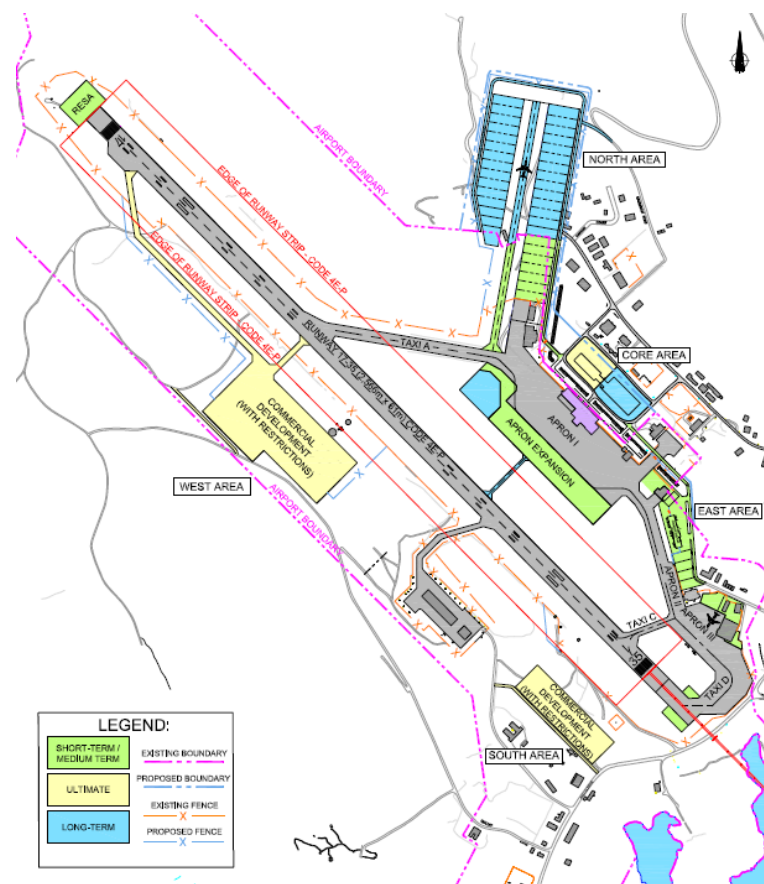
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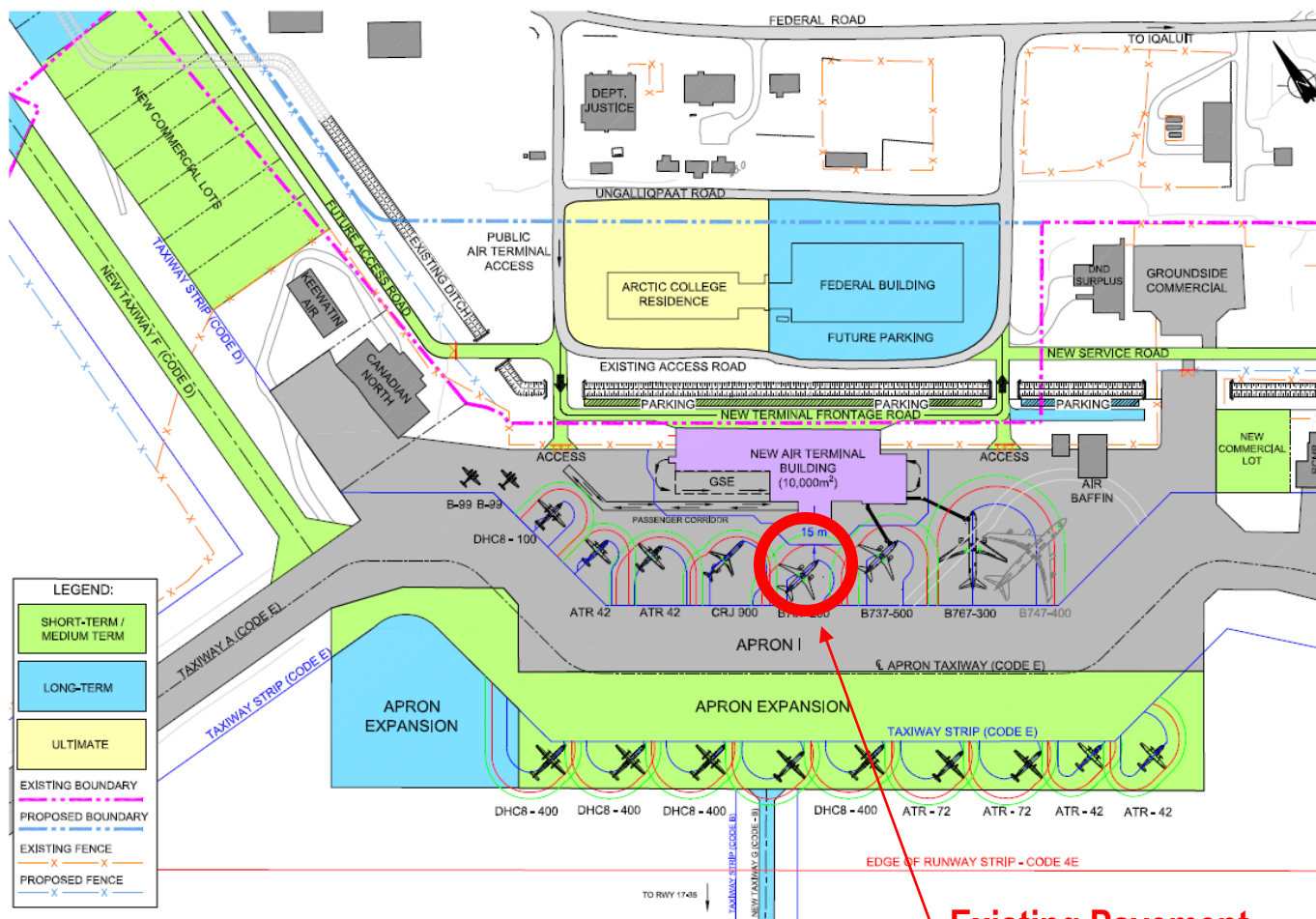
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# Iqaluit International Airport Development



**Existing Pavement Threat**



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# Related Concerns

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- Do building codes anticipate the impact of climate change?
- Nunavut does not possess the capacity to develop these codes and practices
- Existing climate data is insufficient to effectively plan for climate change adaptation
- Development must be sustainable as climate changes
  - What we implement today must “meet the needs of the present without compromising the ability of future generations to meet their own needs”



Nakurmiik  
Merci  
Thank you



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