



LIBRARY of PARLIAMENT
BIBLIOTHÈQUE du PARLEMENT

IN BRIEF



Arctic Marine and Intermodal Infrastructure: Challenges and the Government of Canada's Response

Publication No. 2011-77-E
21 July 2011

Dean Ruffilli

Industry, Infrastructure and Resources Division
Parliamentary Information and Research Service

***Arctic Marine and Intermodal Infrastructure:
Challenges and the Government of Canada's Response***
(In Brief)

HTML and PDF versions of this publication are available on IntraParl
(the parliamentary intranet) and on the Parliament of Canada website.

In the electronic versions, a number of the endnote entries contain
hyperlinks to referenced resources.

Ce document est également publié en français.

Papers in the Library of Parliament's ***In Brief*** series provide succinct, objective and impartial overviews of current issues. They are prepared by the Parliamentary Information and Research Service, which carries out research for and provides information and analysis to parliamentarians and Senate and House of Commons committees and parliamentary associations.

CONTENTS

| | | |
|---|--|---|
| 1 | BACKGROUND..... | 1 |
| 2 | THE GOVERNMENT OF CANADA'S NORTHERN STRATEGY | 2 |
| 3 | THE ARCTIC BRIDGE AND ARCTIC GATEWAY STRATEGIES..... | 3 |
| 4 | THE OVER-THE-TOP ROUTE (NORTHWEST TERRITORIES) | 5 |
| 5 | CONCLUSION | 6 |

ARCTIC MARINE AND INTERMODAL INFRASTRUCTURE: CHALLENGES AND THE GOVERNMENT OF CANADA'S RESPONSE

1 BACKGROUND

In the Canadian North, most non-perishable goods, fuel, equipment and materials are transported by ship during the short summer shipping season, which usually occurs between July and September. Shipping is the most cost-effective mode of transportation in the region because of:

- the distances between northern communities and southern ports;
- the high cost of air transport; and
- the lack of alternative transportation infrastructure, such as all-weather roads, paved airport runways and rail lines.¹

In recent years, shipping in Canadian Arctic waters has increased. In 2010, 150 vessels made 270 voyages in Canadian Arctic waters, up from 108 ships making 158 transits in 2009. The number of ships transiting the Northwest Passage also grew, from 7 in 2009 to 18 in 2010 and 27 in 2011.² This increase is a result of a decline in the amount and duration of ice cover in the Arctic Ocean. Most important, “multi-year” ice, the solid ice cover that does not melt during the Arctic summer and that represented one of the most significant challenges to shipping in northern waters, has almost completely disappeared.

The three territories and the northern sections of the western provinces, Ontario, Quebec and Newfoundland and Labrador do not have the marine infrastructure to support this increased activity. In particular, they have limited search and rescue (SAR) resources and lack reliable aids to marine navigation. Combined with the dangers of ice, weather and the vast distances between sheltered harbours, these weaknesses make shipping difficult and potentially dangerous.

The limited port infrastructure in the Canadian North also creates special challenges for marine operators. In many communities, there are no docks and cranes for loading and off-loading goods. That means that cargo must be offloaded onto barges, which then deliver the cargo directly onto the beach. This type of operation not only increases the cost of shipping goods by sea because it takes longer and specialized equipment must be used, but it can also be dangerous in rough seas.

Because shipping activity in the Arctic is expected to grow over the coming years, governments at all levels have launched several initiatives to develop port infrastructure in the North as well as the associated road and rail links, thus the term intermodal, which refers to the use of more than one kind of transport. Together, those transport methods would allow goods and raw materials to be moved efficiently and cost-effectively.

This paper will examine three initiatives either currently underway or being examined for the development of port infrastructure in the North:

- the Government of Canada's Northern Strategy and the development of the port of Nanisivik in Nunavut;
- the Arctic Bridge and Arctic Gateway Strategy involving the port of Churchill, Manitoba, and the Winnipeg CentrePort Canada project; and
- the Over-the-Top Shipping Route in the Northwest Territories.

2 THE GOVERNMENT OF CANADA'S NORTHERN STRATEGY

The Government of Canada's Northern Strategy, formally announced in 2009, encompasses a series of investments and programs that support the four pillars of the strategy:

- asserting Canada's Arctic sovereignty;
- protecting the northern environment;
- promoting social and economic development; and
- improving and devolving northern governance.³

Several initiatives under the Northern Strategy are designed to improve Canada's marine infrastructure in the North:

- providing \$720 million to procure a new Polar Class icebreaker;
- procuring new Arctic/offshore patrol ships;
- providing strategic meteorological and navigational data in key zones to facilitate the safe management of Arctic marine traffic;
- implementing mandatory reporting for all vessels under the Northern Canada Vessel Traffic Services Zone (NORDREG);
- providing \$17 million to establish a commercial fisheries harbour in Pangnirtung, Nunavut; and
- contributing up to \$100 million to establish a deepwater port at Nanisivik, Nunavut, to support the activities of the Canadian Forces and the Canadian Coast Guard in the region.⁴

The last two projects are of particular significance from both a strategic and economic perspective. The small-craft harbour at Pangnirtung will support the commercial fishery in the community. The fishery lacks harbour facilities, meaning that fishers must wait for high tide to beach their boats on shore.⁵ The plan is to construct a wharf, breakwater and launching ramp, as well as to dredge the harbour and install floating docks.⁶ Construction began in 2009 and is being funded under the Department of Fisheries and Oceans' Small Craft Harbours Program.⁷

The deepwater port of Nanisivik is a key component of the federal government's Northern Strategy. This project will convert the existing port and dock into a

deepwater staging and refuelling facility for Canadian Forces and Canadian Coast Guard vessels during the summer navigation season.⁸ The facility is primarily intended to support the operations of the proposed Arctic–Offshore Patrol Ships. It would likely support civilian activities only in unique cases or in emergencies.⁹

Although the Nanisivik project was initially intended to be partially up and running by the 2012 Arctic shipping season, media reports published in the spring of 2011 stated that delays related to environmental assessments and funding meant that construction will not begin until 2013 and the facility will not be running until 2016.¹⁰

Once operating, both the Pangnirtung commercial fishing port and the Nanisivik deepwater port will provide valuable port infrastructure in the Arctic region. Several media articles have mentioned that, although many residents welcome the economic activity and improved transportation infrastructure the ports represent, some worry about the impact of the projects on the local environment.¹¹ As well, neither port is intended for civilian cargo activities. That means that there is still a major lack of civilian port infrastructure to support economic activities in the Arctic. However, the Nanisivik facility will provide a valuable base for search and rescue, patrol and environmental protection activities that will be vital as more ships enter Arctic waters over the coming years.

3 THE ARCTIC BRIDGE AND ARCTIC GATEWAY STRATEGIES

The Port of Churchill, Manitoba, is the only deepwater port in the Prairie region and the largest port in northern Canada. Privately owned by the American transportation firm OmniTrax Inc., the port is at the centre of an emerging Arctic transportation strategy, known as the Arctic bridge strategy. Although the port has long supported the resupply of Central and Eastern Arctic communities during the summer shipping season, the reduced ice cover in Hudson Bay and off Greenland has led to new opportunities for the Port of Churchill.¹²

In October 2007, the *Kapitan Sviridov*, a Russian cargo ship, docked in Churchill with a load of fertilizer from Estonia, marking the first successful shipment on the Arctic bridge.¹³ Developed jointly by the Government of Manitoba and OmniTrax, the Arctic bridge strategy would see Churchill as the northern hub of a mid-continent trade corridor linked to the European market by the shortest sea route between Canada and Northern Europe.¹⁴

The other key components of this corridor are the Hudson Bay Railway, also owned by OmniTrax, which serves the Port of Churchill, and the CentrePort Canada development bordering the Winnipeg International Airport. The CentrePort Canada development is an inland port that provides facilities for the warehousing and transshipment of goods transported by air, road and rail.¹⁵ It is also Canada's first Foreign Trade Zone. Such a zone allows businesses located in the zone to defer or recover customs duties paid on imports and also be exempted from the Goods and Services Tax on goods imported, processed and re-exported from Canada. The Government of Manitoba has made it a priority to develop the Arctic bridge concept

in conjunction with the CentrePort Canada initiative. Most recently, Manitoba, along with OmniTrax and other partners, has encouraged the Government of Canada to support the development of an Arctic Gateway strategy, with the Port of Churchill and CentrePort Canada as key components.

A successor to the Asia–Pacific Gateway and Corridor Initiative, the Government of Canada’s National Policy Framework for Strategic Gateways and Trade Corridors was developed by Transport Canada to guide the implementation of transportation and trade gateways. The federal government has more recently partnered with provincial governments and private sector interests to develop the Ontario–Quebec Continental Gateway and Trade Corridor and the Atlantic Gateway and Trade Corridor.¹⁶ These gateway strategies and future strategies are based on five policy conditions:

- alignment with Canada’s international commercial strategy;
- volume and value of trade of national significance;
- prospects of future global trade and transportation opportunities;
- scope for improvement through strategic investment; and
- federal role and effective partnerships.¹⁷

A November 2010 conference hosted by the University of Winnipeg examined the possibility of creating an Arctic Gateway under the Government of Canada’s National Policy Framework for Strategic Gateways and Trade Corridors. Several ideas underpinning a possible gateway were articulated in a discussion paper prepared before the conference by a private consulting firm, PPM Public Policy Management Limited. First, it was noted that “an Arctic Gateway would serve a crucial role in Canada’s national interest to serve the emerging Northwest Passage transportation route and reinforce Canada’s sovereignty, security and environmental protection.”¹⁸ The document further stated that a potential Arctic Gateway corridor has already been identified, namely a north–south segment in Nunavut and Manitoba (including the hubs of Winnipeg, Churchill and Iqualuit) and an east–west segment comprising the Northwest Passage and the shipping routes through Arctic waters.¹⁹

Although the authors of the discussion paper contended that such a gateway strategy could be implemented in the short term, they also believed that the elements of the federal government’s National Policy Framework for Strategic Gateways and Trade Corridors would ultimately need to be modified to suit the realities in the Arctic. In particular, the authors asserted that a unique Arctic Gateway governance structure should be developed that would “enable indigenous communities, environmental organizations and the business sector to become more directly and collaboratively involved in shaping the future.”²⁰ One possibility would be to implement the Arctic Gateway on a network model. That would permit multiple players to influence the evolution of the strategy in their areas of expertise.²¹

The most significant challenge for the implementation of an Arctic Gateway strategy is the need for additional infrastructure investments throughout the region to permit the free flow of goods and people. Both the CentrePort Canada development and upgrades to the Port of Churchill and Hudson Bay Railway have recently received infrastructure funding, contributed jointly by the governments of Manitoba and

Canada as well as the private sector.²² However, significant gaps remain in the marine infrastructure of the region covered by the proposed gateway, including:

- the need for an all-weather road connecting Nunavut with Manitoba capable of supporting the trucking of heavy cargo from Churchill to southern Nunavut,²³
- the need to develop intermodal container handling capabilities at the Port of Churchill to permit the movement of containerized cargo in northern waters,²⁴
- the need to upgrade the port of Iqaluit to handle larger ships and more diverse cargos; and
- the need to upgrade and develop additional smaller ports in the region to facilitate the development of a shortsea (i.e., moving freight on sea on the same continent without crossing an ocean) shipping network to transport goods between Arctic coastal communities.

However, there appears to be very limited federal funding available to support any improvements to marine and intermodal infrastructure in the region, beyond the projects already underway. The Government of Canada's Infrastructure Stimulus Fund has ended, and there are only limited unallocated funds remaining in the Building Canada Fund. Although traffic has thus far been limited between the Port of Churchill and the European markets envisioned under the Arctic Bridge, the anticipated lengthening of the shipping season in the coming years underlines the importance of the Arctic region as a potential commercial gateway.

4 THE OVER-THE-TOP ROUTE (NORTHWEST TERRITORIES)

There is a long-standing history of shipping in the Northwest Territories. Much of the activity has traditionally been in the form of barges. These carry fuel, bulk commodities and large cargo from Hay River or Fort Simpson through Great Slave Lake and up the Mackenzie River to the High Arctic and the port of Tuktoyaktuk.²⁵ Approximately 60% of all cargo in the Northwest Territories goes through Tuktoyaktuk.²⁶

Recently, the Government of the Northwest Territories studied the possibility of expanding this marine transport pattern to take advantage of the longer shipping season and decreased ice cover in the Arctic. The so-called "over-the-top route" would use the port of Tuktoyaktuk and the Mackenzie River barge route as the entry point for supplies for both the Mackenzie Valley pipeline project and potentially even the movement of heavy equipment to the Alberta oilsands.²⁷ According to the Government of the Northwest Territories, the over-the-top route would be an additional component of the proposed Arctic Gateway. It would reduce congestion at Atlantic and Pacific ports while also offering a shorter route to other major ports in Europe and Asia.²⁸ In addition, the over-the-top route would provide an easier and more economical way to ship heavy *equipment* into the Mackenzie Valley and the Alberta oilsands by reducing both the distance and cargo-size restrictions currently in place in the overland routes leading from ports in British Columbia.²⁹

During 2007, the Northwest Territories' Department of Transportation completed an initial assessment study of the over-the-top route in consultation with key public and

private sector stakeholders.³⁰ To test the feasibility of the proposed route, three private transportation firms already active in the region (Inuvialuit Corporation, NTCL and Mammoet Canada) formed Arctic Module Inland Transportation Ltd. to conduct engineering and feasibility studies of the proposed route.³¹ Arctic Module Inland Transportation Ltd. will build on a test run conducted by NTCL in 2006 to examine the possibility of shipping large modules and other oversized cargo up the Mackenzie River and transferring them to surface transportation (either truck or the Mackenzie Northern Railway) at Hay River for delivery to oil sands developments in northern Alberta and Saskatchewan.³²

Ultimately, the Government of the Northwest Territories believes that the over-the-top route could yield significant benefits both for the territory and for Canada as a whole, including:

- additional economic activity, particularly for the territories' marine transportation sector and for the communities of Tuktoyaktuk, Hay River and Fort Smith;
- a visible means of asserting Canadian sovereignty in the region through sustained economic activity; and
- an impetus to develop the Mackenzie Valley All-Weather Highway, which, together with the over-the-top route, would provide a potentially significant new gateway corridor.³³

5 CONCLUSION

The decreasing ice cover in Arctic waters is prompting a rise in shipping traffic. However, there is a shortage of adequate port infrastructure to support the increased activity. Although the Government of Canada, along with territorial and provincial governments and the private sector, has begun to invest in Arctic ports, many of these projects, as noted above, remain at early stages of development.

The lack of adequate port infrastructure is a barrier to future intensification of economic activity in the region. However, as with all infrastructure in the North, developing an adequate stock of port infrastructure will be very costly. This will pose one of the most significant challenges in the coming years. The need for port infrastructure will continue to grow along with the magnitude of shipping traffic in the region, but it will be balanced against the desire of governments at all levels to restrain spending.

NOTES

1. See Joseph Patrick Dunlavy, Monica Lipai and Gord Baldwin, "[Transportation in the North](#)," *EnviroStats*, Vol. 3, No. 1, Spring 2009, pp. 4 and 6.
2. "[Northwest Passage traffic up in 2010](#)," *CBC News*, 20 September 2010; Jacqueline Nelson, "[The future is in the north](#)," *Canadian Business*, 5 April 2011.
3. Aboriginal Affairs and Northern Development Canada, "[Federal Government's Northern Strategy Delivers for All Canadians – Ministers Highlight Progress Towards Canada's Northern Vision](#)," News release, 26 July 2009.

ARCTIC MARINE AND INTERMODAL INFRASTRUCTURE

4. Government of Canada, *Canada's Northern Strategy*, "[Recent Northern Strategy Commitments](#)"; Government of Canada, *Canada's Economic Action Plan*, "[Building a Small Craft Harbour in Pangnirtung, Nunavut \(Budget 2009 and Budget 2010\)](#)"; Prime Minister of Canada, "[Expanding Canadian Forces Operations in the Arctic](#)," 10 August 2007.
5. Government of Canada, *Canada's Economic Action Plan*, "[Building a Small Craft Harbour in Pangnirtung, Nunavut \(Budget 2009 and Budget 2010\)](#)"; "['We had no idea': Pangnirtung surprised by \\$17M in harbour money](#)," *CBC News*, 29 January 2009.
6. Government of Canada, *Canada's Economic Action Plan*, "[Building a Small Craft Harbour in Pangnirtung, Nunavut \(Budget 2009 and Budget 2010\)](#)."
7. Ibid. For more information on the Small Craft Harbours Program, see Fisheries and Oceans Canada, "[About Small Craft Harbours](#)."
8. Mary Ellen Green, "[Nanisivik naval depot project on schedule](#)," *The Maple Leaf*, Vol. 12, No. 35, 28 October 2009; "[Canada Announces Deepwater Port at Nanisivik on Baffin Island & Army Base at Resolute – Key Points on North-West Passage](#)," *Canadian American Strategic Review*, August 2007.
9. Directorate of Maritime Infrastructure, "[Nanisivik Naval Facility Project: Overview Navy Operational Requirements and Post Construction \(Operations and Maintenance\)](#)," 27 October 2008.
10. Emily Ridlington, "[Nanisivik Naval Facility opening delayed to 2016](#)," *Northern News Services*, 17 March 2011; "[Arctic naval facility years from completion](#)," *CTV News*, 29 May 2011; Bob Weber, "[Promised Arctic naval port lags](#)," *Winnipeg Free Press*, 30 May 2011.
11. "[Military centre, port good news for Nunavut communities](#)," *Siku News*, 20 August 2007; "['We had no idea': Pangnirtung surprised by \\$17M in harbour money](#)," *CBC News*, 29 January 2009; "[Northerners divided over proposed Arctic military facilities](#)," *CBC News*, 13 August 2007.
12. Government of Manitoba, "[Transportation: Seaport at Churchill, Manitoba](#)," *Manitoba Business Facts*.
13. Joe Friesen, "[Russian ship crosses 'Arctic bridge' to Manitoba](#)," *The Globe and Mail* [Toronto], 18 October 2007; Lee Greg, "[Expanding horizons for Canada's only Arctic port](#)," *Western Economic Diversification Canada*; Ron Lemieux, "[Arctic Bridge Key to Northern Development](#)," *Embassy*, 27 May 2009.
14. Friesen (2007).
15. CentrePort Canada, "[CentrePort Canada – Open for Business](#)."
16. Government of Canada, "[Moving Forward](#)," *Canada's Gateways*.
17. Government of Canada, "[The National Policy Framework's Five Lenses](#)," *Canada's Gateways*.
18. PPM Public Policy Management Limited, [Canada's Arctic Gateway](#), discussion paper prepared for the Arctic Gateway Summit, September 2010, p. 12.
19. Ibid.
20. Ibid., p. 7.
21. Ibid. The Asia-Pacific Gateway, the Atlantic Gateway and the Ontario–Quebec Gateway strategies were built on existing organizations (port and airport authorities, international bridge authorities, not-for-profit associations and industry associations).
22. [CentrePort Canada](#); Government of Canada, *Canada's Economic Action Plan*, "[Prime Minister Announces New Construction for Winnipeg's CentrePort Canada Initiative](#),"

ARCTIC MARINE AND INTERMODAL INFRASTRUCTURE

- News release, 14 April 2009; Transport Canada, "[Hudson Bay Railway Line Rehabilitation](#)." The Hudson Bay Railway was allocated \$68 million to upgrade the rail line while the CentrePort Canada project received \$212.4 million for the construction of a high-speed road link to the Winnipeg Perimeter Highway.
23. The governments of Manitoba and Nunavut have completed a feasibility study of an all-weather road linking Gillam and Churchill, Manitoba, with Arviat, Whale Cove and Rankin Inlet, Nunavut. The two governments are currently identifying the routing for the 1,200 kilometre road. "[Plan for Nunavut-Manitoba road almost ready: Nunavut official](#)," *CBC News*, 26 March 2009; Government of Manitoba, Department of Infrastructure and Transportation, "[Nunavut–Manitoba Route Selection Study – December 2007](#)," *Current Transportation Planning Studies*.
 24. Brent Jang, "An Arctic route to China that begins in Winnipeg," *The Globe and Mail*, 3 November 2010.
 25. Dunlavy et al. (2009), p. 4; Government of Yukon, "[Northern Connections: A Multi-Modal Transportation Blueprint for the North](#)," February 2008, p. 11.
 26. Dunlavy et al. (2009), p. 4.
 27. Government of Yukon (2008), p. 12.
 28. Northwest Territories Legislative Assembly, "[Hansard](#)," 2nd Session, 16th Assembly, 2 June 2008, pp. 760–761.
 29. Ibid.
 30. Ibid.; The Mariport Group Ltd., "[Over the Top Delivery Route to the Alberta Oil Sands](#)," Report prepared for the Government of the Northwest Territories, October 2007.
 31. Northwest Territories Legislative Assembly, (2008), pp. 760–761.; Government of the Northwest Territories, *Department of Transportation 2010/11 Business Plan*, p. 11.
 32. Northwest Territories Legislative Assembly (2008), pp. 760–761; Government of Yukon (2008), p. 12.
 33. Northwest Territories Legislative Assembly, (2008), pp. 760–761.