

A PLAN FOR STRATEGIC INVESTMENT IN NWT TRANSPORTATION INFRASTRUCTURE

CORRIDORS FOR CANADA III

Building for Prosperity

June 2013





Government Message



A handwritten signature in blue ink that reads "Robert R. McLeod".

Robert R. McLeod
Premier

Achieving our Legislative Assembly's vision of a strong, prosperous territory requires commitments to strategic investments that advance our priorities for social growth and economic prosperity in all regions of the Northwest Territories. The Government of the Northwest Territories is committed to developing and implementing plans that will make this vision a reality through investments in transportation infrastructure, essential for enabling economic development, fostering prosperity, and social growth.

In March 2013, Canada announced details of its infrastructure investment strategy that includes a new Building Canada Fund. This fund will provide our territory with opportunities to complement previous infrastructure funding agreements that led to significant improvements in NWT transportation infrastructure. Since 2002, the Government of the Northwest Territories has made significant investments in transportation infrastructure facilitated

through two successful funding proposals to the federal government called, *Corridors for Canada I* and *II*.

Corridors for Canada III - Building for Prosperity is the Department of Transportation's strategic plan to invest \$600 million over ten years to improve our winter roads, highways, bridges, marine and airport infrastructure. This action plan will address transportation infrastructure needs identified across all regions of the Northwest Territories with investments proposed under two separate components of the new Building Canada Fund: the \$10 billion Provincial-Territorial Infrastructure Fund and the \$4 Billion National Infrastructure Fund.

The objective of ***Corridors for Canada III*** is to continue working with Canada to concentrate on territorial, regional, and local transportation infrastructure priorities that lead to jobs, economic growth, and prosperous communities in the Northwest Territories.





A handwritten signature in blue ink that reads "D. Ramsay".

David Ramsay
Minister of Transportation



Government of the Northwest Territories Department of Transportation



Over 300 employees within the Department of Transportation provide services to operate, maintain, repair, and construct NWT transportation infrastructure, which is comprised of 2200 km of all-weather highways, 1425 km of seasonal winter roads, 95 bridges and 244 major culverts, 27 airports, and 4 ferries. Our operating environment and strategic actions are guided by the following vision, mission, and goals:



VISION

Safe, secure, affordable, reliable and accessible personal mobility

A higher standard of living for the territory and its communities through the more efficient and lower cost of freight

Sustained economic growth and prosperity through better development access to the territory's renewable and non-renewable resources

MISSION

To provide for the safe, secure, accessible and reliable movement of people and goods to serve the social, economic, and political needs and aspirations of the people of the Northwest Territories

GOALS

The NWT transportation system continues to improve


The NWT has an ongoing high level of northern business and employment opportunities in the public and private transportation sectors

The NWT has a safe and secure transportation system in all modes

The department has a high performance workplace that is adaptable, effective, efficient and innovative in delivering programs and services

The high quality of the NWT environment is maintained

The department supports local transportation infrastructure



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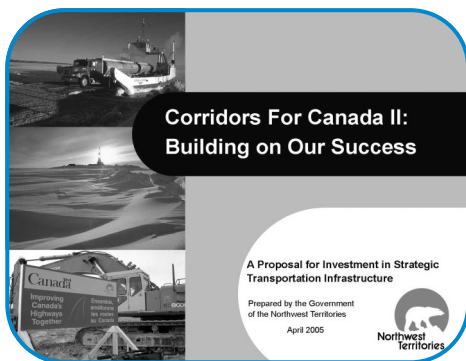
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Introduction



The natural resource base continues to support the economy of the Northwest Territories (NWT) while supplementing the Canadian economy overall. It is widely known that our country will soon gain access to significant reserves of natural resources with the development of oil and gas discoveries in the Mackenzie Valley Corridor and Beaufort Delta regions. Prospective mining initiatives are also developing in the Dehcho Region and the Slave Geologic Province where investors are gaining increasing confidence in the potential value of mineral and base metal deposits in the North. The opportunities are here in the NWT.

The reality, though, is that Northern resource development and the quality of life in NWT communities are inextricably linked to the availability and quality of transportation infrastructure. A well-maintained transportation system that effectively connects our communities to markets, services, and businesses reduces the cost of living. It is the foundation of a strong economy and vibrant, prosperous communities.

The Government of the Northwest Territories (GNWT), working with the Government of Canada, proposes to invest \$600 million over ten years in strategic transportation infrastructure across all regions of the NWT. Our plan includes improvements to bridges, roads, and airports to meet the increasing social and economic needs and support growth and development. The GNWT is proposing investments under the National Infrastructure Fund and the Provincial-Territorial Infrastructure Fund, two components of the New Build-

ing Canada Fund announced in March 2013 as part of Canada's Economic Action Plan.

Corridors for Canada III describes our current economic circumstances, our existing infrastructure, and presents our plan for repairing, rehabilitating, and constructing infrastructure necessary to harvest the booming resource development potential for growth in the NWT and to produce results that benefit all Canadians. This strategic investment plan builds upon the transportation achievements the GNWT has fulfilled under two previous successful funding proposals. *Corridors for Canada I* (2002) resulted in federal/ territorial investments of \$130 million over six years, beginning in 2003/04, through the Canada Strategic Infrastructure Fund. *Corridors for Canada II* (2005) resulted in federal/ territorial investments of \$200 million in transportation infrastructure, over seven years, under the Building Canada Plan which concludes in 2014.

Strategic investment in Northern infrastructure is key to the future prosperity of the NWT and Canada. A new Building Canada partnership between the territorial and federal governments proposed in *Corridors for Canada III* will address our infrastructure deficit, protecting the investments we've already made, and expanding the system to accommodate economic and social growth. Achieving this goal requires a plan focused on rehabilitating our existing system, enabling economic development, and mitigating the effects of climate change.

PARTNERING TO ADVANCE OUR COMMON GOALS

Corridors for Canada III: Building for Prosperity builds upon the achievements of Canada's partnership with the Northwest Territories to invest in transportation infrastructure under the Building Canada plan. Our proposal's objective is to continue working with Canada to address territorial, regional, and local priorities while supporting national objectives, such as ensuring our country's future prosperity through strategic investments in transportation infrastructure that increase access to Northern resources. Our new, long-term transportation investment strategy takes into account the present and future social and economic needs.

Since 2007, the territorial and community governments contributed a total of \$125 million toward priority projects that included 19 transportation infrastructure initiatives worth over \$204 million, such as highway rehabilitation and investments in local and regional airports. The resulting benefits of the Building Canada Plan are demonstrated through the improved geometric and surface conditions on the Mackenzie, Dempster, Yellowknife, and Ingraham Trail highways. Bridge building and grade improvements on the Mackenzie Valley Winter Road have helped to extend and stabilize the winter road season. New airports at Colville Lake and Trout Lake, currently being completed, are supporting these communities and facilitating oil and gas exploration in the Mackenzie Valley Corridor.

Canada's **Northern Strategy** is based on four priorities: exercising our Arctic sovereignty; promoting social and economic development; protecting our environmental heritage, and improving and devolving Northern governance.

Improvements to the transportation system serving the NWT will assure more communities can participate and benefit from resource development and the spin-off opportunities. The infrastructure improvements will contribute to better planning and implementation of resource exploration and development in the NWT.

Our transportation infrastructure investment plan, **Corridors for Canada III**, is guided by federal and territorial strategies.

CANADA'S NORTHERN STRATEGY

Canada's **Northern Strategy**, published in 2009, is based on four priorities: exercising our Arctic sovereignty; promoting social and economic development; protecting our environmental heritage, and improving and devolving Northern governance. It describes the North as central to the Canadian national identity and recognizes that the country's ability to meet the opportunities and challenges currently facing the North will shape

Canada's future. Canada's vision for the North is stated in the **Northern Strategy** as:

- Self-reliant individuals live in healthy, vital communities, manage their own affairs and shape their own destinies
- The Northern tradition of respect for the land and the environment is paramount and the principles of responsible and sustainable development anchor all decision-making and action



- Strong, responsible, accountable governments work together for a vibrant, prosperous future for all – a place whose people and governments are significant contributing partners to a dynamic, secure Canadian federation
- We patrol and protect our territory through enhanced presence on the land, in the sea and over the skies of the Arctic

17TH ASSEMBLY STRATEGIC PLAN

The 17th Legislative Assembly's strategic plan, *Believing in People and Building on the Strengths of Northerners*, asserts a vision of the NWT as 'strong individuals, families, and communities sharing the benefits and responsibilities of a unified, environmentally sustainable, and prosperous NWT. The goals, which align with Canada's *Northern Strategy*, are to invest in the North to create jobs, economic growth, and a high quality of life for families by providing for:

- A strong and independent North built on partnerships
- An environment that will sustain present and future generations
- Healthy, educated people free from poverty
- A diversified economy that provides all communities and regions with opportunities and choices
- Sustainable, vibrant, safe communities

TRANSPORTATION STRATEGIES

The 2000 NWT Highway Strategy and the Pan-territorial Multimodal Transportation Blueprint detail a vision for transportation infrastructure roads in the NWT that continues to be pursued in this proposal. This vision aligns with Canada's *Northern Strategy* and the priorities of the 17th Legislative Assembly, and includes the following:

- An upgraded highway system that provides improved safety and more reliability for people and resource development
- A road down the Mackenzie Valley to provide all-weather access for families and to facilitate development of resources in the Mackenzie Valley and Beaufort Delta
- Improved connections between communities



The NWT transportation system received an investment of \$204 million over 7 years under the previous Building Canada plan to create jobs and improve transportation reliability.

THE NEW BUILDING CANADA FUND

Corridors for Canada III: Building for Prosperity
Department of Transportation 10-Year Investment Plan

Provincial-Territorial Infrastructure Fund	National Infrastructure Fund		
Rehabilitating the System	Mackenzie Valley Corridor	Enabling Economic Development	Mitigating Climate Change
<ul style="list-style-type: none"> • Continue improving the transportation system to create opportunities that support a prosperous and sustainable future for Canadians • Support community growth and well-being by providing greater mobility and access to government services, employment, and other opportunities • Improve economic development opportunities by providing better access to move people and goods within the resource development sector 			
SUPPORTING STRATEGIES			
Believing in People and Building on the Strengths of Northerners: 17th Legislative Assembly Strategic Plan (2011)			
GNWT Strategies: Mineral Development, Economic Opportunities, Hydro Development			
Canada's Northern Strategy (2009)			
Corridors for Canada II: Building on Our Success Corridors for Canada I: An Investment in Canada's Economic Future			
Investing in Roads for People and the Economy: A Highway Strategy for the Northwest Territories (2000)			

PROVINCIAL-TERRITORIAL
INFRASTRUCTURE FUND

Corridors for Canada III proposes an investment of \$415 million over ten years to rehabilitate the existing transportation system under the Provincial-Territorial Infrastructure Fund. These investments respond to the increasing pressures of resource development, promote economic diversification, and improve the quality of life for Northern residents. The GNWT is proposing to reconstruct, repair, and upgrade the existing, aging infrastructure to maintain its operability and reliability.

REHABILITATING THE SYSTEM

The priority for GNWT investment in transportation infrastructure is to address the need to upgrade, rehabilitate, or replace substandard and aging infrastructure. Major culverts and bridge structures are reaching the end of their lifecycle and must be rehabilitated or replaced. On many sections of the NWT highway system, complete reconstruction of the highway is required to stabilize the grade and maintain the surface integrity. A total of \$415 million in investments is planned in critical areas across the NWT transportation system.



NATIONAL INFRASTRUCTURE FUND

Corridors for Canada III proposes an investment of \$185 million over ten years under the second component of the Building Canada Fund, called the National Infrastructure Fund, a merit-based investment program that targets projects of national significance.

MACKENZIE VALLEY CORRIDOR

The Government of Canada recognizes the Mackenzie Valley Highway as a project of national significance that will improve industry access to energy resources and lead to prosperity and economic benefits spread across the country.

Corridors for Canada III proposes to invest \$127 million to develop the next phase of the Mackenzie Valley Highway project. Investments include completing the highway's environmental assessment, constructing bridges at the Bosworth and Oscar Creek and at Great Bear River. Our plan also includes constructing a new segment of winter road linking Fort Good Hope to the Dempster Highway. It also provides for grade improvements along the existing alignment.

ECONOMIC DEVELOPMENT

The GNWT is proposing strategic investments of \$25 million in infrastructure to foster economic growth. Expanding the system to connect people to resources will facilitate the diversification of the NWT economy, create jobs, and contribute to Canada's economic advantage, long-term prosperity, and security.

MITIGATE CLIMATE CHANGE

Social and economic pressures are increasing to adapt the transportation system to the effects of climate change by improving surface and drainage conditions on highways and airport runways, realigning winter roads to overland right-of-ways, and building permanent bridges to extend and stabilize the winter road seasons. A total investment of \$33 million is proposed to address climate change.



Corridors for Canada III
will invest \$600 million over ten
years to improve air, marine, and
ground transportation
infrastructure, mitigate climate
change, and enable
economic development

*We are a Northern country.
The true North is our destiny – for our explorers, for our entrepreneurs, for our artists.
To not embrace the promise of the true North now, at the dawn of its ascendancy,
would be to turn our backs on what it is to be Canadian.*

Prime Minister Stephen Harper

UNRIVALLED IN RESOURCE POTENTIAL AND OPPORTUNITIES

The Northwest Territories covers 1.2 million square kilometres comprising over 10 percent of the total Canadian landmass. Our population of approximately 43,000 residents live in 33 communities, the most northerly is Sachs Harbour on Banks Island and the most southerly is Fort Smith adjacent to the Alberta border. Our communities range in size from the largest, Yellowknife, with a population of 19,752 to Kakisa, our smallest, with a population of 71. Aboriginal people (First Nations, Métis, and Inuit) comprise over half the NWT population. The entire population of the NWT is one-tenth of one percent of Canada's total population.

ECONOMIC INDICATORS

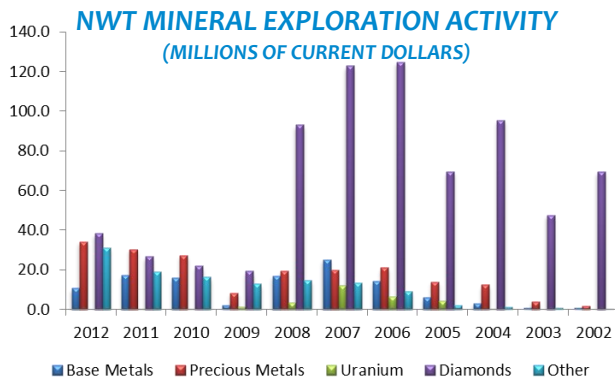
The NWT economy is driven primarily by the mining, oil, and gas industries. These three industries contributed more than 31% of the NWT GDP in 2011, with diamond mining contributing more than 24%. GDP in current prices increased 10% over the 2006-2010 period, reflecting strong price gains in oil and diamonds. Real GDP, which accounts for inflationary changes in prices, is measured in the NWT in \$2002 dollars.

MINERAL DEVELOPMENT

The NWT has a resource base with a non-renewable resource sector that continues to be the key economic driver. Recent renewed interest in NWT resources has led to a resurgence in mineral and oil/gas exploration. In 2011, mines and mineral development contributed \$768 million in spending to the NWT economy. Four mines are currently producing in the NWT: three diamond mines and one tungsten mine. Diamond mining is a high value activity that produces a large amount of output and influences most aspects of the NWT economy. Since 1999, diamond mining production tripled from \$653 million to \$2,144 million. Development of an additional diamond mine, Gahcho Kué, and other devel-

opments such as the Prairie Creek Mine will continue to sustain positive economic growth.

Other new potential mining activity includes seven significant mineral projects in various stages of development in the NWT. These include projects proposing to mine diamonds, rare earth metals, cobalt, silver, bis-



mith, nickel, zinc, and gold. When these new mines are operational, their collective impacts will add substantial economic growth – doubling the territorial GDP by 2020 and creating up to 2000 new jobs as the mining sector expands

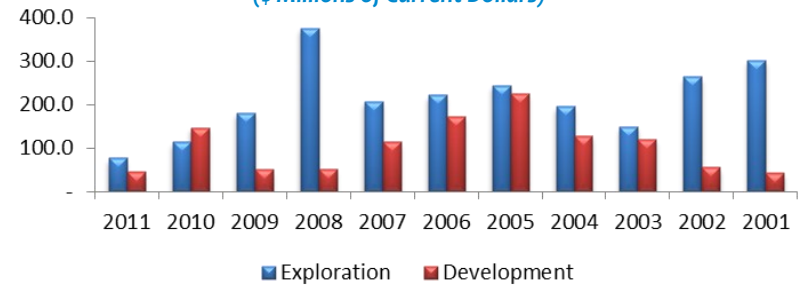
OIL & GAS EXPLORATION & DEVELOPMENT

According to the National Energy Board, approximately 35% of Canada’s remaining marketable resources of natural gas and 37% of remaining recoverable light crude oil is in Northern Canada (Canada’s Energy Futures, 2011). Approximately 16.2 trillion cubic feet of natural gas and 1.2 billion barrels of oil have already been discovered in the NWT, only a small part of the estimated potential of 81 trillion cubic feet of natural gas and nearly 7 billion barrels of oil. Gas reserves in the Mackenzie Valley Corridor, including the Macken-

zie Delta and Beaufort Sea, are estimated at 55 trillion cubic feet. There are more than 70 exploration wells and more than 300 developed wells in the Mackenzie Plain area near Norman Wells. It is widely accepted that both the price of and demand for Arctic natural gas will soon be on the rise and with it will come the opportunity to re-establish the economic viability of the Beaufort - Delta reserves and the long awaited Mackenzie Gas Project.

The Mackenzie Gas Project is comprised of the pipeline, compressor stations, gas fields and a collector system. The wealth from this project would provide important opportunities for NWT communities and residents. The project will require tens of thousands of

ENERGY EXPLORATION & DEVELOPMENT
(\$ Millions of Current Dollars)



tonnes of equipment and materials as well as thousands of personnel and supplies to be mobilized and demobilized over two construction seasons. The transportation system will play a key role during the pipeline’s construction.

CANOL SHALE OIL POTENTIAL

The world-class potential of the Canol Shale oil play in the central Mackenzie Valley continues to grow and with it the opportunity to increase economic development that will generate employment and business opportunities for Northerners, especially in the Sahtu Region. Development in this region of the NWT is particularly challenged by the short window of operation for winter roads that are open long enough to transport only one drill site per season.

The importance of access to land and resources is critical to an economy driven by exploration and extraction. Infrastructure improvements will reduce operating costs and increase reliability allowing more Canadians to participate in our economic prosperity.



THE MACKENZIE VALLEY CORRIDOR

ARCTIC COAST CONNECTION

Development of the Mackenzie Valley Corridor has been identified as a priority by the 17th Legislative Assembly. Community access as well as industry access to resources in the Mackenzie Valley Corridor is limited since the all-weather Mackenzie Highway ends at Wrigley. Additional overland access into the area is possible from approximately January to March when the GNWT opens a public winter road for both community and industry access purposes between Wrigley and Fort Good Hope.

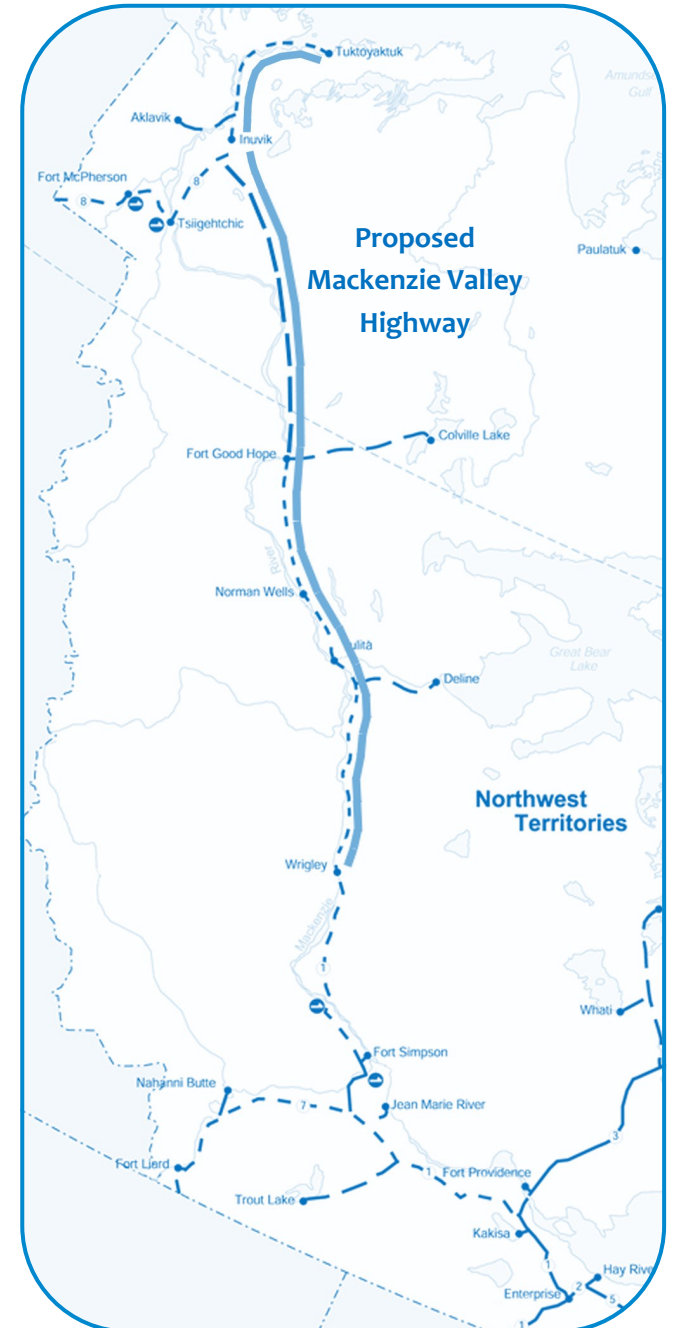
The completion of the Mackenzie Valley Highway from Wrigley to Tuktoyaktuk on the Arctic coast will produce regional economic and employment opportunities through road construction and maintenance, increased ability to assert Canadian sovereignty, climate change mitigation, improved community access, and greater mobility for people and supplies. An all-weather highway would better support the marked increase in industrial traffic in

the Mackenzie Valley Corridor associated with the increase in oil and gas activity now contributing to Canada's long-term economic growth and productivity.

The Mackenzie Valley Corridor includes the existing marine resupply route and winter road as well as the proposed an all-weather highway, a fibre optic link, and the Mackenzie Gas Project.

surveys, additional consultations, and further investigative studies. These activities are estimated to cost \$8 million requiring continued involvement from the Government of Canada, the GNWT, Aboriginal governments and industry to succeed. Our plan to deliver these activities includes partnerships with Aboriginal and community governments

The completion of the highway is being pursued in two parts: the Inuvik to Tuktoyaktuk segment and the Wrigley to Dempster segment. An environmental assessment (EA) of the Mackenzie Valley Highway project from Wrigley to the Dempster Highway was initiated in 2013. The EA will require the GNWT to conduct geotechnical investigations,



to maximize local involvement, increase local input, and create jobs in the communities.

Through federal partnerships, such as the Building Canada Plan, the GNWT has already invested over \$120 million in capital improvements along the Mackenzie Valley Corridor with 36 permanent bridges, reduced gradients, wider clearways, and greater sight distances.

The next phase to advance the completion of the highway includes completion of the environmental assessment, constructing the remaining permanent bridges, and extending the winter road north of Fort Good Hope to the Dempster Highway.

The proposed corridor alignment for the Mackenzie Valley Highway is common the Mackenzie Valley Fibre Link, communications infrastructure being pursued to support future economic development and modern pro-

gram and service delivery. The Mackenzie Gas Project is also proposed within this corridor.

Continued support for the Mackenzie Valley Highway project, a major corridor estimated to cost \$1.7 billion to complete (2012 \$\$), is crucial to ensure resource development in the NWT contributes to self-reliant communities and a strong and prosperous nation.

INUVIK TO TUKTOYAKTUK HIGHWAY

The Inuvik to Tuktoyaktuk (ITH), the northern-most segment of the Mackenzie Valley Highway, received formal environmental approval from Canada and a federal investment of \$200 million toward the completion of this \$300 million segment in 2013.

Spring construction work has been initiated to upgrade an access road, south from Tuktoyaktuk, to Canadian highway standards, comprising the first 19 kilometres of the Inuvik Tuktoyaktuk Highway. The project created jobs for local residents and bolstered the

business economy by engaging all available equipment and machinery.

The ITH will help reduce the cost of living in the Arctic communities, improve access to health care and educational opportunities, support families and communities, provide unpaved access for on-shore and off-shore natural resource development and production, and improve Canada's position on sovereignty. Construction of the highway will commence in the late fall of 2013.



CHALLENGES TO UNLOCKING OUR POTENTIAL

While the Northern economy continues to grow and create jobs through the increased pace and scope of resource development, the challenges confronting us continue to be significant. The GNWT's investment plan will ensure that transportation infrastructure can keep pace with these developments and that smaller communities can access related opportunities.

The under-developed surface transportation system in the Northwest Territories consists of approximately 2200 kilometres of all-weather road, 1425 kilometres of public winter road, and other winter roads constructed privately to access remote project locations.

All-weather and winter roads in the NWT are a vital link in the supply chain for non-renewable resource exploration, development, and the resupply of essential fuel and food. This limited surface transportation system is under increasingly extreme pressure from recent industrial expansion. At the same time, the lack of land-based transportation infrastructure creates inefficiencies for resource firms to develop, produce, and bring their goods to market. It also creates reduced mobility, and a higher cost of living for Northerners.

NWT TRANSPORTATION INFRASTRUCTURE INVENTORY

2200 km — all-weather highways
1425 km — public winter roads
private winter roads
95 bridges
244 major culverts
27 airports and 4 ferries

NWT residents, business, and industry also rely heavily on the air system for mobility and resupply. The 27 community-based airports in the NWT were designed to meet typical community needs prior to the dramatic increase in resource development traffic.

GEOMETRIC DEFICIENCIES

Many segments of the highway system require significant investment as the existing highway infrastructure was built to minimum standards that can no longer support the increase in industrial traffic. Most of the highway system does not meet geometric standards nor are the roads strong enough to meet the

demands placed on it, particularly during spring thaw. The increase in traffic volume and trucks carrying more efficient highway loads demands a strengthened road structure as well as improved geometry to safely accommodate the changing composition of traffic. Transportation infrastructure now requires reconstruction, rehabilitation, and resurfacing to address age-related issues, to increase structural capacity, and to maintain the geometric integrity.

SYSTEM RELIABILITY

The surface transportation system relies on ferries, ice bridges and winter roads to connect communities and provide access to resources. However, the transportation infrastructure is subject to winter freeze-up, spring break-up, and other climatic influences that can affect the duration and reliability of the system of winter roads, ice crossings, and all-weather roads. The variable nature of the transportation system adds uncertainty to development projects and poses challenges for commu-



The NWT has:

- 1.2 million km²** of land equating to 10% of Canada's landmass
- 1/3** of the land area of the NWT is within 100 kilometres of an all-weather road
- 13%** of residents have land access through winter road for a few weeks or months
- 3%** of NWT residents rely on marine or air access only
- 28%** of residents rely on air transportation for access and resupply for a month or more annually

nity mobility, resupply, and economic diversification. The existing limited window for ground transportation access makes development and exploration activities expensive and inefficient.

CLIMATE CHANGE

The northern regions of Canada are facing some of the greatest impacts of climate change. Permafrost degradation has led to structural failures of infrastructure resulting in emergency repairs and reduced reliability of winter access routes critical for the resupply of fuel,

food, and materials. Increased precipitation has resulted in increased right-of-way clearing, decreased gravel road stability, and greater use of de-icing agents on aircraft. As a result, the GNWT has had to redirect infrastructure dollars to address issues resulting from climate change.

CONSTRUCTION COSTS

Competition within a limited trades and skilled labour force, short construction seasons, the high cost of transporting material and equipment to remote loca-

tions, and the availability of goods and energy — when combined, results in substantially higher construction costs compared to southern Canadian jurisdictions.

COST OF LIVING

All-weather and winter roads, bridges, airports, marine and rail comprise a transportation network that fosters the safe, efficient, movement of people and goods to and from Northern communities and contributes to the NWT economy. Each mode of transportation is a vital connection linking Northern communities to each other, moving resources to market and delivering essentials like food and fuel to remote locations, which, in some cases, are limited to air or winter road access. Characteristics of living in a vast, sparsely populated region of Canada are the logistical challenges and cost of transporting goods into communities, which contributes substantially to the cost of living .

The GNWT is seeking to improve the standard of living in the North by increasing access to communities. Improving connections to communities influences the dependability, availability, mode, and cost of transportation services.



Canada and the GNWT invested \$34.5 million in constructing and rehabilitating bridges and culverts since 2002. Additional investments of \$64 million are proposed to upgrade, repair, bridges on the NWT highway system.

\$600 M FOR NWT TRANSPORTATION INFRASTRUCTURE

Corridors for Canada III is a strategic plan of action that will better position the NWT and Canada to reap the benefits from resource development. The GNWT proposes to invest \$600 million in transportation infrastructure to alleviate the pressures on infrastructure due to unprecedented level of activity in resource development while promoting economic diversification and improving the quality of life for Northerners and Canadians.

The Provincial-Territorial Infrastructure Fund and

the National Infrastructure Fund components of the New Building Canada Fund announced in March 2013 provide opportunities for the NWT to contribute to Canada's goal of developing an infrastructure advantage across the country that enables economic growth and fosters job creation. Our plan concentrates on core economic infrastructures, such as highways, bridges, and airports, to move people, transport goods, and enable cost-effective options for business development and industry investment. This is an investment plan that

will result in jobs where they are needed most, productivity within the NWT oil and gas, mineral, tourism, and hydro industries, and security for Canadian families.

The following plan outlines the projects that comprise the proposed \$415 M investment under the Provincial-Territorial Infrastructure Fund and the \$185 M under the National Infrastructure Fund. The plan also includes some suggested elements of a new funding agreement between the Government of the Northwest Territories and Canada.

The National Infrastructure Fund and the Provincial-Territorial Infrastructure Fund components of the New Building Canada Fund provide opportunities for the NWT to contribute to Canada's goal of developing an infrastructure advantage across the country enabling economic growth and fostering job creation.



PRINCIPLES OF A NEW PARTNERSHIP

Our strategy under the New Building Canada Fund proposes investments in transportation infrastructure that will produce significant employment opportunities, royalty and taxation revenues, and contribute substantially to the security and economic well-being of the Northwest Territories and Canada.

- **BASE-PLUS FUNDING**

A 'base-plus' formula design is critical for jurisdictions with lower population, such as the NWT, that lose out when federal programs are designed using a per capita funding formula. The NWT has a large landmass with great distances between many small communities

connected by an under-developed transportation system.

- **FEDERAL INVESTMENT**

The current Building Canada Plan agreement between the Government's of Canada and the Northwest Territories includes a federal/territorial funding split of 75% / 25%, respectively. The GNWT requires a similar cost-sharing structure under the New Building Canada Fund with a minimum federal investment of 75% to continue addressing the infrastructure deficit, to stimulate the NWT economy, and to continue contributing to the prosperity of the NWT and Canada through job creation and economic growth.

- **MULTI-YEAR FUNDING**

A long-term ten-year funding agreement would maximize capital planning processes and achieve economies of scale. Predictable funding creates smart planning producing efficiencies and cost savings in ongoing highway reconstruction and rehabilitation projects. Longer-term contracts lead to capacity building within the Northern construction industry by enabling local companies to capitalize equipment costs over longer terms. Multi-year funding agreements also lead to long-term job creation in Northern communities.

- **STREAMLINED ADMINISTRATION**

A new federal infrastructure program that includes streamlined administrative and reporting processes are important opportunities for creating efficiencies under the New Building Canada Fund. Less onerous reporting requirements can produce better possible outcomes from smaller jurisdictions with constrained reporting capacities compared to larger jurisdictions in Canada. A new federal infrastructure program that flows funding in advance of expenditures is also a key factor for smaller jurisdictions.

- **PROGRAM FLEXIBILITY**

Program flexibility is another important principle the GNWT is proposing to include in new funding agreements with Canada. A program that is less rigid in its eligibility requirements and gives jurisdictions greater flexibility and ability to address their infrastructure priorities are important elements for continuing success under the new infrastructure program.



\$30.7 million over 7 years has been invested in airport construction and improvements resulting in better community access options. An additional \$25 million is proposed in *Corridors for Canada III*

PROVINCIAL-TERRITORIAL INFRASTRUCTURE FUND PROJECTS

(Millions 2013 \$s)

	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total
HWY 1, km 187-690	3	3	3	3	3	3	3	3	3	3	30
HWY 2, Km 8 & Km 11		1	2								3
HWY 3, km 239-339	4	4	4	4	4	4	4	4	4	4	40
HWY 4, km 40-55	3	3	3	3	3	3	3	3	3	3	30
HWY 5, km 106-170	4	4	4	4	4						20
HWY 6, km 28-62	3	4	4	4	2						17
HWY 7, km 0-254	5	5	5	5	5	5	5	5	5	5	50
HWY 8, km 0-272	6	6	6	6	6	6	6	6	6	6	60
Dettah Access Road, km 0-6.5	2	6									8
Enhanced Safety Improvements	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Stage 2 Asphalt Paving (Hwy 1 km 85-136)		10		10		10		10		10	50
Bridge Rehabilitation and Replacement (Frank Channel, Hay River/ Pine Point, and Buffalo River bridges)	6	7	13	12	4	6	4	6	5	1	64
Inuvik Air Terminal Building				2	13	13	2				30
Marine Landing Projects			2	2	2	2					8
Sub Total	36.5	53.5	46.5	55.5	46.5	52.5	27.5	37.5	26.5	32.5	415

REHABILITATING THE TRANSPORTATION SYSTEM

HIGHWAY 1—\$30 M

- Widen and reconstruct sections between the junction of Highway 3 and Wrigley
- Investments include geometric, structural and drainage improvements, grade widening, culvert replacement, road signage, relocation of ditches, grade widening, and chip seal

The Mackenzie Highway, the longest highway in the NWT, extends 690 kilometres from the Northwest Territories/Alberta border to Wrigley, situated at the beginning of the Mackenzie Valley Winter Road, constructed annually to Fort Good Hope. Highway 1 was not designed to withstand the year-round heavy industrial traffic associated with the resource development underway in the NWT.

Reconstructing Highway 1 will improve the level of service this vital link provides to the community and resource development supply chain. Safety and vehicle operating costs, for both private and commercial users, will be reduced through improved surface conditions and roadway geometrics. Local training, jobs, and contracting opportunities for Northern companies are provided through road construction.

HIGHWAY 2—\$3 M

- Realigning road sections away from the river at km 8 and km 11

Highway 2 begins at the community of Enterprise, proceeds 49 kilometres north to the town of Hay River,

and ends on Vale Island, the headway of the marine resupply route that services the Mackenzie Valley and Arctic communities. Highway 2 is also part of the resupply route for the communities of Fort Smith, Fort Resolution, and the Hay River (K'atlodzeeche) Reserve. The entire running surface of the highway is chip sealed. In 2012, the average annual traffic ranged from 700 to 2680 vehicles per day, depending on the location and time of year.

HIGHWAY 3—\$40 M

Highway 3, between Yellowknife and Behchoko, presents significant challenges due to disturbances within the underlying discontinuous permafrost that is causing the road to settle in various areas resulting in rolls and dips in the surface. Major surface rehabilitation is required to protect the life expectancy of this investment and to improve upon public safety and riding comfort.

The Department has undertaken a vulnerability assessment that demonstrates those sections of Highway 3 built on ice-rich permafrost are at greatest risk and likely to require increased repair efforts to maintain safe driving conditions.

Major work on the grade and surface rehabilitation is required on Highway 3 with priority given to those areas where driver safety may be at risk. DOT has reduced the driving speed on sections of the highway according to area conditions to ensure drivers drive to the conditions.

HIGHWAY 4—\$30 M

- Reconstruction from km 40–69 includes embankment construction, granular construction, culvert replacement, drainage improvements, and chip seal

Highway 4 (Ingraham Trail) begins near Yellowknife and terminates at Tibbit Lake north of the city. This highway provides access to the community of Dettah, permanent and recreational residents along the route, recreational areas, and the winter road used to service mine sites north of Yellowknife for annual resupply.

The Ingraham Trail does not meet current highway geometric standards. Road width, horizontal, and vertical curvature and sight distance conditions require reduced speed limits and limit passing opportunities.

Industrial trucking activities on this road have increased dramatically due to mining developments in the Slave Geologic Province. The increased traffic creates safety concerns as commercial trucks mix with other light vehicles on a road that has poor surface and geometric conditions.

The reconstruction and paving of this highway will increase safety and economic efficiency through improved reliability and operating performance for the trucking industry. This will be a direct benefit to the mining industry.

HIGHWAY 5—\$20 M

- Reconstruction from km 106 to 170 includes granular overlay, culvert replacement, drainage, and chip seal

The Department of Transportation continues to invest in upgrading and rehabilitating Highway 5, an essential link for the communities of Fort Smith and Fort Resolution to the NWT highway system. The highway is chip sealed from the junction with Highway 2 to km 106 at the Wood Buffalo National Park boundary. The GNWT maintains the 64 kilometre section of gravel highway within the national park on behalf of Parks Canada. Upgrading and chip sealing the section of highway through the national park will improve public safety for private and commercial users and reduce environmental and health concerns associated with dust and airborne sediment common to gravel surfaces.

HIGHWAY 6—\$17 M

- Reconstruction from km 28-62 includes granular pavement overlay, culvert replacement, drainage improvements, and chip seal

Highway 6 to Fort Resolution begins at an intersection with Highway 5 at kilometre 60. The highway winds around the southeast shore of Great Slave Lake to Fort Resolution. It provides access to the lead and zinc potential near the former Pine Point Mine. The highway

has been reconstructed and chip sealed, except for a gravel surface section that's 35 kilometres long.

Continued improvements to the roadway geometrics and surface conditions will increase the safety and vehicle operating costs for private and commercial users. The reconstruction may produce potential tourism opportunities relating to Great Slave Lake.

HIGHWAY 7—\$50 M

- Rehabilitation from km 0-254 and the 5 km access road to Ft Liard includes widening, structural overlay, culvert replacement, drainage improvements, rehabilitation, reconstruction, and resurfacing

The Liard Highway does not meet the current geometric design criteria and has strength deficiencies that inhibit the use of the road and contributes to high ongoing maintenance costs. It was not designed for, nor is it capable of withstanding, the frequency of heavy loads that are now transported on the highway on a year-round basis. Increased use of the Liard Highway by substantial resource development projects is imminent, such as the recently approved Prairie Creek Mine, which will use Highway 7 to access the work sites, transport

goods, and meet other industrial development requirements.

HIGHWAY 8—\$60 M

The Dempster Highway extends 259 kilometres from the Northwest Territories/Yukon Border to Inuvik. This highway provides surface access to communities in the Mackenzie Delta and Beaufort Delta regions. Oil and gas exploration and development companies working in the Beaufort Delta region use the highway extensively.

Reconstructing the highway on segments between km 0-272 will improve the certainty and level of service for this vital link in the oil and gas and community supply chain. Safety and vehicle operating costs, for both private and commercial users, will be reduced through improved surface conditions and improved roadway geometrics. The road construction project will provide local training, jobs, and contracting opportunities for Northern companies.

DETTAH ACCESS ROAD —\$8 M

- Reconstruction from km 0 to 6.5 includes grade widening, embankment construction, pavement construction, culverts/drainage and chip seal



The 11-kilometre access road that connects the community of Dettah to the Ingraham Trail is a non-engineered structure, constructed primarily with clay, with little consideration to drainage issues. The elevation in most areas is below the standards currently used in road construction. This results in a roadway that is highly susceptible to moisture infiltration, which leads to consistent road surface failures. The road requires significant rehabilitation primarily to improve public safety.

SAFETY IMPROVEMENTS—\$5 M

The Department of Transportation proposes to continue implementing projects to enhance safety and reduce the number of traffic incidents across the highway system

The priority road safety projects are identified in the NWT Road Safety Plan. Included in this program are improvements to highway alignment, driver awareness mechanisms (i.e. rumble strips), roadside hazard protection, and intersection improvements. The Road Safety Plan is founded on an examination of road and driver factors spanning twenty-two years of territorial collision data.



ASPHALT PAVING HIGHWAY 1—\$50 M

Highway 1, from Km 85-188, was designed and constructed in 1992 using the phased-construction concept. In the first phase, the highway was constructed with full granular pavement, according to the design, and then surfaced with chip seal. The second phase was to be initiated after ten years of use allowing the highway to settle and complete its compaction. An asphalt concrete pavement was to be applied during the second phase.

After 21 years of use, the stretch of Highway 1 from Km 85-188 needs structural strengthening of the existing road by applying a layer of asphalt concrete onto the existing granular pavement.

BRIDGE REPLACEMENT AND REHABILITATION—\$64 M

Three truss bridges located at Buffalo River (Hwy 5), Frank Channel (Hwy 3), and Hay River/Pine Point (Hwy 5) require complete rehabilitation including partial or full replacement of the decks, strengthening of trusses, repair to abutments, piers, foundation bearings or expansion joints, barriers, and other structural upgrading.



Additional bridge work includes replacing the existing pipe culverts with bridges at Axe Handle and Bouvier Creek, rehabilitating the Trout River bridge, and replacing the bridges at Hodgson River and Jean Marie River.

INUVIK AIR TERMINAL BUILDING—\$30 M

A recent engineering evaluation of the Inuvik Airport terminal building has confirmed the building is at the end of its lifecycle and needs to be replaced. Rehabilitation is not considered a cost-effective option. The Inuvik Airport is a regional hub that plays a critical role in economic activities in the Beaufort Delta including the proposed Mackenzie Gas project, community access, and individual mobility. Replacing the air terminal building will provide for the safe, secure, accessible and reliable movement of people and goods to serve the social, economic and political needs and aspirations of the people of the Northwest Territories

MARINE LANDING PROJECTS—\$8 M

The GNWT proposes to construct permanent ferry landings at Fort Simpson, N'Dulee, Tsiigehtchic, and the Peel River crossings. Permanent infrastructure will eliminate the use of gravel thereby protecting the water quality and aquatic environment at the ferry landings.



NATIONAL INFRASTRUCTURE FUND PROJECTS

(Millions 2013 \$s)

	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total
Mackenzie Valley Corridor											
Environmental Assessment MV Highway	3	3	2								8
Fort Good Hope Winter Road			1	1	4	4					10
Bosworth Creek Bridge		1	5	8	1						15
Oscar Creek Bridge				1	3	2					6
Bear River Bridge						5	30	30	5		70
Winter Road Grade Improvements	2	2	2	2	2	2	2	2	1	1	18
Sub Total	5	6	10	12	10	13	32	32	6	1	127
Enabling Economic Development											
Norman Wells Airports Development	1	4	2	6	2						15
Yellowknife Airport Development		5	5								10
Sub Total	1	9	7	6	2						25
Mitigating Climate Change											
Tlicho Winter Road Realignment to Gamètì	2	2	15	11							30
Climate Change Research	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3
Sub Total	2.3	2.3	15.3	11.3	0.3	0.3	0.3	0.3	0.3	0.3	33
Combined Total	8.3	17.3	32.3	29.3	12.3	13.3	32.3	32.3	6.3	1.3	185

MACKENZIE VALLEY CORRIDOR

MACKENZIE VALLEY HIGHWAY ENVIRONMENTAL ASSESSMENT—\$8 M

An all-weather highway down the Mackenzie Valley to the Arctic coast is a long-standing priority for the GNWT. The benefits of building the route include regional economic and employment opportunities through road construction and maintenance, increased ability to assert sovereignty, adaptation to climate change, earlier development of oil and gas resources, mining and hydro projects and improved community access, mobility and economic opportunities such as tourism.

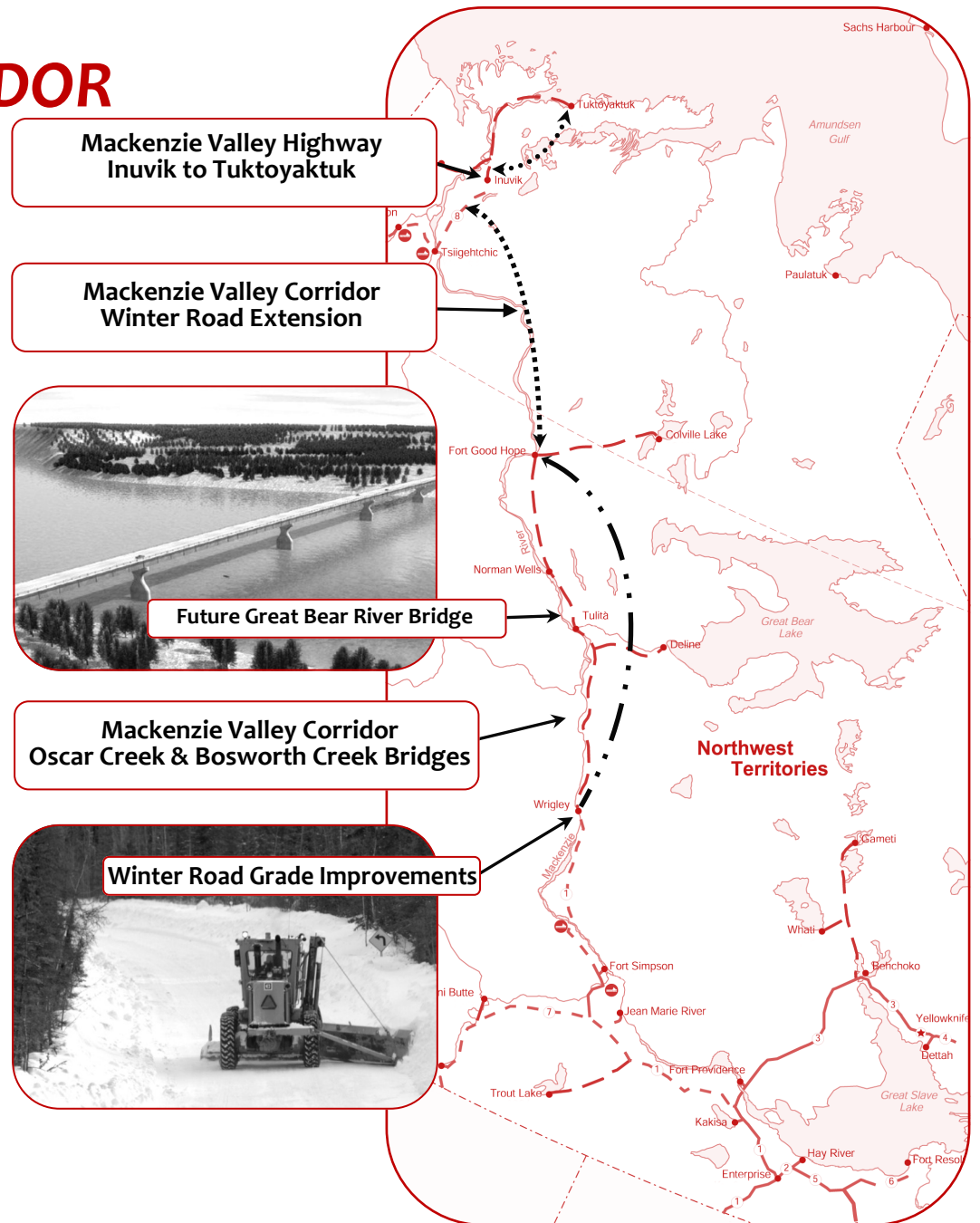
Activities relating to the environmental assessment for the all-weather Mackenzie Valley Highway are comprised of the following components:

- Geotechnical investigations, surveys, consultations, and studies into fisheries, vegetation, wildlife, archaeology, and hydrology

MACKENZIE VALLEY WINTER ROAD EXTENSION TO DEMPSTER HIGHWAY—\$10 M

The Department of Transportation is working to improve the standard of living in Mackenzie Valley communities by increasing transportation access options such as extending the winter road from Fort Good Hope north to the Dempster Highway. The project would require extending the existing winter road by approximately 335 km. Initial construction is estimated to cost \$9.5 million to establish a new right-of-way. Necessary additional assessment of stream crossings (i.e. Thunder River, Travailant River) relative to ice/freezing characteristics and approach grades could influence this estimate.

The winter road extension to the Dempster Highway is an important incremental improvement toward the all-weather highway and will contribute to other GNWT infrastructure that have a similar alignment such as the fibre optic cable and the gas pipeline, two priority projects identified by members of the 17th Legislative Assembly.



MACKENZIE VALLEY CORRIDOR

PERMANENT BRIDGES

BOSWORTH CREEK—\$15M

OSCAR CREEK—\$6M

GREAT BEAR RIVEE—\$70M

In recent years, the opening of the Mackenzie Valley Winter Road has been delayed due to the shortage of snow, mild weather, and stricter environmental regulatory requirements. Combined, these influences result in a significantly decreased window of operation. This is a concern to oil and gas companies involved in exploration and results in difficulties for local businesses and community re-supply activities and restricts resident mobility between communities.

In partnership with the federal government, the Department of Transportation has been constructing permanent structures at stream crossings to provide access to the non-renewable natural resources in the NWT, facilitate further economic development within the region, and improve resident mobility options. The Department of Transportation is proposing to build a permanent bridge at Bosworth Creek, reposition the Oscar Creek Bridge, and a new major structure across the Bear River.

MACKENZIE VALLEY WINTER ROAD GRADE IMPROVEMENTS—\$18 M

Exploration and development has increased over the past several years bringing increased large and heavy truck traffic onto the Winter road. Road alignment improvements are required to reduce gradients, improve curve radii and sight distances, widen segments and construct holding areas near single lane bridge crossings. These grade improvements will not only facilitate the safe truck and rig movements associated with the oil and gas industry, they will also improve safety for the travelling public by improving passenger and industrial traffic interactions.

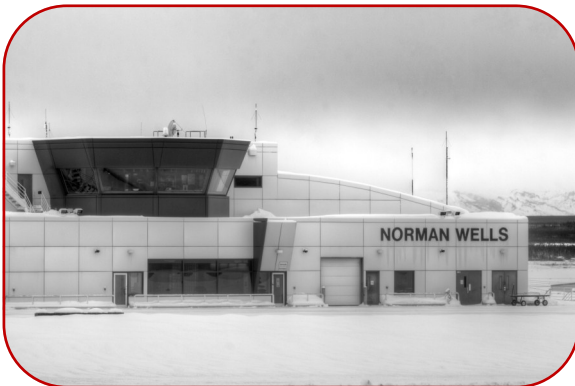


ECONOMIC DEVELOPMENT AND MITIGATING CLIMATE CHANGE

NORMAN WELLS AIRPORT—\$15 M

The marked increase in activity in oil and gas exploration is resulting in a significant increase in air traffic in the Sahtu region of the NWT. The regional airport at Norman Wells is seeing an increase in aircraft movement and congestion. The Norman Wells runway is configured in such a way that landing aircraft must backtrack over half the length of the runway to access the taxiway to the air terminal building and apron. The runway is occupied for longer periods of time and unavailable for incoming or outgoing traffic.

Extending the existing parallel taxiway would result in shorter backtrack times and significantly reduce runway congestion issues. The increased traffic is also resulting in apron congestion with more aircraft requiring parking space.



YELLOWKNIFE AIRPORT DEVELOPMENT—\$10 M

The Yellowknife Airport is the gateway hub to the Northwest Territories. It provides critical service to the North for industry, commerce, tourism and the traveling public. The continued success of the airport and future growth of the Northwest Territories depends upon the airport's ability to meet the needs of existing and future tenants and businesses. The airport has exhausted available developed and serviced land and needs to open up and service a variety of lot mixes on the west side of the airport. This will require the construction of a taxiway to Runway 10/28, interior roads, and taxiways to provide for airside and groundside lots consistent with the grading/drainage plans for the area.



TLICHO WINTER ROAD REALIGNMENT—\$30 M

The Tlicho Winter Road is largely constructed on frozen lakes and is becoming more problematic due to warming winter temperatures. Studies conclude that realigning the existing winter road to an overland alignment would enable the Department of Transportation to lengthen the operating season for the existing winter road that crosses many frozen lakes, rivers, ponds, muskeg and swamps, as it connects Highway 3 to the Tlicho communities of Whatì and Gamèti. A realigned route, built over land wherever possible, would also be suitable for construction of an all-weather road in the future, required to support proposed developments, such as the NICO base metal deposit.

CLIMATE CHANGE RESEARCH —\$3 M

The NWT transportation system faces many challenges stemming from climate change, particularly the milder winters. The GNWT is taking steps to identify and mitigate the impacts, which include permafrost degradation leading to road surface and airport runway instability, washouts from spring run-off, shortened winter road operating seasons, and increased use of sand or salt on highways and glycol at airports. These steps include implementing the recently developed Climate Change Adaptation Plan and continue investment in research and development to collect baseline data and adaptation strategies.

Conclusion

The geopolitical importance of the North and Canada's interest in it have never been greater. That is why this government launched an ambitious Northern agenda, based on the timeless responsibility so elegantly captured by our national anthem – to keep the true North strong and free."

Prime Minister Stephen Harper 2008

CONTRIBUTING TO THE CANADIAN ADVANTAGE

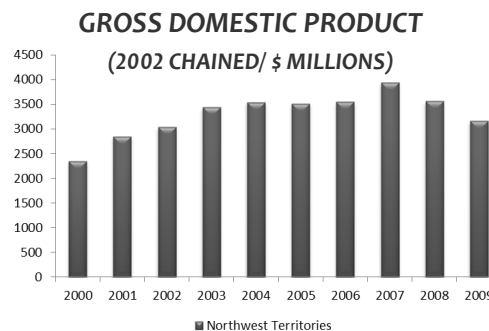
Canada has a strategic interest in contributing to better connections between its vast northern territories and the rest of the country and in strengthening sovereignty claims through improved community sustainability achieved by investing in transportation infrastructure. Moreover, during periods of fiscal restraint, infrastructure remains a sound investment because of the economic returns produced. Significant investments in infrastructure will yield even larger financial returns by providing stability for non-renewable resource development initiatives in the NWT. Benefits from these developments flow to Canada, the GNWT, Aboriginal governments, industry, Northerners, and all Canadians.

BENEFITS TO CANADA

Increased development activity will result in more revenue flowing to Canada through royalties and taxes. Much of the increased employment associated with resource development will occur outside of the NWT. Economic modeling estimates that southern Canada would capture approximately 71 percent of jobs resulting from NWT resource development.

Over the next 30 years, existing and proposed NWT diamond mines, rare mineral mines, and energy develop-

ments are expected to contribute \$54 to \$84 billion to the national GDP and create 215,500 to 306,500 person-years of employment across Canada.



BENEFITS TO THE NORTHWEST TERRITORIES

The development of Mackenzie Valley and Beaufort Delta natural gas, Shale oil in the Sahtu, and the additional mineral developments will position the NWT atop the Canadian economic mainstream and contribute significantly to achieving our vision of becoming Canada's first "have" territory. Improving the Northern infrastructure will do more than just support the non-renewable resource industry. Infrastructure improve-

ments will facilitate the diversification of the NWT economy and improve the quality of life for residents who will receive better access to essential services, increased mobility, and a lower cost of living. Like other Canadians, Northern residents want development to make their lives better, to provide a better future for



their children, and make the NWT a more attractive place to live.

BENEFITS TO ABORIGINAL PEOPLE

Aboriginal people in the Northwest Territories are partners in the political and economic development of the North and their support is pivotal. Aboriginal support for large-scale development is contingent upon long-term benefits to all communities, such as a vastly improved transportation network. Aboriginal governments will benefit from resource development through increased business and employment opportunities for individuals and Aboriginal development corporations.

BENEFITS TO NORTHERN COMMUNITIES

Transportation is historically tied to the economic

and social fabric of Canada's North. The transportation system serving NWT communities is incomplete and in need of upgrading. These characteristics bear themselves out in higher transportation costs to the communities that lead to marginalized economic development opportunities.

Improving our highway connections to communities will result in less reliance on air service and generate savings that could be used for other social or economic opportunities within these communities. A transportation system that links our communities effectively to markets, services and businesses will provide our residents with many of the opportunities that Canadians in the south take for granted. Opportunities translate into improved access, lower transportation costs and economic diversity.

CANADA'S SPECTACULAR NORTH

The Northwest Territories has some of Canada's most spectacular wilderness with an abundance of exotic wildlife, birds, natural spaces, and fascinating geology that scientists compare to features on the planet Mars. The oldest exposed rock on the planet is found in the NWT along with the fifth largest lake in the world.

Visitors who come to experience the North are an important element within our tourism sector, particularly aurora winter viewing when international visitors are captivated by the natural spectacle. Domestic and foreign visitors using the highway and airport system contribute \$90 million in direct spending annually into the NWT economy. Improvements to road transportation corridors in the NWT would also complement the federal government's effort to market Canada as a safe, secure place for adventure travel.



Permanent structures will reduce the amount of gravel used at ferry landings and will protect the aquatic environment.

The world is taking notice of the NWT's resource potential with the territory ranking as the 29th out of 96 as the most attractive jurisdiction for mineral exploration and development in the world and the best overall improvement in Canada.

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