Northwest Territories Transportation

November 18, 2011

Mr. Eli Nasogaluak
Environmental Assessment Coordinator
Environmental Impact Review Board
PO BOX 2120
INUVIK NT X0E 0T0

Dear Mr. Nasogaluak:

Developer Response to Environmental Impact Review Board Questions No. 2b/c Regarding Construction of the Inuvik to Tuktoyaktuk Highway [02/10-05]

As requested by the Environmental Impact Review Board (EIRB) on October 25, 2011, the Developer is pleased to provide further clarification regarding the planned and completed field studies (Question 2b) and the impact predictions and mitigation measures (Question 2c) proposed for the Inuvik to Tuktoyaktuk Highway.

The Government of the Northwest Territories has also provided the Developer with an overview description of social programming conducted in the Northwest Territories. As the breadth of programming in the Department of Education Culture and Employment is extremely diverse, this submission includes the department's strategic plan and progress report entitled "*Building on Our Success – Strategic Plan 2005 – 2015*" and companion Progress Report (as of March 31, 2009).

Also attached for your information and interest are the Meadowbank Gold Project's Transportation Management Plan and Monitoring Plan for the recently constructed all weather private access road. Agnico-Eagle Mines Limited (Agnico-Eagle) constructed and operates a 115 km all weather private access road between the Hamlet of Baker Lake and the Meadowbank project site in Nunavut.

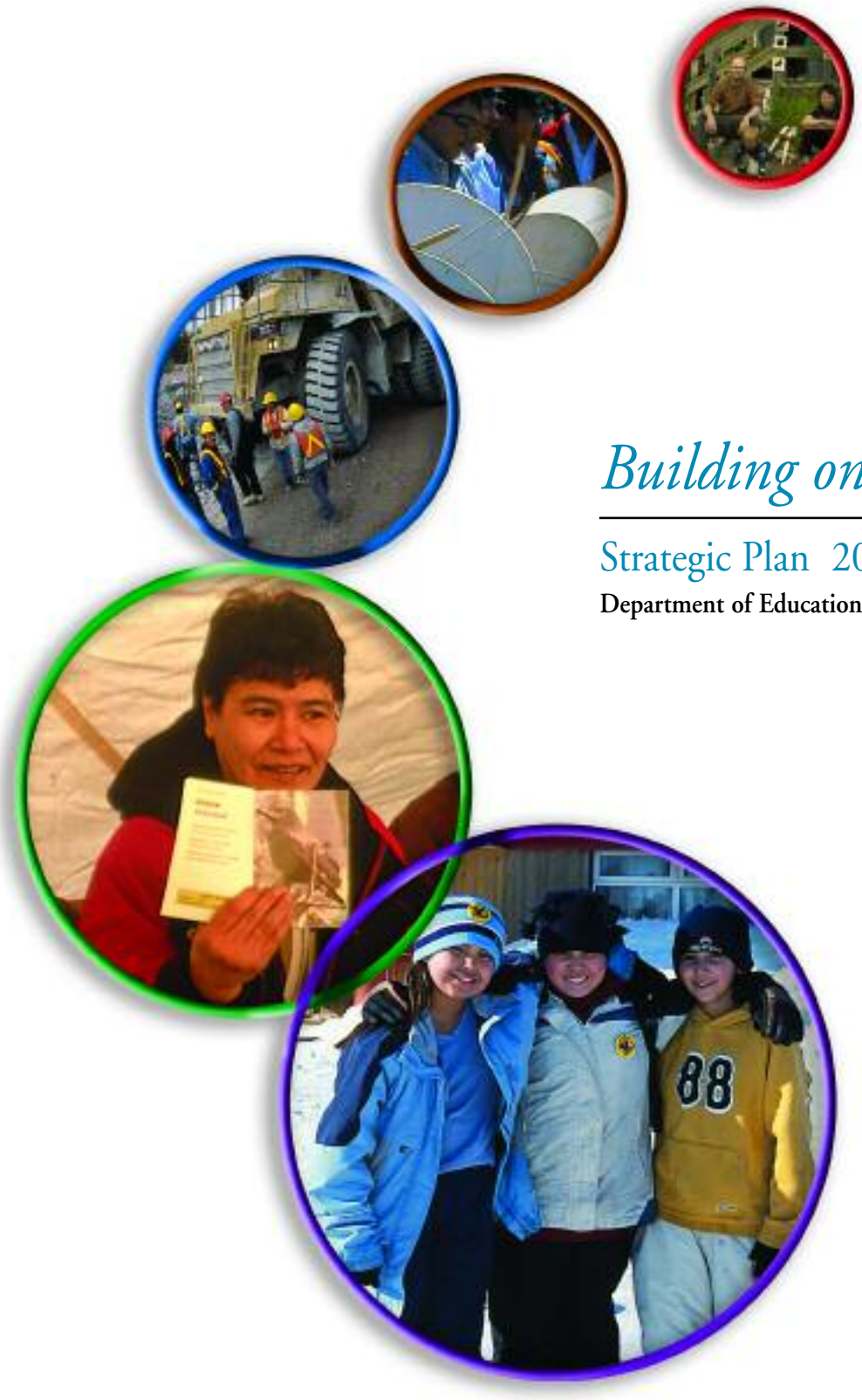
On behalf of the Hamlet of Tuktoyaktuk, Town of Inuvik and the Government of the Northwest Territories, Department of Transportation, the Developers would like to thank the EIRB for considering the response provided.

Sincerely,

Jim Stevens
Director
Mackenzie Valley Highway

Attachments:

- Building on Our Success: Strategic Plan 2005-2015
- Building on Our Success: Strategic Plan 2005-2015, Progress Report
- Meadowbank Gold Project Transportation Management Plan
- Meadowbank Gold Project Water License Monitoring Plan
- Developer Response to EIRB (2b and 2c)
    - GNWT Social Programming Letter
    - Taking Care of Caribou: Draft Cape Bathurst, Bluenose-West, and Bluenose-East Barren Ground Caribou Herds Management Plan



Building on Our Success

Strategic Plan 2005 -2015

Department of Education, Culture and Employment

Northwest Territories Education, Culture and Employment

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Minister's Message

I am very pleased to introduce *Building on Our Success*, the Department of Education, Culture and Employment's third Strategic Plan. This plan provides a framework for our activities over the next decade until 2015, and sets out a series of goals that reflect the concerns of the people of the Northwest Territories.

Our Territory is changing quickly. More than ever, it is clear that a solid education is essential for all Northerners. Effective early learning and school programs are needed to give children opportunities to grow and develop. Further education and training must be a priority for adults, so all Northerners can take advantage of employment opportunities.

At the same time, it is critical to nurture and protect our cultural heritage so that we do not lose the knowledge, skills and history that make us unique. Given the rate of change in the North, our languages and traditions are under considerable pressure. We must work together to celebrate and strengthen the cultures that have served generations of Northerners.

The goals in this Strategic Plan are the result of extensive consultation with Northerners. Over the past few years, you have told us what you want and need through survey responses, focus groups, public meetings and other correspondence. I appreciate your response. You will see in this plan that we have heard what you had to say.

This plan builds on two previous plans. The recommendations of our first plan in 1984, *Learning: Tradition and Change in the Northwest Territories*, led to the creation of our divisional boards of education and Aurora College, both essential parts of our education system today. Our second plan, *People: Our Focus for the Future*, was developed in 1994 when the Department of Education had expanded to become the Department of Education, Culture and Employment. Goals set out in that plan led to extension of culture, education and career development services in Northern communities.

This 2005 Plan recognizes both the strengths and weaknesses of our past actions. It celebrates the success enjoyed by many who have accessed our programs and services, and proposes ways to build on that success.

We are looking forward to working with our partners and the citizens of the Northwest Territories to address the challenges and celebrate the successes that the next decade will bring.

Charles Dent
Minister of Education, Culture and Employment
2005

Plan at a Glance

Education, Culture and Employment's New Strategic Framework

The Department of Education, Culture and Employment (ECE)'s new strategic framework outlines our priorities and the actions we will take in the next decade. It sets out our purpose, and five broad results-based goals we plan to reach within the next decade.

ECE's mandate has broadened greatly since our first strategic plan in 1984. In addition to the school system, the Department is now responsible for a network of education, cultural and employment supports and programming, including college programming, income support, official languages, labour services and career development. These activities are tied together by the shared aim of assisting Northerners to achieve their full potential.

The purpose and goals outlined in this Plan are designed to give Northerners increased opportunity to live fulfilled lives and contribute to a strong, healthy and vibrant Northern

society. To ensure that we are achieving what we set out to do, the Plan also establishes indicators to answer these important questions:

- How are we doing?
- Are we achieving our purpose?
- Have we given Northerners what they have asked for?

Turning Our Plan into Action

Our vision of *Northern people leading fulfilled lives and contributing to a strong and prosperous society* remains the driving force behind the strategic direction we have set. We need leadership, sound management, strong partnerships and an effective planning and implementation process to fulfill this vision.

During the planning process, we asked our partners, clients, colleagues, employees and political leaders to give us their perceptions of our strengths and weaknesses—what we were doing well and where we needed to improve. Through these frank discussions, we learned more about about who we are, what our partners need and how our operating environment will change in the coming years.

To reach our goals, we need to ensure our programs and services are matched to the needs of Northerners. We need to adjust our organizational structure, hire people who have the skills we will need in the future, evaluate the facilities and technology we use and build a system to track and report progress.

Although our methods may change, our vision and focus will remain the same. Our consultations have made it clear that people want us to continue to focus on lifelong learning, strengthening languages and cultures and supporting communities and individuals to make decisions that affect their own residents and families. This Plan will help Northerners measure our activities to ensure that we remain true to our vision. We may find new methods of getting there, but our goals are clear and will remain constant.

This Strategic Plan is the product of an effective collaboration and consultation, not only over the last year, but over 10 years of brainstorming and consensus building. This resulting Plan represents a commitment by the Department of Education, Culture and Employment to the people of the NWT.

Purpose

To invest in and provide for the development of the people of the Northwest Territories, enabling them to reach their full potential, to lead fulfilled lives and to contribute to a strong and prosperous society.

Goals	Pride in Our Culture	Education of Children and Youth	Education of Adults	A Skilled and Productive Work Environment	People Participating Fully in Society
Objectives	1. Preservation and knowledge of our heritage 2. Promotion of the arts 3. Support and promote our official languages	1. A strong foundation for learning 2. Students achieving their potential 3. A results-based education system	1. Access and choice for adult learners 2. A responsive college 3. An integrated adult learning network	1. Northerners making informed career choices 2. A skilled workforce 3. A productive work environment	1. An integrated system of program supports 2. A comprehensive system of financial supports 3. A responsive income security system

Cross-Goal Strategies	
	1. Strong and Effective Partnerships
	ECE is committed to strengthening local, territorial and federal partnerships, and working collaboratively to address problems and achieve results.
	2. High Quality Human Resources
	ECE is committed to developing a skilled, productive civil service that represents the people it serves.
	3. Responsive Information Systems
	ECE is committed to the collection, analysis and provision of information about its programs and services through systems that are responsive, reliable, available, and serviceable.
	4. Facilities that Match Program Delivery Requirements
	ECE is committed to defining and addressing additional facility requirements.
	5. Effective Performance Planning, Monitoring and Measurement
	ECE is committed to managing itself effectively, ensuring that it spends responsibly, develops transparent decision-making processes, monitors and reports on its progress, and is accountable for results.

Our Vision and Values – Our Commitment to Northerners

Vision

Our vision describes how we believe our society should look if we are successful in our work. The Department of Education, Culture and Employment's vision is:

Northern people leading fulfilled lives and contributing to a strong and prosperous society.

Purpose

Having defined our vision, it is important to be clear about the role that we play as an organization. We do not act alone. Individuals, groups and organizations contribute to people's success. Based on what we have heard, our purpose is:

To invest in and provide for the development of the people of the Northwest Territories, enabling them to reach their full potential, to lead fulfilled lives and to contribute to a strong and prosperous society.

Values

We are committed to reflecting certain values in our work. These values guide how we will work with each other and with those we serve. Our values include:

- Service – *We are committed to giving our clients our very best*
- Integrity – *We believe that our words should become our actions*
- Respect – *We treat others as we would have them treat us*
- Compassion – *We demonstrate sensitivity for the people we serve*
- Leadership – *We understand that leadership means teamwork*
- Learning – *We foster a passion for lifelong learning*
- Accountability – *We use our resources wisely*
- Partnership – *We share responsibilities and work with others*
- Excellence – *We strive for success in all that we do*

Principles

Based on our values, ECE has established principles to guide our activities. These principles are:

- *The languages and cultures of the NWT are valued and serve as the foundation for the development and delivery of programs and services.*
- *Our programs and services provide equitable access for all residents of the Northwest Territories and should not restrict their mobility.*
- *Our programs and services are integrated to the greatest extent possible into an effective, efficient and economic continuum.*
- *ECE ensures effective communication with its partners and involves them in decision-making related to its programs and services.*
- *Our programs and services are responsive to the changing social, economic, political and constitutional environment of the NWT.*
- *We strive to work cooperatively with Aboriginal governments, community governments, business and industry, organizations representing employees, non-government organizations as well as the Government of Canada.*

Our Programs and Staff – Who We Are and What We Do

ECE has the mandate to ensure residents of the Northwest Territories have access to high quality programs and services in early childhood; education, training and employment; labour market; certification and financial supports. In keeping with the priorities of Northern leaders and elders, an appreciation of the languages, cultures and heritage of Northern peoples forms the foundation of our programs and services.

Our Programs and Services

ECE encourages Northerners to learn and grow by providing a range of programs and services that:

1. Promote and support the enhancement and preservation of the languages, cultures and heritage of the Northwest Territories, including exercising responsibility for implementing the *Official Languages Act*.

2. Promote and support childhood development, including the development of preschool children.

3. Develop, monitor and enforce standards for education achievement, including graduation requirements.

4. Provide counselling, support services and information resources to enable individuals to pursue education, training and employment opportunities and to make productive choices.

5. Provide quality assurance to the public through accrediting programs and services and through occupational and trades certification, including the licensing of teachers and the licensing of childcare facilities.

6. Analyze labour force developments and implement responsive strategies designed to achieve meaningful employment for Northerners.

7. Deliver statutory programs to ensure that supports are available to assist individuals in meeting their basic financial needs.

8. Develop and enforce legislation, policies and agreements that regulate and manage the integrity of the Northwest Territories education system.

9. Represent the Government of the Northwest Territories and coordinate the government's involvement in territorial, national and inter-governmental matters related to education, early childhood education, training, official languages, culture, labour, and employment.

Our activities fall into five basic areas:

1. Culture, Heritage and Languages

Elders, community members and leaders have often emphasized the significance of the culture, heritage and languages of Northern people. ECE integrates the Aboriginal and Northern perspective into all of its work. The Department is responsible for preserving, promoting and enhancing the arts, cultural heritage, and official languages of the NWT. We do this by managing the Prince of Wales Northern Heritage Centre, the NWT Archives, geographic names and education extension programs, French translation services, promoting indigenous languages, and supporting the NWT Arts Council, the arts community and culture and heritage organizations.

Work in this area is essential because of its direct benefit to all residents and because it serves as a foundation for study in early learning and education programs.

2. Early Childhood and Schools

ECE provides programs, services and financial support for the delivery of early learning and childcare, as well as school programs across the NWT. The Department is responsible for the development of program standards, provision of support programs, culturally relevant curriculum, measurement of student progress, and development of education bodies. We are tasked with ensuring that children develop the basic academic learning, life skills, and knowledge required to become full participants in the communities in which they live.

ECE is also responsible for the coordination and maintenance of the NWT Public Library System. Libraries are essential to the development of literacy at a young age and support literacy through the adult years.

3. Adult and Postsecondary Education

ECE provides financial support and direction for the delivery of postsecondary programs and services to ensure that NWT residents have the skills, knowledge and opportunities to participate fully as productive citizens in Northern communities.

ECE works closely with Aurora College, other GNWT departments, Aboriginal organizations, the federal government and private sector employers to promote adult and postsecondary education in the NWT. We are also committed to addressing the literacy needs of Northerners from early childhood to the senior years and to increasing awareness of the importance of literacy in all of the NWT's eleven official languages.

4. Employment and Labour

ECE provides a variety of career, employment and labour programs and services intended to ensure that NWT residents have the skills, knowledge and opportunities to participate fully in the Northern economy.

The Department works closely with industry, labour organizations and Aurora College in the areas of apprenticeship training, trades, and occupational certification. We also work in partnership with other GNWT departments, Aboriginal organizations, and the federal government, private sector trainers and employers to encourage the development of a Northern workforce.

5. Income Security

The income security programs offered by ECE provide financial support to residents of the NWT. Financial assistance is available through a range of programs that are designed to meet the needs of students, seniors, and families. These programs recognize the importance of family and community in promoting self-reliance. Programs are supported by counselling and skill development activities that focus on helping people to make productive choices that are right for them.

Our Staff

ECE is one of 12 GNWT departments providing programs and services to NWT residents. The Department accounts for about 25% of all GNWT expenditures and directly employs 195 staff.

The Department funds education authorities and agencies tasked with the delivery of approved programs and services. Education authorities and Aurora College employ about 1,040 employees. When combined, the staff of ECE and its authorities and agencies account for nearly 25% of the public servants supported by GNWT funding.

Program Delivery

ECE directly delivers programs and services through its six career centres, the Prince of Wales Northern Heritage Centre and the NWT Public Library Service.

Career Centres

ECE delivers its employment and labour and income security programs and services through career centres, located in Inuvik, Norman Wells, Fort Simpson, Hay River, Fort Smith and Yellowknife. These centres offer a range of career development programs and services to students and unemployed or under-employed Northerners.

Programs and services include on-the-job training, apprenticeship, and programs for income support recipients. Career centres also provide a range of income security programs for students, families, parents, seniors, and persons with disabilities. They serve as the first point of contact for members of the public looking for information regarding departmental programs and services.

Prince of Wales Northern Heritage Centre

The Prince of Wales Northern Heritage Centre collects and maintains objects and archival records related to the culture and history of the Northwest Territories.

The Centre supports community and Aboriginal groups in documenting information about the cultures and history of the Northwest Territories. Museum staff also provide professional museum, archives and cultural resource management services. The Centre

also supports the operation of several local museums such as the Northern Life Museum in Fort Smith and the Norman Wells Historical Centre in Norman Wells.

The Northwest Territories Public Library Services

Under the direction of the Territorial Librarian, located in Hay River, the Northwest Territories Public Library Services (NWTPLS) provides leadership in the management of public library services throughout the Northwest Territories.

NWTPLS maintains a territory-wide information system through libraries in Fort Providence, Tulita, Norman Wells, Inuvik, Fort Simpson, Hay River, Fort Smith, Hay River Dene Reserve and Yellowknife. It also supports the operation of virtual libraries in Aklavik, Diavik, Deline, Edzo, Enterprise, Fort Good Hope, Fort Liard, Fort McPherson, Holman, Lutsel K'e, Rae, Tsiigehtchic, Tuktoyaktuk, Wekweètì and Whatì.

Departmental Agencies and Partner Organizations

The majority of ECE's programs and services are delivered by education authorities and Aurora College – organizations that are established by legislation.

Education Authorities

Eight education authorities administer school programs for more than 9,500 students, in 52 schools, across 33 communities. These include five divisional education councils, two district education authorities in Yellowknife, and the commission scolaire francophone de division to serve French first language students.

Education authorities are led by elected representatives. They derive their authority from the *NWT Education Act* and associated regulations.

Aurora College

Aurora College, established under the *Public Colleges Act*, is the primary delivery agent for adult and postsecondary education in the Northwest Territories. Its programs are designed to address the needs of the Northern workforce and economy, and

include basic adult education, skilled-based training, certificate, diploma and degree programming. These programs are offered at three campuses in Inuvik, Fort Smith and Yellowknife, as well as at community learning centres in most NWT communities. Through its Aurora Research Institute, the College licenses research activities as well as supporting science, technology and research projects, in cooperation with the business and scientific communities. The College serves about 1,200 full-time equivalent students annually.

The college is directed by a Board of Governors appointed by the Minister of Education, Culture and Employment.

Non-government Organizations

ECE partners with numerous non-government and community-based organizations, through a series of contribution agreements, to support the delivery of programs and services across the NWT. These include shelter, library, language, arts, cultural, early learning and childcare, literacy and private school programs and services. Many of these organizations have unique access to the people of the NWT and help ensure a broad scope of programs are readily available.

GNWT Social Program Departments

ECE also works closely with all other GNWT Departments to deliver its programs and services. In particular, it collaborates with other social programs departments such as the departments of Health and Social Services, Justice, NWT Housing Corporation, and Municipal and Community Affairs.

Federal Government Departments

ECE collaborates with a variety of federal government departments, including Human Resources and Skills Development Canada; Department Indian Affairs and Northern Development; Citizenship and Immigration Canada; and Canadian Heritage. Under these partnerships, ECE may jointly manage services or deliver services on behalf of federal departments.

Our Operating Environment – A look at what's happening around us

Our Strategic Plan is based not only on the past, but also on the future. The following pages present our projections for the future.

Our Changing Environment

The NWT is undergoing considerable economic, political and social change. Aboriginal land claims and self-government initiatives and economic development are among the factors that are re-shaping Northern society. These changes offer new opportunities to Northerners, and will require a change in the way ECE does business.

After consulting with Northerners, we have identified the six key challenges we expect to face in the next 10 years:

1. Changing Population

The NWT is growing faster than many other areas of Canada. On April 1, 2004, Statistics Canada estimated the population of the Northwest Territories at 42,274 persons, showing an annual growth rate of 1.3%, compared to .9% for Canada.

Our birth rate is slowing down, with 30.2% fewer births in 2005 than in 1995 (figures adjusted to take into account division of the NWT). At the same time, the number of seniors is increasing. People over the age of 60 currently represent about 6% of the population and this is expected to double over the next 20 years.

There is also a continuing trend toward urbanization in the Northwest Territories. Overall, Yellowknife has increased from 28.6% of the territorial population in 1976 to 44.6% in 2003 (figures adjusted for division of the NWT). Movement to other regional centres has occurred at a slower rate.

These changes suggest that careful consideration of current programs and services will be required. Given the changing nature of the population, programs and services will need to be adjusted and priorities may change. Additionally, new approaches to program delivery may be required.

2. Resource Development

The NWT Bureau of Statistics states the overall annual economic growth rate for the NWT is around 10% (compared with 1.7% for the rest of Canada), largely as a result of activity in the mining, oil and gas industries. With the opening of the Snap Lake Diamond Mine in 2006 and the potential development of a Mackenzie Valley pipeline later in the decade, this growth is expected to continue through the planning period. The construction of the pipeline alone could represent the greatest short-term economic boom in the history of the NWT.

The continued growth pattern can be expected to have profound impacts on some aspects of departmental programs. Adjustments will need to be made to training and employment programs to respond to industry and business needs.

3. Availability of Human Resources

The GNWT faces human resource challenges both as the largest territorial employer and as the organization responsible for shaping policy to stimulate economic growth and establish the NWT as a desirable place to work.

In the current economic climate, there is a wide range of job opportunities – and this is expected to be the case throughout the period covered by the Strategic Plan. Job opportunities will exist in the resource sector and related businesses, as well as in government and the service industry. At present, there are critical skill shortages in some occupations. With potential development associated with the Mackenzie Valley pipeline, it may be difficult to meet labour demands in the future. Education continues to be a key determinant of people's employment levels as the odds of employment increase as education levels increase.

4. Social Growth and Development

Identifying and effectively addressing social issues and challenges is essential to the future growth and development of the NWT. These matters are now being openly discussed and people are urging governments to work together to address them. Communities, families and individuals now have greater access to the tools they need to cope with both the direct behaviours and impacts of social dysfunction.

There is a high priority placed on addressing social issues. Actions to identify root causes and to establish enhanced, effective programs and services continue to be a goal of community, regional, territorial and national governments.

5. Fiscal Constraints

The present constrained financial situation of the GNWT offers limited flexibility to expand existing programs and services or develop new activities. As a result, ECE must continue to invest carefully and focus on positive, preventative approaches. Over time, preventative action will reduce the necessity of costly remedial measures in the area of education and training. Limited finances also increase the importance of developing efficient coordination and partnerships both between government departments and with other partners, most notably parents, non-governmental organizations and emerging Aboriginal governments.

6. Changing Governance in the NWT

Aboriginal self-government agreements, potential devolution of land and water resources from the Government of Canada to the NWT and pressures associated with economic development will mean changes to the way the NWT is governed. Our system of governance is becoming more complex, and as Northern Aboriginal self-government agreements are signed the responsibility for services and programs will be devolved to different levels of government. This will require collaboration, effective communication and efficient coordination of programs and services.

Pride In Our Culture, Heritage and Languages

Culture, heritage and language are the foundation for learning.

We begin, at an early age, to understand the world through the lens provided by our culture and heritage. As we develop our language skills we begin to describe the world around us using words and grammar. Language shapes how we express ourselves and is essential to forming and understanding ideas and concepts.

The NWT has a rich fabric of culture, language and heritage. This is recognized by the fact that the NWT has eleven official languages. ECE, along with partners such as families and communities, has an important role to play in ensuring that the profound importance of culture, language and heritage is reflected in all aspects of Northern life.

During the development of this Plan we heard that it is essential to ensure that activities related to culture, language and heritage form an integral part of the ECE's responsibilities. People emphasized the importance of recognizing and celebrating the diversity of

Culture

the NWT by working with communities to record and document histories, historic places, traditions and culture. People also wanted ECE, and the GNWT as a whole, to show leadership in supporting language, arts and heritage activities through a wide variety of programs and services.

Objectives

1. ***Preservation and Knowledge of our Heritage***
2. ***Promotion of the Arts***
3. ***Support & Promote our Official Languages***

Vision

Northerners who are knowledgeable about and proud of their culture.

21st Century Environment

Heritage

Heritage refers to those aspects of our culture that we inherit from earlier generations. Knowing where we come from helps to ground us in the present and to prepare us for the future.

In the NWT, people are the main repositories of heritage information. Many Elders, who have lived much of their life on the land, have a profound knowledge of the heritage of the past generations. This information is essential in understanding how things were done in the past and why the past is important to the future. With the passing of Elders, the globalization of communications and thought, and the reduced focus on some traditions, we may well lose much of this traditional knowledge. Such loss would have a great impact on the people of the NWT.

Archaeological and historical sites and culturally significant areas are also important parts of our heritage. They, too, are at risk of being lost as the pace of northern resource development increases. The proposed Mackenzie Valley pipeline, mines, roads, municipal expansion and other types of development have the potential to damage the record of human occupation in the NWT. As a result, careful work with communities throughout the NWT is required to ensure that historical places are identified and protected.

We now have access to new tools to help us document and preserve our heritage. This new media can document, record and make available information and stories in a way that has never before been possible, and has the potential to provide information about our heritage to a much broader audience.

Arts

Community health, personal identity and growth are nurtured by the visual, performing and literary arts. Artists support the culture and heritage of the communities in which they live. They also challenge our perspectives, and stimulate new ways of thinking.

This connection between the arts and social well-being was recognized by ECE and the Department of Industry, Tourism and Investment in the 2004 *NWT Arts Strategy*, which advocates a holistic role for the GNWT in supporting education, creation, and appreciation

of the arts. The Strategy is not yet fully implemented, but is expected to guide future GNWT investments and activities in this sector.

Language

Throughout history, languages have been in flux. Language strength increases and decreases with changes in economic, social and political conditions. However, the current pace of change in language use around the world is unprecedented as more and more traditional languages disappear. There are approximately 6,000 languages in the world and it is estimated that:

- Over 50% of these are endangered.
- 96% of these languages are spoken by only 4% of the world's population.
- On average, one language disappears every two weeks.

Most of the eleven official languages spoken in the Northwest Territories only exist in Canada, and a number are spoken only in the North. If they are lost from our region, they are lost entirely. The decline of these minority languages is a serious loss from a cultural, historic and economic standpoint. Although there are economic reasons for preserving language diversity, the emphasis must be on the relationship between language, culture and one's sense of self-worth. Languages embody the intellectual wealth of the people who speak them.

Aboriginal Language Use

The NWT is home to Canada's second largest concentration of Aboriginal citizens, comprising nearly half of its population. **The official Aboriginal languages of the NWT are: Chipewyan, Cree, Dogrib, Gwich'in, Inuktitut, Inuinnaqtun, Inuvialuktun, North Slavey and South Slavey.**

Statistics for most Aboriginal languages show a persistent decline in the number of young speakers. While nearly 40% of the NWT's Aboriginal population report the ability to speak an Aboriginal language, nearly 35% of them are over the age of 45 (Canada Census of 1996). Between 1984 and 1999, the percentage of Aboriginal people who could speak their language declined by 9% among Inuvialuit speakers, 15% among those speaking Gwich'in,

16% for Slavey, 19% for Chipewyan and 13% for Cree. In contrast the number of Tlicho speakers declined by some 4%.

Among factors contributing to the declining health of the NWT's Aboriginal languages are:

- English and French are the principal languages of use in most parts of Canada.
- The intergenerational transmission of Aboriginal languages was interrupted by the attendance of students in residential schools.
- The segment of the population that is most fluent in Aboriginal languages is aging.
- Media, such as radio, television, print and Internet, are primarily available in English or French.
- The small numbers of people in each language group.

"With more online resources available (such as the Lessons from the Land Idaa Trail), the web becomes a more useful teaching tool" – Survey Respondent

The evidence suggests that important decisions must be made in the immediate future if the diversity of Aboriginal language usage in the NWT is to be protected.

French Language Use

The NWT French language community is concentrated largely in Yellowknife, with smaller communities in Hay River, Fort Smith and Inuvik. In 2001, the total number of people that reported French as their mother tongue was about 950 or 2% of the NWT population while a total of 3,170 people, or some 8% of the NWT population, reported being able to speak French. The age distribution of people able to speak French has remained relatively unchanged between 1996 and 2001. Almost 90% of the NWT Francophone population was born outside the NWT.

The strength and sustainability of the community are bolstered by the language protection provisions in Section 23 of the Canadian Constitution, and a strong French-speaking population elsewhere in Canada and the world.

Measuring Success

We will measure our success by the number of people who use their language, and who celebrate their heritage and culture in their homes, in the classroom, on the job and in their communities.

Objectives, Priorities and Actions

Objective 1:

Preservation and Knowledge of our Heritage

Leadership in the preservation our heritage is a task that involves a broad range of individuals and groups. The Departmental focus must provide a broad basis to which family and communities can turn for support.

Priority: Preservation of our heritage

Actions:

- Partner with communities to document traditional knowledge and archaeological and historical sites.
- Working with communities, identify gaps in current documentation and develop plans to address information gaps.
- Develop a strategy to systematically collect museum and archival materials for public collections.
- Develop new exhibits that convey messages about the culture and heritage of the people of the NWT.
- Develop a new policy to support community heritage organizations in their efforts to preserve and make heritage information accessible.

Priority: Provide access to heritage information

Actions:

- Prepare new exhibits to travel to NWT communities.
- Improve access to heritage information, including cultural and heritage information in the archival and museum collections, through the Prince of Wales Northern Heritage Centre website.
- Ensure that outreach programs are meeting the needs of schools and culture and heritage organizations in the NWT.
- Fully integrate culture and heritage programs in the school and postsecondary systems.

Objective 2:

Promotion of the Arts

Priority: Provide opportunities for people to learn about and engage in the arts.

Actions:
- Develop fine arts curriculum for school use.
- Develop promotional materials on opportunities in the arts.
- Provide contributions to support community festivals.

Priority: Support creation of arts

Actions:
- Implement the *NWT Arts Strategy*.
- Provide funding to artists at various stages of their career through the NWT Arts Council.
- Provide opportunities for artists to display their work to the public.
- Partner with Industry, Tourism and Investment (ITI) to conduct regular reviews of the results of the *NWT Arts Strategy Implementation Plan.*

Objective 3:

Support and Promote our Official Languages

Priority: Provide program support

Actions:
- Negotiate contribution agreements and support Aboriginal language communities and Aboriginal broadcasting societies.
- Provide funding to create learning environments that support the efforts of language communities to revitalize their languages.

Objective 3 con't ...

- Provide funding and supports to promote the value of the NWT's Official Languages and their continued use in day-to-day activities.
- Support Aboriginal language communities in developing and implementing their strategic language plans.

Priority: Develop resource materials

Actions:
- Provide language resource materials to promote the use of NWT official languages as living and working languages in the following areas:
  - Geographic Place Names
  - Terminology Development
  - Aboriginal Languages Website
  - Language Planning
  - Language Promotion
  - Results-based Management and Accountability Framework Implementation/ Evaluation

Priority: Ensure compliance with the *Official Languages Act*

Actions:
- Create an Official Languages Division within ECE to support and promote the language use within the GNWT and in communities of the NWT.
- Consolidate administrative and policy support for the implementation of the *Official Languages Act* within that division.
- Conduct routine compliance reviews within the GNWT regarding availability of language services as required under the *Official Languages Act* and the *Official Languages Policy*.
- Report on an annual basis on GNWT activities associated with official languages.

Early Childhood Education of Children and Youth

There is a perception that the current education system is not producing the types of results that the public would like, particularly in comparison to southern jurisdictions with long established education systems. The reality is that today the education system has made significant progress over the past 10 to 15 years as more and more students have access to education, particularly among Aboriginal students who make up about 64% of our student population.

The challenge is to build on this success to ensure that the NWT education system continues to promote learning, and enhance skills, attitudes and behaviours in ways that help students establish a solid foundation for their future.

and Schools

Objectives

1. *A Strong Foundation for Learning*
2. *Students Achieving Their Potential*
3. *A Results-based Education System*

Vision

Northern families developing a strong foundation for their children's learning.

21st Century Environment

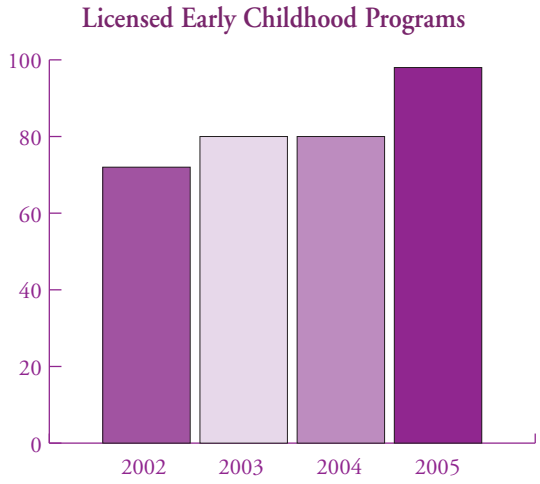
"48% of students enrolled in kindergarten to Grade 12 programs participate in Aboriginal Language programs"

Early Childhood

We expect the demand for high quality childcare will grow as more NWT parents enter the workforce. In early 2005, there were 99 licensed early childhood programs in the NWT, providing 1,403 infant, preschool and after school care placements.

The goal of our early learning and childcare programs is to support parents and caregivers in their efforts to nurture their child's development between birth and the time the child enters school. A better start in learning leads to greater success in life. It leads to the formation of socialization skills, improved health, and better economic prospects. Good childcare is an investment that is returned many times over.

ECE has already made substantial investments in early childhood initiatives, through developmentally appropriate programming which emphasizes social interaction, language development, learning through play, and large and small motor development. Although families are the foundation for the high quality care and development of young children, community programs also play an important role by providing education, resources, and support. The challenge in the future will be to continue to build the early learning network and to improve program quality to meet the needs of the growing number of children who will need care.



Schools

More NWT students than ever before are completing high school and graduating with diplomas. Graduation by Aboriginal students and by students in smaller communities has increased substantially. Although there is some variation from year to year, the overall rate has increased by 9% over the past five years.

At the same time, the NWT graduation rate of around 45% still falls well short of the national graduation rate of about 70%. Some students are not completing the basic requirements they need to be successful in high school, and as a result are not completing secondary education. We still have much work to do in this area.

"It should be a priority of this government to fully assess every child either at age 3 or 4 and prior to entering kindergarten"

- Survey Respondent

Instruction

With the exception of unique elements such as the inclusion of Northern Aboriginal cultures as a fundamental aspect of learning, the course selection offered to students in NWT schools is similar to that found in schools in other parts of Canada. Students who complete their schooling in the NWT should be able to access college, university and certified trades and occupational programs anywhere in the world.

The NWT has, in cooperation with Western provinces and the Northern territories, collaborated in the development of a wide range of curricula for elementary and secondary school. In addition, we have developed curricula and courses, such as Dene Kede, Inuuqatigiit and Northern Studies, that address the unique needs of the NWT. Regular review, selection of appropriate resource materials, and curricula updates are required to ensure that the school program is kept up to date.

At present, there are pathways of study at the senior secondary level. One prepares students for university or college entry and the other prepares students for apprenticeship and trades training. Students may enter apprenticeship programs while they are still in high school, accumulating time credits towards an apprenticeship while simultaneously completing the requirements for high school graduation.

ECE has been working to develop and offer additional courses at the high school level to prepare students for certified occupations, the workforce or to make other productive choices. To effectively implement these new pathways for students, we will need to develop courses, resources, teacher supports, and appropriate career counseling.

While established curricula provide the basis for school instruction, learning is also dependent to a great extent on the skill and abilities of the teachers and other instructional support staff. Ensuring that teachers have the necessary skills and continue to build their skills throughout their careers is an essential element of effective instruction.

"We need to give high school students more choices – maybe if we offered shop classes in our communities they would stay in school longer and get a trade"

- Survey Respondent

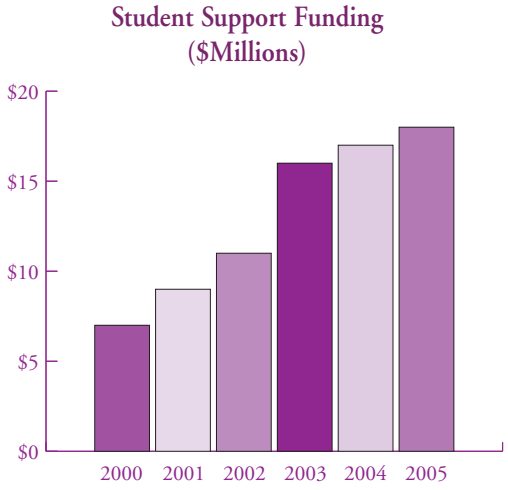
Language and Culture

Approximately 64% of students in the NWT school system are Aboriginal. Past experience and research has demonstrated that students learn most effectively if their learning is firmly grounded in their culture and language. It is essential that appropriate language and culture-related activities form the foundation for learning in the NWT school system.

It has been challenging to adapt Aboriginal learning systems to schools and develop appropriate programs in language acquisition and maintenance. Schools, Aboriginal governments and language community organizations must work together to strengthen language and cultural programs. Some progress has been made, but there is much more work to be done if the students of the NWT are to effectively benefit from our rich language and cultural mosaic.

Student Support

Since 2000, the GNWT has increased student support funding by more than $10 million—an increase of 8% to 15% of total school contributions. This funding is used to provide supports, such as specialized programs and staff. However, even with these advances, limited access to specialized diagnosis and intervention services and resources makes meeting the needs of students a significant challenge for parents, teachers, schools, boards, and ECE.



During the period covered by this Strategic Plan, it will be important to expand support services for students with both short and long term needs. Delivery of these services will require close collaboration between teachers, health and social services professionals, parents and children. If all students are to achieve their potential, this collaboration must be based on the specific needs of the children.

Family and Community

A healthy education system relies on the active participation of parents and the community. It leads to improved attendance, positive attitudes, higher grades, and increased participation in postsecondary education. Strengthening and supporting parental involvement is critical to the long-term success of students.

However, not all families are able to support students in the same way. The effect of family problems can create barriers to education success, and students affected by these difficulties need other support to continue their studies.

"Local needs and national standards are equally important, and not mutually exclusive. In order to meet national standards, children need to develop a strong sense of who they are and where they come from"

- Survey Respondent

Accountability

ECE and elected regional and local education authorities have made great strides over the past decade in strengthening accountability within the school system. These changes include additional reporting, a greater focus on meeting the needs of students and increased public involvement in educational decisions. For example, the Department has improved the public reporting of results from the education system through the biannual publication of the *Towards Excellence* report which shows us how the school system is changing over time. We have improved our data collection so that we have a more comprehensive view of student success, and this has provided a more solid basis for planning. In addition, standardized student testing will be introduced to ensure a meaningful way to measure and monitor how students are doing in our education system.

However, more work needs to be done and education authorities and the Department have identified the need to further improve accountability, particularly to parents.

Measuring Success

We will measure our success by the number of children who enter school ready to learn, by the quality of educational experiences available to youth while they are in school, and by the number who leave school prepared for further education or employment.

Objectives, Priorities and Actions

Objective 1:

A Strong Foundation for Learning

Priority: Increase access to and support for programs

Actions:

- Assist communities to develop or expand early learning and childcare programs for children from infancy to preschool, according to their needs.
- Increase subsidy supports available to parents and licensed providers.
- Improve monitoring of the quality of early learning programs.
- Expand the number of affordable licensed programs and spaces.
- Provide guidelines for the development and implementation of a variety of early childhood development programs using successful programs in the NWT and other jurisdictions as models.
- Work in cooperation with other GNWT, federal and Aboriginal governments to improve program coordination.
- Support family literacy programs offered through and in association with early learning centres.
- Develop an evaluation framework to support early language immersion programs.
- Support the integration and inclusion of children who require additional assistance in early childhood programs.

Priority: Increase the skills of early childhood educators

Actions:

- Offer staff development and training to early learning and child-care educators through the Aurora College certificate program.
- Increase certification requirements for early learning and child

care workers.
- Provide professional development for frontline staff during site visits by Departmental programming experts.

Priority: Regulate and monitor program quality and effectiveness

Actions:
- Establish mechanisms to support self-evaluation of programs by operators.
- Provide opportunities for operators to share knowledge and experiences with a goal to improving program quality.
- Conduct routine program monitoring in all regions and communities.
- Conduct quality-based monitoring and licensing in addition to monitoring health and safety requirements.

Objective 2:

Students Achieving their Potential

Priority: Involve family and community

Actions:
- Regularly seek input and comments from parents regarding programs and services offered by ECE.
- Support parental understanding of the education system and build linkages between schools, teachers and parents.
- Increase information available to parents on early learning and school programs.
- Encourage community involvement in program development.
- Report to the public regularly on ECE supported programs.

Objective 2 con't ...

Priority: Focus on language and culture

Actions:
- Develop Aboriginal language curriculum and resources.
- Review Aboriginal second language delivery.
- Increase in-service and professional development for teachers in the area of Aboriginal Languages and culture.
- Develop resources and supports for language and the *Culture Based Education (CBE) Directive*.
- Review the structures and functions of the Teaching and Learning Centres (TLCs) to increase linkages between language communities, TLCs and schools.

Priority: Increase the availability of student support

Actions:
- Develop a service delivery model in collaboration with other GNWT departments and support partners to ensure that children's needs are identified and addressed at an early age and throughout their educational careers.
- Conduct the third Student Needs Assessment.
- Identify priority recommendations in the Student Needs Assessment and develop an implementation plan to address needs.
- Identify requirements for additional counselling and other required support services.
- Identify current use of student support services and increase accountability requirements of education authorities with respect to spending under the *Inclusive Schooling Directive*.
- Report, at least biannually, on spending related to student services.

Objective 2 con't ...

Priority: Expand course offerings in schools

Actions:
- Remove legislative barriers that prohibit full-day kindergarten.
- Develop a program for full-day kindergarten.
- Continue regular renewal of existing curriculum at all levels.
- Maintain linkage of high school curriculum with that used in the Province of Alberta.
- Provide a broader range of choices at the senior secondary level - particularly those related to preparation for occupations.
- Support the development of Aboriginal language and culture materials linked to the Dene Kede and Inuuqatigiit curricula.
- Complete a review of small high schools with the goal of defining best approaches to programming and funding.
- Complete an analysis of senior secondary enrollments.
- Examine alternative models of senior secondary delivery.
- Research, promote and test innovative approaches to support student achievement and success.

Priority: Provide pre-employment and in-service professional development for educators and other school staff

Actions:
- Identify key areas in which additional training is required to support the availability of staff.
- Work with education authorities and professional and employee representative organizations to design and implement pre-service training programs.
- Target improvement of the instructional skills for teachers and other staff that support student learning.
- Increase teacher skills in the assessment of student literacy.

Objective 2 con't ...

- Evaluate current in-service and professional development models and research alternatives.
- Implement the Teacher Growth and Development Model to assess teacher performance and plan further development of teacher skills.
- Maintain a teacher induction program for new teachers.
- Review the structure of the Educational Leadership Program delivery model to ensure school principals are well prepared for their tasks.
- Open a dialogue with the Northwest Territories Teachers' Association (NWTTA) about a coordinated plan to increase student achievement.
- Double the number of Aboriginal teachers, senior managers, and principals in the school system.

Objective 3:

A Results-based Education System

Priority: Strengthening educational leadership

Actions:
- Create a human development strategy that brings together the following initiatives to strengthen educational leadership in the NWT school system:
  - *Teacher mentorship*
  - *Educational Leadership Program*
  - *Aboriginal Language Acquisition Professional Development Fund*
  - *Aboriginal Educators Leadership Institute*

Objective 3 con't ...

- *Education Authority Development*
- *NWT Teachers' Association*
- *Professional Development (PD) coordination.*
- *Student success initiative PD funds.*
- *Development of consistent definition / criteria for professional development.*

Priority: Assess system performance

Actions:

- Gather student performance information from functional grade level assessment, Alberta Achievement Test scores, and senior secondary analysis.
- Report to the public on a regular basis about how students are doing in our school system.
- Set requirements for school and education authority planning.
- Review and confirm the roles and responsibilities of schools, education authorities and ECE with respect to planning and reporting.
- Assess student progress through the *Student Assessment, Evaluation and Reporting Directive*.
- Conduct regular reviews of key Departmental policy and operational matters.
- Renew the education authority review process.

Education of Adult and Postsecondary Education

Adult and postsecondary education includes a wide range of programs

and services intended to ensure that the NWT adult population has the skill, knowledge and ability to be self-reliant and able to take full advantage of social and economic opportunities.

Programs and services in support of this goal are offered by a number of GNWT departments, boards and agencies. Aboriginal governments, industry, other levels of government and other organizations are also directly involved.

Postsecondary education, research and innovation are increasingly important to the NWT's future economic growth and prosperity. It is important that the postsecondary education and industry training systems continue to strengthen ties with local, community and regional groups to ensure that training and education address the needs of the people in the communities.

Adults

Objectives

1. *Access and Choice for Adult Learners*
2. *A Responsive College*
2. *An Integrated Adult Learning Network*

Vision

Northern adults continuing to learn and grow to meet the requirements of daily living.

21st Century Environment

Education Levels

Education levels continue to be the greatest determinant of employment. Over 70% of all new jobs require postsecondary education.

While increasing success in high school programs is a positive sign, there remains a significant number of adults, particularly in our smaller communities and amongst Aboriginal Northerners, who do not have the education levels to successfully compete for and hold emerging jobs. In our smaller communities, only 36.8% of the population has a high school education, compared to 67.5% NWT-wide. Information from 2001 shows that 44% of Aboriginal persons had at least a high school diploma, compared to 82% of non-Aboriginal residents.

Improving the education levels of adults in the NWT, particularly those who do not have the required education levels to access postsecondary education, training or employment opportunities, remains a key challenge. As we meet this challenge, the demand for postsecondary education and training is expected to increase.

Literacy

Residents in the NWT are influenced by the information age that requires us to absorb, understand and process information in more forms than ever before. Not only has literacy become increasingly important for managing our daily lives, it has become a fundamental requirement for entry into the labour force, regardless of occupation. Literacy rates in the NWT are among the lowest in Canada. Based, in part, on the following statistics, there is a demonstrated need to deliver adult literacy and basic education programs through a wide range of delivery agencies:

- 66% of Aboriginal adults and 31% of non-Aboriginal adults do not have the literacy skills needed for daily living.
- The annual income of people without literacy skills is 46% less than the income of high school graduates.
- People with low literacy skills are more likely to use income support for basic needs.

- Fewer than 30% of those with a Grade 9 education or less are employed. This rate rises to over 75% for those with a High School Diploma and over 90% for those with a university degree.

To effectively participate in the dynamic change that is being experienced in the NWT, Northerners with limited literacy must strengthen their skills and abilities.

Skills

Skill Shortages

Canada-wide skill shortages are particularly evident in the NWT where there is a need for skilled and professional workers in a wide variety of occupations. This has become more pronounced in recent years with the developments in the non-renewable resource sector. It is imperative for the NWT to develop these workers in order to meet labour market demands. Provision of appropriate postsecondary and industry-based training is key to the development of available workers.

Skill Trends

Further complicating the skill shortage is the growing demand for continuing education of skilled workers. The rate of change in many professions, including those in trades and technologies, continues to increase. For workers to keep pace, many must regularly study new subjects and learn about new methodologies and techniques. In other words, they must be committed to lifelong learning.

Current and future job growth will be of little benefit to residents unless they have the necessary supports and develop a commitment to strengthen the skills and abilities required for jobs in the NWT.

Training

Delivery in the Northern environment

There are a number of challenges that will continue to face the GNWT in delivering responsive, cost-effective postsecondary education and training. Small populations, low education levels, competing opportunities such as low skill employment, large distances, cultural differences and cost all exacerbate the adult development challenge. Historically, Northerners prefer to have education and training opportunities made available as close to home as possible, particularly those adults who have children and require supports from family and their communities. ECE now has considerable experience in developing program models and identifying the required costs for postsecondary education and training. The Department is also in a position to determine whether there is cost benefit in offering specific programs and services.

Increasing demands to invest in training

While it is true that ECE, and the GNWT as a whole, must be strategic in its investments, there is constant pressure to increase commitment to adult education and training. This is particularly true in relation to the resource sectors where the demand for skilled workers in the oil and gas fields and diamond mines has had a significant impact on priorities and expenditures. Partnerships with industry, Aboriginal governments, and other agencies have increased to meet the demand, but they often have cost-sharing implications involving long-term commitments for government.

Student Supports

Youth and adults participating in adult and postsecondary education and training require supports to meet a variety of needs, many of which may be unique to their individual circumstances. These include personal and academic counselling, financial support, and housing assistance. The GNWT shares responsibility in the provision of these supports with families, communities, Aboriginal governments, businesses and industry.

As the cost of education and training continues to increase, supporting students through its programs and services such as the Student Financial Assistance program, training on the job subsidy programs and Aurora College student services will become more challenging.

Measuring Success

We will measure our success by increasing the number of Northerners who complete higher levels of education, the number of adults accessing education and training opportunities, by the way we respond to emerging education and training needs in communities, and by our ability to work cooperatively with other adult learning delivery partners.

Objectives, Priorities and Actions

Objective 1:

Access and Choice for Adult Learners

Priority: Establish high school certification of adult learners

Actions:
- Identify students who did not complete high school and offer them opportunities to complete basic education courses.
- Define requirements for adult high school certification.
- Further develop the existing partnership with Alberta Distance Learning to increase course offerings for adults.
- Develop adult learning needs model to ensure adult access to accreditation.

Priority: Increase student services

Actions:
- Provide additional funding for student accommodation and supports, and create additional residence spaces at Aurora College campuses in Yellowknife and Inuvik.
- Provide ongoing funding support for student success centres at each of the three Aurora College campuses.
- Expand linkage between career development centres and College campuses so that College graduates have ready access to information regarding careers and jobs and can begin planning their careers prior to leaving school.
- Adjust Student Financial Assistance funding to reflect inflation and the cost of postsecondary education.
- Establish mechanism to provide financial assistance for students enrolled in upper level adult basic education courses offered by Aurora College.

"We need to figure out what we want Aurora College to do and then fully fund them do do it"

– Focus Group Participant

Objective 1 con't ...

Priority: Regulate private sector provision of programs

Actions:
- Implement *Private Vocational Training Directive* to regulate the quality and stability of private training.
- Monitor private sector compliance with the directive.
- Measure the success of students enrolling in private sector training programs.
- Identify additional opportunities for collaboration between private sector trainers and Aurora College.
- Identify opportunities for effective private sector training and support the development of appropriate programming.

Objective 2:

A Responsive College

Priority: Define College mandate and priorities

Actions:
- Establish planning framework to guide Aurora College strategic planning that is linked to the ECE Strategic Plan.
- In cooperation with Aurora College, develop a business-planning model to guide program and service planning for College activities.
- Update the *Public Colleges Act* to reflect the evolution of the NWT College system.

Priority: Provide high quality programs

Actions:
- Develop a results-based accountability framework for the College.
- In cooperation with Aurora College, establish a schedule for the regular external evaluation of programming.

Objective 2 con't ...

- Support College actions to maintain and expand current credit and program transfers with other postsecondary institutions.
- Seek student and employer feedback on College programs and graduate skill levels.
- Integrate workplace essential skills into adult programming

Priority: Provide pre-employment and in-service staff development for College personnel

"Has anyone done a study to truly see whether the program is succeeding? …ECE and the College seem to measure activities, but long-term outcomes are harder to track and measure."

– Survey Respondent

Actions:

- Ensure that cultural awareness orientation training is provided for College staff.
- Provide mentorship supports for community adult educators.
- Share professional development activities between College and Education Authority staff.
- Support the College to fully implement a growth and development assessment model for instructional staff.
- Support the College's establishment of a comprehensive human resource development plan which focuses on technical and instructional excellence.
- Maintain adult learning certificate program to encourage those training adult learners to build their skills and knowledge.

Objective 3:

An Integrated Adult Learning Network

Priority: Encourage partnerships in program delivery

Actions:

- Work with Aboriginal governments and other training parties to establish regional and community training coordinating committees.
- Establish a regular consultation process for engaging communities, Aboriginal governments, employers and industry in identifying

education and training priorities as well as supports for students and trainees.

- Share results of education and training outcomes with partners.
- Examine the potential for increased linkages between College Community Learning Centres and the school system.
- Establish pilot projects to test resource sharing and systems integration between senior secondary education, adult literacy and basic education, and trades and technology.
- Strengthen collaboration between Aurora College and school governance bodies.

Priority: Accreditation of learning across the system

Actions:
- Establish formal mechanisms for assessing prior learning.
- Increase understanding of prior learning by staff members working within the NWT learning system.
- Examine opportunity for a broad system of certification of training activities offered by public and private sector training institutions.
- Determine requirements for record keeping to document learner achievements.
- Make functional grade level assessment results available to the College.

Priority: Regularly evaluate program effectiveness

Actions:
- Develop schedule, process, and criteria for program and service reviews.
- Involve College, departmental and private sector representatives in evaluative activities.
- Implement Private Training Directive to ensure the quality of private sector training delivery.
- Report publicly on evaluation activities.

Employment

A Skilled and Productive Workforce

ECE provides a variety of career, employment and labour programs and services to ensure that NWT residents have the skills, knowledge and opportunities to participate fully as productive citizens in the Northern economy.

These include a coordinated system of career development services. We produce and distribute relevant Northern labour market and occupational information so that Northerners are aware of work and learning opportunities. We promote the value of career planning and the creation of a career planning culture to support self-reliant people and communities.

The Department also funds, supports and evaluates training programs, including apprenticeship training, that are responsive to the needs of individuals, industry and communities. We work with employers and industry groups to ensure a coordinated approach to labour force development. We establish occupational standards and provide certification for designated occupations in the NWT.

ECE promotes fair, healthy, safe, cooperative, and productive work environments. We provide relevant labour standards regulations to employers and employees in the NWT. We also regulate and enforce the *Labour Standards Act* in the NWT.

and Labour

Objectives

1. *Northerners Making Informed Career Choices*
2. *A Skilled Workforce*
3. *A Productive Work Environment*

ECE works closely with these partners to encourage and support the development of a Northern workforce:

- Aurora College
- GNWT departments
- Federal government departments
- Aboriginal organizations
- Private sector employers

Vision

Northerners participating in a strong and prosperous work environment.

21st Century Challenges

The NWT Labour Force

Labour Force Activity

The NWT has one of the fastest growing economies in Canada, with unprecedented business and employment opportunities. In 2004, the average employment rate was close to 70%, and NWT has the highest employment rate in Canada. Although a disparity exists between the employment rates in Yellowknife and smaller communities, (the Yellowknife rate is 81.9%; average rate in smaller communities, about 60%) the employment rates for Aboriginal people are improving. In 2002, the employment rate for Aboriginal people was 52.3%, the highest value recorded since information began to be collected in 1984.

Over a 10-year period ending in 2010, the labour market in the NWT is projected to grow by as much as 7,000 jobs. During that same period, a 20% decrease in labour supply is anticipated because many workers do not have the required skills. Unless changes occur, the pool of available workers within the NWT will not have the capacity to meet future demands – a situation that is complicated by increasing national and global competition for jobs.

The Aging Workforce

While the NWT population is younger than in the rest of Canada, our population is aging and birth rates are declining. This trend, coupled with increases in early retirement, can be expected to put pressure on young and middle-aged adults to develop the skills required for the jobs being vacated. Unless the NWT is able to provide the trained and skilled workers that are needed, this may lead to increased in-migration of workers.

Public Sector

Even with the current boom in mining, oil & gas and construction, the public service remains the largest single employer in the NWT. About 37.3% of NWT workers are employed by in government administration, health or education services.

This sector will continued to be challenged by fiscal restraint, the need to ensure the labour pool has appropriate skill levels at both the NWT and community level, and the changes that will come about as a result of devolution and the establishment of Aboriginal governments.

Regional, Community and Aboriginal Government Development

One of the goals of the current Legislature is "well-governed, sustainable communities and regions able to fulfill their potential." The responsibilities of regional, community and Aboriginal governments are growing as a result of self-governance agreements and devolution of authorities. Many of these governments require capacity development – preparation of skilled and experienced employees – in order to effectively manage and deliver current and future programs and services.

As Aboriginal self-government is implemented in the NWT, it will be important for the GNWT and the Aboriginal governments to clearly communicate where and how members of the public can access programs and services.

"Maybe career counselling services should be available in the schools"

– Survey Respondent

Private Sector

Growth of the private sector is expected to continue over the planning period, particularly in the non-renewable resource industries, creating a high demand for workers. Businesses supporting the expanding population as well as those providing services and support to sectors such as transportation all require skilled employees. At present, large and small employers alike are looking for skilled staff.

Non-Renewable Resources

In 2001, the NWT's GDP grew by 19.6% (the highest growth rate in Canada), largely as a result of development in the non-renewable resource sector, and this trend is expected to continue. This has had a significant effect on the employment levels and skill requirements for workers. Key developments in this area are:

Diamonds

Over the last 10 years two diamond mines, BHP Billiton Diamond Inc.'s Ekati Mine and the Diavik Diamond Mine have gone into operation, while a third mine, De Beer's Snap Lake Mine, is expected to begin operation in 2006. The operating mines employ just over 1,300 people in unskilled, semi-skilled and skilled jobs. The opening of the mines has also led to the creation of a secondary diamond industry which includes cutting and polishing facilities.

Oil and Gas

The last five years have seen a significant increase in oil and gas exploration in the NWT, driven by increased demand in the United States, declining reserves in Alberta and the possibility of the construction of a natural gas pipeline along the Mackenzie Valley. Employment in this industry varies on an annual basis, but it is estimated that 1,728 people are employed in the industry for some period of time each year.

This sector is expected to grow dramatically with the potential construction of the pipeline. The pipeline is currently in regulatory review and construction could begin as early as 2007. More than 8,000 jobs for skilled trades, labourers, engineers and other professionals could be created by pipeline construction and associated activity. Job growth in the resource sector, and the associated influx of new residents to the NWT, will create jobs in other sectors of the economy as the demand for goods and services increases.

Labour Services

The NWT's ability to compete and to provide secure, rewarding jobs depends on highly productive workplaces. The key to creating such workplaces is to find the right balance between the interests of employees and employers. The GNWT will need to focus its attention not only on helping people develop the necessary skills to find work, but also on promoting cooperative work environments that foster constructive labour-management relations.

The workplace in the NWT is governed by a complex array of both territorial and federal legislative and regulatory requirements. With the anticipated increase in the number of employers and works, there will be a higher demand for labour services to ensure employers and employees are aware of their rights and duties.

Measuring Success

We will measure our success by the number of Northerners who make informed career choices, by the number of people who develop the skills and abilities they need to become certified workers in the NWT, and by an assessment of whether the labour environment is fair, stable, and provides opportunities for all Northerners.

Objectives, Priorities and Actions

Objective 1:

Northerners Making Informed Career Choices

Priority: Improve access to career development services

Actions:
- Dedicate career counselling resources specifically to support students and staff attending NWT schools and Aurora College.
- Build increased understanding of existing services through improved linkages with employers, schools, Aboriginal governments and communities.
- Update the *Career Development Directive* to ensure the roles, responsibilities and mandates for career development partners are clear and reflective of new and changing relationships.
- Provide access to career development services using new and emerging technologies.

Priority: Provide effective career counselling services

Actions:
- Increase skill levels of career counselling staff.
- Develop and implement process for obtaining results information about career development services.
- Partner with the schools and college on professional development activities.
- Provide routine updates of labour market information to educational institutions and the public.
- In cooperation with the NWT Bureau of Statistics provide labour market information along with career counselling information at school.
- Create career awareness with parents of students.

Objective 1 con't ...

Priority: Link skilled employees to work

Actions:
- Develop an employer survey to identify essential skills required by employees.
- Raise awareness of job opportunities and the required skills for those jobs.
- Work with employers to remove barriers to employment.
- Encourage preference for employment of Northern workers by industry and new employers.
- Involve industry and employers in training to the greatest extent possible.

Objective 2:

A Skilled Workforce

Priority: Provide institutional and workplace skills development

Actions:
- Develop and deliver programs through Aurora College that meet current and emerging labour market needs.
- Encourage employers to support the development of their employees by sharing best practices and exchanges of information.
- Support people to acquire workplace skills through "training on the job" subsidies.
- Partner with the schools and college to support the development of skills that lead to occupational certification.

Priority: Certify workers

Actions:
- Identify key occupational categories in which certification is preferred by employers.

Objective 2 con't ...

- Partner with employers and industry to identify required occupational skill competencies.
- Strengthen mechanisms to identify Northerners for apprenticeship programs and to help them enter into them.
- Promote training associated with all types of occupational certification.
- Work with employers to certify and re-certify employees.

Priority: Provide supports related to skills development

Actions:
- Work with the federal government to provide support for clients who are not eligible for employment insurance.
- Provide opportunities for high school students and youth to acquire skills required for the labour market.
- Work with Aboriginal organizations to coordinate efforts.
- Assess barriers to skills development and develop strategies to overcome them.
- Develop specific programs and services to address barriers to enrollment of Northerners in skill development programming.

Objective 3:

A Productive Work Environment

Priority: Develop and monitor labour standards

Actions:
- Update the *Labour Standards Act.*
- Identify and implement efficient procedures for handling labour service issues.

- Promote labour standards and services with employers and employees.

Priority: Work with employers to define human resource requirements

Actions:
- Work with employers and employees to identify and clarify workplace expectations.
- Develop human resource planning frameworks for use by small, and medium employers.
- Support the development and operation of economic sector councils focused on strengthening the skills and abilities in the labour force.
- Work with other provinces and territories to identify key issues and ways in which to collaborate to provide human resource requirements.

Priority: Expand GNWT role in labour

Actions:
- Conduct background research on labour functions of provincial governments and develop a model for GNWT activities in this area.
- Work with industry, employers and labour to identify a framework for increased GNWT involvement in labour matters.
- Examine the possibility of assuming a broader mandate for labour from the federal government with respect to devolution.

Income

People Participating Fully in Society

In the NWT, there is strong enthusiasm about the prospects we have for the future. Continuing development in non-renewable resources, local businesses, tourism and people's education and skills will ensure that the NWT is a prosperous and secure place to live and to raise a family in the years to come. The challenge is to ensure that all Northerners share in this opportunity and prosperity regardless of their circumstances.

The majority of Northerners are self-reliant and have sufficient resources to meet their needs. However, there are also a significant number of persons who require either short or long-term supports to meet their needs. ECE is challenged with providing a comprehensive range of financial support programs for NWT residents in need.

These programs must recognize the importance of family and community in the promotion of self-reliance. Their focus is on helping people to make choices that

Security

are right for them, according to their personal circumstances, efforts, abilities, aspirations and health. We believe that while peoples' circumstances and abilities may vary, their goal is much the same – *participating fully in society*.

Objectives

1. ***An Integrated System of Program Supports***
2. ***A Comprehensive System of Financial Supports***
3. ***A Responsive Income Security System***

Vision

People actively participating in community and society to their fullest potential.

21st Century Challenges

Income Levels

The increase in economic activity since 1998 has lead to a higher average income in the Northwest Territories. Between 1995 and 2003, the average employment income in the NWT increased by 23%. The average employment income in small communities increased by 37% during this period. This increase, while remarkable, still places the average employment income in small communities ($25,274) significantly below the NWT average employment income ($41,904).

Although income varies by community type, family structure is one of the primary determinants of family income. The overall number of families with low income was 14.1% in the NWT for 2001 – a decline of 4-6% between 1998 and 2001. Lone parent families account for 34.9% of low income families, while 7.0% of two parent families have low incomes.

Social Conditions

The number of people receiving Income Assistance from the GNWT has declined continuously in the NWT in the past eight years as employment opportunities have increased. While we have experienced an overall decrease in income assistance, we have seen a moderate increase in youth (aged 19 to 29 years of age) who are receiving income assistance. This suggests that there is still work to be done to improve the link between leaving school and joining the world of work.

Household and family structures are also changing in the NWT. The percent of households in the NWT with six or more persons has decreased from 9.8% in 1991 to 7.0% in 2004. This shift has been more pronounced in smaller communities where the percentage has decreased from 23% to 12.7% over that same period. The number of lone parent families has increased from 15.% in 1991 to 21% in 2001. Again, this shift is more pronounced in smaller communities where lone parent families formed 18.7% of the population in 1991 and 28.3% in 2001.

The mobility of Northerners is also changing. A total of 24.9% of NWT residents surveyed in 2001 did not live in the same community as they had five years earlier. This compares to 35.2% in 1991, suggesting that the NWT population is becoming more stable. However, there are differences, based on community size. In Yellowknife in 2001, 30.2% of people

did not live in Yellowknife five years earlier, whereas in smaller communities, only 14.2 % did not live in the same community five years earlier.

Government Supports

The NWT income security system covers a wide range of supports. However, it is complex and can be confusing for NWT residents because different programs have different rules that are not easily understandable. There are currently 17 different income security programs being delivered by seven GNWT departments. The development of these different programs to meet different needs at different times has resulted in a situation where programs:

- Have different definitions of an adequate level of income and what would be considered a basic need.
- Exempt income from different sources when determining eligibility and calculating benefit entitlements.
- Treat people differently based on factors that have little to do with financial need.
- Define "family" in different ways and incorporate different levels of family responsibility.
- Provide payments through a complex web of delivery systems.

"Why do you make it so difficult for people to apply for help? People shouldn't have to fill out so many forms and get the run around from office to office just to get their cheque"

– Survey Respondent

These differences have emerged in spite of the fact that many of these programs started out to accomplish the same goal – to address the needs of lower-income Northerners.

The complexity and inconsistent nature of existing income security programs make it difficult to determine the degree to which these programs are effective. It raises significant questions with respect to their transparency and accountability. It also results in considerable duplication as as different offices document much of the same personal information about applicants. This has given rise to longstanding concerns that the NWT's income security programs as a whole are too complicated.

There is a clear need to rationalize the income security programs under a common policy framework that results in a consistent, fair and respectful method of supporting

those in need. This must be done in a coherent fashion linked to programs and services that provide Northerners with the skills to be self-reliant.

Measuring Success

We will measure our success by the number of Northerners who participate as full citizens in society with limited government support, and by the number of people who successfully move from government support to further education or employment.

Objectives, Priorities and Actions

Objective 1:

An Integrated System of Program Supports

The Departmental focus must provide a range of programs and services to which family and communities can turn for support in time of need.

Priority: Programs linked to expected outcomes

Actions:
- Identify and plan programs with an understanding of services provided by the Government of Canada.
- Identify clear outcomes for GNWT income security programs and services that support people in need.
- Improve the match of programs and benefits with expected outcomes.
- Provide individuals with the opportunity to achieve financial independence and move from dependency to self-sufficiency.

Priority: Strengthen case management

Actions:
- Develop and introduce an integrated case management approach describing how various service providers will work together.
- Implement a case management service audit to identify best practices and make improvements where required.

Objective 2:

A Comprehensive System of Financial Supports

Priority: Access to programs and services

Actions:

- Create one-stop community access centres linked to regional career centres.
- Make greater use of broadband technology to support program delivery in all communities.
- Work with communities and Aboriginal governments to coordinate delivery of programs and services.

Priority: Consolidation and simplification of programs

Actions:

- Assume responsibility for administering the public housing subsidy program.
- Reduce complexity of application processes through program consolidation and application simplification.
- Identify and assume responsibility for other income security programs.
- Publish information on programs and services in a simple format to improve understanding of the purpose, benefits, processes and expectations.
- Expand use of the Case Management and Administration System (CMAS) to assess applicants of other programs offered by the GNWT.

Objective 3:

A Responsive Income Security System

Priority: Comprehensive income security policy

Actions:
- Develop and introduce a common, comprehensive policy for GNWT income security programs.
- Ensure the policy is founded on clear principles including individual, community and government responsibility; respect and dignity; fairness and equity; adequacy; efficiency; effectiveness; accountability and fiscal responsibility.

Priority: Assess the income security system

Actions:
- Develop an approach for reviewing individual programs against the goals and objectives described in the Income Security Policy.
- Develop an approach for reviewing the income security system against the goals and objectives described in the Income Security Policy.
- Develop a process for, and conduct, routine and periodic program compliance audits.
- Report to the public on a regular basis regarding the activities associated with income security programs and services.

Cross-Goal

Strong People... A Strong North

In order for ECE to achieve its goals and objectives, it must take action.

Many of the required actions have been described in the previous sections of this Plan. This section examines these cross-goal strategies and describes our priority activities.

Much of our success over the next decade will depend on strong partnerships, professional and well-trained employees, good information to back up our decisions and planning, monitoring and measuring how and whether we are meeting our goals.

Strategies

Strategies

In this section, we describe the following five strategies that work together across our goals to build on our success within the Department:

1. *Strong and Effective Partnerships*
2. *High Quality Human Resources*
3. *Responsive Information Systems*
4. *Facilities That Match Program Delivery Requirements*
5. *Effective Performance Planning, Monitoring and Measurement*

Strategies, Priorities and Actions

Strategy 1:

Strong and Effective Partnerships

The achievement of our goals and objectives depends on strong, effective partnerships. The establishment of partnerships will allow us to better inform, influence, and reflect one another's priorities and approaches to achieving our goals. These partnerships are in the North and with our communities, Aboriginal organizations, non-government and community-based organizations, parents and families. By working closely with Aboriginal governments and the federal government, and with other provinces and territories, we can coordinate our efforts and resources to collaborate on strategic initiatives that better the lives of Northerners.

Priority: Strengthen local, territorial and federal partnerships, and work collaboratively to address problems and achieve results

Actions:

- Develop a partnership strategy in each of the key areas of the mandate.
- Target and invest in partnerships that provide the most benefit to Northerners.
- Promote public awareness of the partnerships and the roles and responsibilities of the various partners.
- Develop staff skills related to working in partnership with others.
- Celebrate and promote key outcomes of partnerships.

Strategy 2:

High Quality Human Resources

ECE is committed to developing and maintaining a skilled, productive public service that represents the people it serves. During the past decade, we have undertaken a number of successful initiatives to prepare Northerners to work within the Department and its operational agencies, and this has had a positive impact on program and service delivery. However, there is still lots of work to be done to meet current and future challenges and opportunities.

Building an effective workforce within the Department is a complex activity. This will involve training and educating Northerners to work in public service positions such as teachers, college instructors and career counsellors. It will also involve providing in-service training to allow staff to improve, or learn new skills to better deliver the programs and services for which they are responsible.

In addition, the Department has a role in organizing training for people, such as childcare providers, who will work for other organizations. A variety of approaches are required to develop skilled people for different situations.

Priority: Develop a skilled, productive workforce that represents the people it serves.

Actions:

- Develop a human resource strategy tailored to key areas of Departmental responsibility that includes a focus on:
  - Staff with the skills and knowledge necessary to support Department's overall purpose and plan.
  - An organizational culture that clearly identifies and communicates performance expectations, and reports and assesses results.
  - Improved recruitment, training and professional improvement, as well as retention activities to reduce the skills gap.

Strategy 2 con't ...

- Coordinate teacher recruitment with the DEAs, DECs and the commission scolaire francophone de division.
- Work to ensure Northern students and graduates are hired, particularly from the Aurora College Teacher Education Program.
- Identify and develop training and education programs required to prepare Northerners for entry into jobs related to Departmental activities.
- Develop strategies to increase the number of Aboriginal and Northern students in the Aurora College Teacher Education Program.
- Collaborate with the NWT Standing Committee on Teacher Education to ensure that the content of the Aurora College Teacher Education Program is closely linked to the needs of employers.
- Celebrate and promote the quality of our human resources in their service to the public.

Priority: Ensure our staff get the education and training that they need

Actions:

- Increase training and experiential opportunities to improve leadership within ECE, its boards, agencies and associated organizations.
- Maintain and enhance the New Teacher Induction Program to include a focus on cross cultural awareness.
- Increase coordination and collaboration with the Northwest Territories Teachers' Association as well as regional management personnel, in planning and supporting professional improvement for teachers.

- Plan and support skills development among College staff by working with the College to develop a comprehensive approach to instructor development.
- Encourage common professional development opportunities among key partners.
- Expand Departmental staff development opportunities to include training programs related to the new realities of service delivery, such as collaborative management of programs and services, program assessment and evaluation.

Strategy 3:

Responsive Information Systems

Our information systems play an important role in measuring success and supporting effective program and service delivery. They allow us to track, monitor, and report on what we do. They simplify our processes and improve our efficiency. Equally importantly, these systems point to areas requiring change so that we can improve our overall performance.

ECE is committed to the collection, analysis, and provision of information about its programs and services through responsive, reliable systems. These include internal systems that assist in the administration of our programs, and external systems that can be directly accessed by our clients and the general public. Collectively, they help to ensure that the right people get the right information, at the right time and in the right format.

Over the next 10 years, we will strive to use our technology to free up staff to what they do best—working directly with people.

Strategy 3 con't ...

Priority: Simplify processes and improve efficiency utilizing new technology

Actions:

- Improve or expand the capability of internal information systems by focusing on strengthening the Case Management and Administrative System (CMAS) which supports program delivery in the following areas:
  - Apprenticeship
  - Income Assistance
  - Student Financial Assistance
  - Career Development
  - Career Counselling
  - Day Care User Subsidy
  - Day Care Operations
  - Teacher Certification
  - Student Records
  - Seniors Home Heating Subsidy
  - Senior Citizens Supplementary Benefits.

- Integrate new Departmental responsibilities such as Income Security and Labour into the internal information management system.
- Develop an audit and verification module in CMAS that will enable ECE to monitor compliance and improve accountability.
- Conduct an audit of the CMAS system to ensure that it continues to perform as designed and intended.
- Replace various student records systems in use by the education councils and authorities with a single system.

Strategy 3 con't ...

- Design and implement a database repository to capture student record information.
- Expand Web-based information systems and services focusing on the following areas:
  - Virtual Library Project
  - Student Financial Assistance
  - Student Records for teachers and students online
  - Aboriginal Languages Website
  - Museum Website
  - Distance Learning.

- Work with the Department of Public Works and Services and the Chief Information Officer to address bandwidth issues.
- Assess new technologies that could support the work of organizations responsible for revitalizing and enhancing Aboriginal language use and literacy.
- Ensure information about Departmental programs and services on websites is accessible and user friendly.

Strategy 4:

Facilities That Match Program Delivery Requirements

Many of the activities supported by ECE require the availability of suitable facilities. Each year over 13,000 people, more than a quarter of the NWT population, use the various buildings supported by the Department.

ECE currently operates hundreds of millions of dollars worth of facilities. As requirements change over time, it is critical to maintain, adjust and renovate this infrastructure so our programs and services can continue to be successful.

Funding for facilities is expected to be limited during the next decade. As a result, we will need to pay careful attention to identifying priorities, planning of facility design and managing of construction costs.

Priority: Provide suitable facilities for schools and college programming

Actions:
- Identify facilities that need renovation to meet health and safety requirements, the associated costs.
- Identify facilities that need changes to meet emerging program needs, and define those changes.
- Address college residence shortfalls.
- Secure long term solution to college program delivery requirements in Yellowknife.
- Identify opportunities for the College and high schools to share facility space.

Priority: Define and address additional facility requirements

Actions:
- Establish long-term plan for the provision of public library space in communities.

- Complete renovation of the Prince of Wales Northern Heritage Centre.
- Review contribution policies related to space provision for heritage and childcare facilities.
- Identify and address the requirements for office and other support facilities needed to deliver programs and services.

Strategy 5:

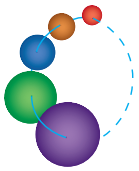
Effective Performance Planning, Monitoring and Measurement

ECE is committed to ensuring that effective planning, monitoring and reporting systems are in place. These help ensure that programs and services are well-managed, that funds are used appropriately and that decision-making is transparent.

The GNWT establishes procedures and processes that ECE must follow in its operations. Activities such as business planning, budgeting and results-reporting, provide a foundation for building an effective performance planning, monitoring and reporting system.

Priority: Confirm program planning and reporting processes

Actions:
- Review and update existing program planning and reporting requirements for education authorities and Aurora College.
- Define mechanisms to share planning and activity information between ECE and its boards and agencies.
- Link and sequence planning and reporting efforts between the ECE and its boards and agencies.



Strategy 5 con't ...

Priority: Create a program evaluation framework and function

Actions:
- Identify employees who will be responsible for coordination of performance measurement and reporting within ECE.
- Establish a plan which includes measurable goals and targets to improve ECE's activities.
- Collaborate on this activity with those in regional, divisional and central agency roles.

Priority: Develop an accountability framework and an indicator report for each of the five main program areas

Actions:
- Develop a results-based management and accountability framework for each of the five main program and service areas.
- Work collaboratively with other GNWT departments on establishing and monitoring key indicators that are common or related to mandates in those departments.
- Expand production of indicator reports which monitor early childhood, schools and postsecondary education to include the remaining three program areas: culture, heritage and languages, employment and labour, and income security.

Conclusion

For more than 20 years ECE has used a Strategic Plan to guide its activities. Such a plan provides an effective overview of the environment in which the Department expects to operate, describes the goals and objectives of the planning period, and establishes the foundation on which programs and services will be organized. It also provides a framework against which the Department's activities can be measured.

Since the completion of the last Departmental strategic plan in 1994, our mandate has changed. The NWT has experienced dramatic economic and social change which has brought broad-ranging opportunities. In order to respond to these changes and opportunities, we needed to revise the Education, Culture and Employment Strategic Plan.

We have spent the past year seeking comments, advice and recommendations regarding the Department, its programs and services. People have told us what they think is working well. They have told us what they feel needs to be improved, and they have suggested how we can become more successful in supporting the needs of all residents of the NWT. We have taken this input, examined how it might fit together and used it to develop this Strategic Plan to guide us for the next 10 years.

This Plan recognizes that the Department of Education, Culture and Employment has an important role to play in supporting Northerners as they plan for the future. The Plan recognizes the successes of the past, and them to help shape the directions for the future. The Plan recognizes that we must work closely with our partners to strengthen programs and services with the goal of building success among children, students and adults. Through the goals and objectives outlined in this Plan we intend to invest in the future and support Northerners as they prepare for that future.

Appendices

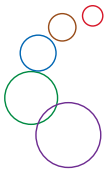
Appendix A: Who we work with and serve

Our Partners

Partnerships are a key to ECE's success. We have partnered with such groups as district education authorities, Aurora College, childcare providers, community groups, local governments, Aboriginal organizations, private sector businesses, various boards and agencies, other GNWT departments and our provincial and federal colleagues.

ECE would like to acknowledge the partners who have shared, and will continue to share in our vision of people leading fulfilled lives and contributing to a strong and prosperous society:

- Beaufort Delta Divisional Education Council
- Sahtu Divisional Education Council
- Dehcho Divisional Education Council
- Tłı̨ chǫ Community Services Board
- South Slave Divisional Education Council
- Yellowknife Catholic School Board
- Yellowknife Education District #1
- commission scolaire francophone de division
- Aurora College
- Aurora Research Institute
- NWT Literacy Council
- NWT Teachers' Association
- Government of Canada
- Local government, Aboriginal organizations, community groups, and various boards and agencies throughout the NWT



Appendix A con't ...

Our Clients

Our clients come to us in their earliest years, then continue through school into college or university and beyond. This Plan is for them because our success is their success.

Our Colleagues

The active cooperation of our GNWT colleagues means that we are able to deliver our programs and services efficiently and effectively. We seek their guidance and assistance. We ask them to join us in solving problems. We are grateful that they, too, share in our vision.

Our Staff

Our employees are caring, professional people who embody our values and live our purpose. Because of their dedication and commitment, we will continue to achieve success for the people we serve.

Appendix B: Our Planning Process

In May 2004, ECE began discussions with staff and key stakeholders about the development of a new Strategic Plan to guide our activity over the next decade. The intent of this planning process was to determine:

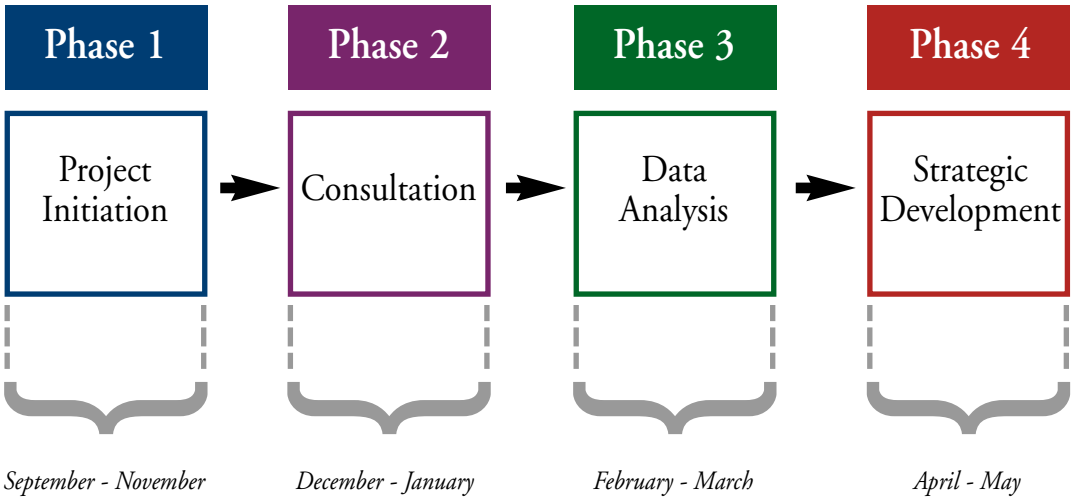
- Whether ECE and its existing mission and mandate were still appropriate to guide its activity, given changes in its structure and operating environment in recent years.
- Whether the Department was headed in the right direction.
- Whether the Department's programs and services were helping to achieve its objectives.
- Whether the Department was organized efficiently and effectively to respond to emerging and changing needs.
- Whether the Department's Human Resource Strategy was sufficient to attract and develop the type of staff necessary to carry out its mandate over the next 10 years.

As the Department began this work, it was guided by the values of:

- Innovation in the solutions we propose to the challenges we face.
- Excellence in the strategies we establish to achieve our goals.
- Leadership in the Plan we develop to serve as a model for others.

Developing Our Process

ECE established its Strategic Planning Project as a four-phase process that began in September 2004.



Project Initiation

During the *Project Initiation Phase*, the Department reviewed approximately 100 background documents relevant to the strategic-planning initiative. These included previous plans, prior consultation documents, statistical reports and best practices from other jurisdictions.

The *Project Initiation Phase* also involved the identification of all project tasks, including the establishment of a project team, a review of program material, the development of survey tools and an evaluation framework, the drafting of a communication plan, consultation schedule, timetable for data analysis and a schedule for review.

Because it was essential that the planning process be informed about the social, economic, political, cultural, technological, and educational environment in which the Department would exist over the next decade, the first step was to conduct an assessment of that environment. The information would come from four main sources:

1. Internal Assessment

The internal assessment involved a review of internal structures, processes and operations to identify strengths and weaknesses. It included a review of the current organizational structure, our people, facilities, technology, management practices and programs and services.

2. External Assessment

The external assessment was useful in identifying changes in the operating environment that could have an impact on the Department over the planning period.

3. Stakeholder Consultation

Consultation with key stakeholders served an important role in identifying changing needs, perceptions, opportunities and emerging community concerns.

4. National Trends

The review of best practices or "national trends" from across the country helped to place the Department's planning exercise in a larger context. The intent was to learn from jurisdictions that had successfully addressed challenges similar to those identified by the Department.

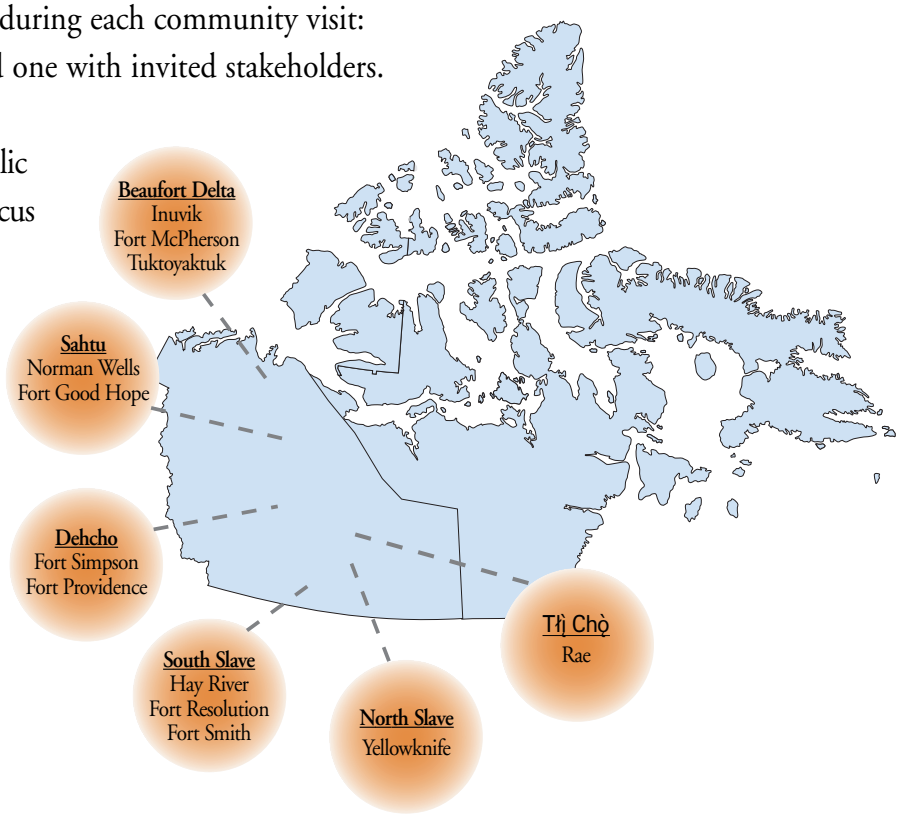
Consultation

During the *Consultation Phase* of the project, the Department invited various partner organizations to participate in the development of the plan. These sessions allowed the Department to engage a broad group of stakeholders in the actual planning process.

Focus Groups

Review teams visited 12 NWT communities to seek input on how the Department and its programs and services could better meet local needs. A total of 25 focus group sessions were held and 250 to 300 people were consulted. All regions of the NWT were represented. Participants included all major stakeholders, staff and the public.

Two sessions were held during each community visit: one with the public and one with invited stakeholders. Program review teams developed a series of public consultation guides to focus these discussions.



Surveys

The next step in the *Consultation Phase* involved surveying various departmental partners. A series of five surveys was distributed to partner organizations and individuals in every community across the NWT asking people to comment on departmental programs and services.

This survey was given to the education community, school boards, postsecondary institutions, early childhood educators, local governments, Aboriginal organizations, members of the arts, culture and heritage community, language groups, industry, social advocacy organizations, program clients, staff and members of the public.

Appendix B con't ...

Consultation materials were made available to the public in regional offices and on the Department's website. People were also given an opportunity to comment electronically, by mail or fax.

Data Analysis

Thousands of Northerners responded to the invitation to give their views on the issues outlined in the consultation guides. Summarizing the information and ideas was a monumental task. Using a variety of qualitative and quantitative analysis methods and techniques, the strategic planning review team was able to provide highlights of the key themes and directions brought to its attention.

Information from the surveys, focus group sessions, review of prior consultation documents, and review of best practices were used in the development of strategic directions. Themes from each of these four sources of data were developed into working papers for each of the five main program areas. When combined, these 20 working papers provided the substance of the Plan.

In this phase of the project, efforts were made to reach consensus on strategic directions. This was done by reviewing the planning work, considering the results of stakeholder input sessions, and assessing and validating potential strategic directions. By the end of this phase of the project, the strategic planning review team was better able to:

- Understand conditions in the operating environment.
- Define the critical issues to which ECE must respond.
- Clarify what ECE wants to become.
- Confirm the vision, purpose, values.
- Develop goals and objectives for the planning period.

Strategy Development

During the *Strategy Development Phase* of the project, the Department described how it would establish priorities for action and commit its resources to accomplishing the identified goals and objectives. Priorities were seen as fitting into the business planning process and were expected to serve as a link between long-term and annual planning. This phase of the project was essential because it was the point at which the Department developed vision statements describing how it intended to respond to major challenges.

In developing the Strategic Plan, the Department paid particular attention to:

- Describing its purpose in terms of goals, objectives, and strategies.
- Identifying its strengths and weaknesses and how it would respond to opportunities and threats in its environment.
- Defining the roles and responsibilities of headquarters, regional offices, and partner organizations.
- Drafting an expression of the Department's strategic intent.
- Describing resource reallocations and funding requirements.
- Broadening ownership and building a shared vision of the future.

Appendix B con't ...

The next step was the development of strategic goals consistent with the vision statement. These broad statements of what ECE hopes to achieve are outcomes or results-focused. The next step in the planning process was the development of strategies for each goal. These are statements of approach or a method for attaining goals. A strategy was judged effective if it did one or more of the following:

- Took advantage of opportunities.
- Defended against threats.
- Leveraged organizational competencies.
- Corrected organizational shortcomings.
- Offered some basis for future competitive advantage.
- Counteracted forces eroding current competitive position.

The final step was the development of annual objectives consistent with the Strategic Plan goals and objectives. Objectives are specific, measurable, accountable, results-based, and time sensitive statements of what will be done to achieve a goal.

An important feature of the Plan's development was the establishment of a detailed provision for evaluating the progress ECE was making toward meeting its objectives. ECE has provided for regular evaluations and appropriate revision of the Plan, followed by widespread dissemination and discussion of the results of the evaluations.

Appendix C: Linking Our Plan with Others

ECE and its programs and services contribute to and support the strategic goals established by the GNWT in *Self-reliant People, Communities and the Northwest Territories: A Shared Responsibility*.

GNWT Goal: A strong northern voice and identity

The ECE goal of *Pride in our Culture* is linked directly to this goal. Through actions such as culture-based education in the school system, language programs, and supports for the arts, ECE activities emphasize and celebrate personal and community identity.

GNWT Goal: Healthy, educated people living in safe communities

The ECE goal of *Education of Children and Youth* incorporates actions to support effective parenting early childhood development and literacy. It incorporates actions to support student success in literacy and numeracy, as well as to promote positive lifestyle choices. Activities also prepare high school students for postsecondary experiences, community life and participation in the labour force.

The ECE goals of *Education of Adults* and *A Skilled and Productive Workforce* ensure that learning and preparation for the labour force are a continuous process that allows residents can to build their knowledge and skills throughout their lives.

Finally, the new ECE goal of *People Participating Fully in Society* incorporates necessary program restructuring and amalgamation to ensure that programming in the income security field is effective and consistent while supporting the critical goal of individual and family self-reliance.

GNWT Goal: Well-governed, sustainable communities and regions

Through its program delivery structure that includes divisional education councils, district education authorities, Aurora College and regional offices, ECE is able to strengthen

community capacity to make decisions and direct the education system. This structure includes the delegation of well-developed authorities and responsibilities and mechanisms for regular reporting of results to the public.

GNWT Goal: A diversified economy providing opportunity and choice

Two ECE goals support this GNWT goal. First, the revised Departmental goal of *A Skilled and Productive Workforce* incorporates the strengthened focus on employment and labour to support both employers and employees. Second, the ECE goal of *Education of Adults* includes the provision of Adult Literacy and Basic Education as well as postsecondary education and training programs to prepare Northerners for the opportunities offered by a growing NWT economy.

GNWT Goal: Care and protection of the natural environment

Through the NWT school system and postsecondary education programs, Northerners learn about environmental protection and sustainable development. These efforts help to foster respect for the natural environment.

Appendix D: Measuring Our Success

Are we making progress? Have we accomplished what we set out to do? Our Strategic Plan will help us answer these important questions. It will translate our vision into tangible outcomes, and serve as a blueprint to keep us on track toward the attainment of our goals.

Within each of our five goals, we identified three objectives to work toward in the months and years ahead. Performance indicators will chart progress toward our goals, and provide the link in our activity-to-objective-to-goal chain.

Early on in the planning period, we will finalize a results-based management and accountability framework and an annual action plan for each of its five program areas.

Goals	Objectives	Indicators
1. Pride in Our Heritage	Preservation of Our Heritage	Number of Heritage Sites/Artifacts Preserved/Promoted
	Promotion of the Arts	Number and Type of Cultural Activities Supported
	Support and Promotion of Our Official Languages	Language Use
2. Education of Children and Youth	A Strong Foundation for Learning	EDI Test Results
	Students Achieving Their Potential	Graduation Rate
	A Results-based Education System	Functional Grade Level Assessment
3. Education of Adults	Access and Choice for Adult Learners	Range of Opportunities for Adult Learners
	A Responsive College	Integration of Aurora College graduates into further education or employment
	An Integrated Adult Learning Network	Completion/Graduation Rate by Type of Post-secondary Program
4. A Skilled and Productive Workforce	Northerners Making Informed Career Choices	Number of Career Services Accessed/Provided
	A Skilled Workforce	Number of Apprentices and Certified Workers
	A Productive Work Environment	Number of Occupations with Labour Shortages and Number of Labour Complaints
5. People Participating Fully in Society	An Integrated System of Program Supports	Time on Assistance
	A Comprehensive System of Financial Supports	Client Interaction survey
	A Responsive Income Security System	Case Load/Benefit Levels/Expenditures

Linking Strategic Planning to Annual Planning

The goals identified in this Strategic Plan are linked to our annual business planning process. The business plan describes the activities and resources we will put toward achieving our strategic goals and objectives each year, and this will in turn influence the progress we make toward achieving our goals.

If you would like this information in another official language, call us.

Si vous désirez ces renseignement dans une autre langue officielle,
veuillez communiquer avec nous.

Kīspin ki nitawihtīn ā nīhīyawihk ōma ācimōwin, tipwēsinēn.

Tłı̨chǫ yati k'ę̀ę̀. Di wegodi newǫ dè, gots'o gonede.

Ɂerihtł'ís dëne súłiné yati t'a huts'elkër xa beyéyati theɂą ɂat'e, nuwe ts'ën yółti.

Edi gondı dehgéh got'ı̨e zhatié k'ǫ́ǫ́ edatł'éh enahddhę nide.

K'éhshó got'ı̨ne xədǝ́ k'é hederi ɂedı̨htl'é yeriniwę nídé dúle.

Jii gwandak izhii ginjìk vat'atr'ijąhch'uu zhìt yinohthan jì', diits'àt ginohknìi.

UVANITTUAQ ILITCHURISUKUPKU INUVIALUKTUN, QUQUAQLUTA.

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Hapkua titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarlutit.

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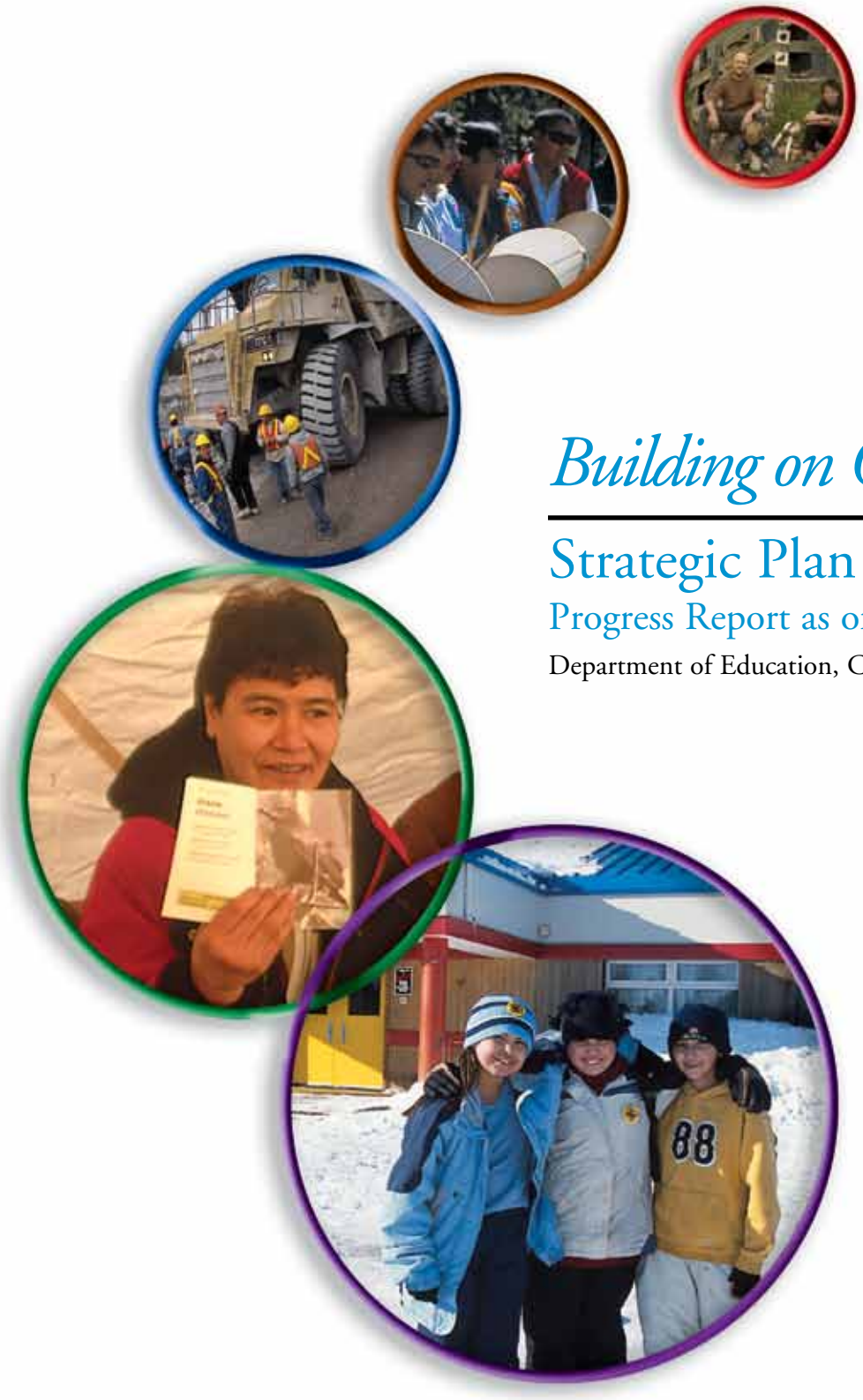

Building on Our Success

Strategic Plan 2005–2015

Progress Report as of March 31, 2009

Department of Education, Culture and Employment

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Minister's Message – Building on our Success 2009

It's with great pleasure that I provide this report on the progress of the Department of Education, Culture and Employment's (ECE) third Strategic Plan, Building on Our Success: Strategic Plan 2005-2015. Since the plan was introduced in 2005, ECE is making great strides towards fulfilling our five program goals. Moving forward, ECE is excited about future plans for continued success and growth in our service and program areas.

To improve postsecondary education and training, ECE is working with Aurora College to upgrade their college facilities. Moving forward, a ten-year facility plan is in development that includes ways to address student residence requirements at Aurora College and ensure facilities meet the needs of teachers and students.

Complementing these activities, ECE is reviewing Aurora College's Early Childhood Development Program so both students and teachers have the resources needed to reach their full potential academically, socially and professionally. To make sure early childhood programs are effectively administered, ECE is expanding the production of indicator reports monitoring early childhood and school programming.

ECE supports the fundamental belief that people learn better when their environment reflects their culture. ECE invests in initiatives that provide culturally relevant programs, beginning in early childhood and continuing through all stages of life. The Culture and Heritage Division develops new exhibits at the Prince of Wales Northern Heritage Centre that emphasize the connection between people and the land. ECE also coordinates teacher recruitment with the District Education Authorities, District Education Councils and the Commission scolaire francophone de division to ensure the many cultures that make our territory great are represented in our schools.

To strengthen Income Security program delivery, training conferences for Income Security Officers were held in 2007 and in 2008. The conferences help assure our front line workers have the resources necessary to assist clients. To monitor program delivery, ECE integrated Income Security responsibilities into the internal information management system.

ECE's departmental goal of a skilled and productive workforce expresses our commitment to supporting both employers and employees in the NWT. ECE is working with industry and Aboriginal partners to submit proposals for additional funding under the Aboriginal Skills and Employment Partnership program and facilitates career development workshops like the biannual LINX Conference.

Further details on ECE's achievements and next steps, alongside updates on our five cross-goal strategies, are outlined in this report. ECE made great strides in the last two years but just like education is a never-ending process, so is our work. ECE is dedicated to improving the way we do business to ensure residents of the Northwest Territories receive consistent quality programs and services.

Our stated vision is "Northern people leading fulfilled lives and contributing to a strong and prosperous society." ECE is filled with many committed and hard working people. With this team and through increased partnerships, our outlined goals are achievable by 2015.

Jackson Lafferty

Minister of Education, Culture and Employment

Culture, Heritage and Language

Northerners who are **knowledgeable** about and **proud** of their **culture**

Objective 1

Preservation and Promotion of our Heritage

- Several new museum exhibits developed with communities:
  + *Pi Kennedy: The Life of a Trapper;*
  + *History of Arctic Winter Games*;
  + *Henry Busse,* an on-line photo exhibit*;*
  + *Yamoria: the one who travels;*
  + *Pihuaqtiuyugut: We are long distance walkers;* and
  + *Through a Gwich'in Lens:* photos of James Jerome.
- Residential School Records requests were supported.
- Conservation outreach services were provided to the Northern Life Museum in Fort Smith.
- Mackenzie Mountain Ice Patch and Sambaa K'e archaeology projects were conducted.
- Three new Dene edukits developed for NWT schools.
- Twenty-five learning modules developed for the NWT Historical Timeline.
- Commissioner Stuart Hodgson and John Parker papers were acquired by the NWT Archives.
- Steppe Bison from the Prehistoric era was discovered in Tsiigehtchic and is now being conserved.
- Contributions for heritage and cultural organizations increased from $506,000 in 2007-08 to $841,000 in 2008-09.

Performance Measure: Community Involvement
Indicator: Proportion of communities involved in one or more culture and heritage activities in conjunction with the PWNHC

2005 Baseline: 2004 – 2005	2007-08 Actual	2008-09 Actual	2010 Target	2015 Target
16 out of 33 Communities	23 out of 33 Communities	27 out of 33 Communities	30 out of 33 Communities	All Communities

Objective 2

Promotion of the Arts

- The following artists were featured at the PWNHC:
  + Gavin Renwick;
  + Mary Harrington Bryant;
  + Sheila Hodgkinson;
  + Archie Beaulieu;
  + Robert Burke;
  + Holman Cooperative;
  + Don Cardinal; and
  + Bob Wilson.
- Conservation workshop "Permanence of Artists' Materials: Paintings and Works of Art on Paper" was attended by twenty participants.
- Funding for artists and arts organizations, through the Support to Northern Performers and NWT Arts Council programs, increased from $426,000 in 2007-08 to $541,000 in 2008-09.

Performance Measure: Equitable Access
Indicator: Degree to which the regional distribution of Arts Council applications matches the population distribution

Region	2005 Baseline: 2005-06	2007-08 Actual	2008-09 Actual	2010 & 2015 Targets*
Beaufort-Delta	9%	7%	7%	11% & 14%
Sahtu	7%	11%	4%	5% & 6%
Tâîchô	1%	1%	1%	3% & 6%
Dehcho	13%	7%	2%	4% & 8%
South Slave	16%	30%	28%	22% & 17%
Yellowknife	55%	44%	58%	55% & 49%

*Distribution of Applications is within 3% of Population Distribution.

Objective 3

Support and Promote our Official Languages

- The French Language Single Window Service Centre (Services TNO) was opened in Yellowknife in 2008 providing services on behalf of 7 agencies and departments, including ECE.
- Project Modules 1 to 6 of the Interpreter/Translator Pilot Training were completed.
- A certification process for Interpreter/Translators was piloted in 2007-08.
- Recommendations of the Special Committee on Official Languages implemented in 2007-08 and 2008-09 were:
  + Development of the Aboriginal Interpreter/Translator pilot project mentioned above;
  + Aurora College delivery of a new two year Aboriginal Language and Cultural Instructor Program (ALCIP); and
  + Development of the Strategy for Teacher Education in the NWT: 2007-2015.

Performance Measure: Access to Language Learning
Indicator: Percentage of students enrolled in Kindergarten to Grade 9 and Grades 10 to 12 who participated in Aboriginal language programs

2005 Baseline: 2004-05	2010 Target	2015 Target
45% K-9	55% K-9	70% K-9
6.4% Grades 10-12	15% Grades 10-12	20% Grades 10-12

Next Steps for 2009–11:

- Complete acquisition strategy for museum and archival collections.
- Continue to support Residential Schools Records requests - NWT Archives.
- Implement Museum Exhibit Renewal Strategy for new displays, traveling and on-line exhibits: Gwich'in Fish Camp Travelling Photo Exhibit, Yellowknife 75th Anniversary, Qilalukaat - Beluga Whales and Kuukpak, Inuvialuit Archaeology, Voices of the Land: five new dioramas planned.
- Continue the federally funded Historic Places Initiative program until March 2010 and process up to eight new Territorial Historical Sites with community input.
- Continue consultations for future Geographic Names.
- Coordinate Cultural and Performing Artists for the Vancouver Olympics.
- Adapt a Kindergarten to Grade 12 Arts Education Program from Alberta's proposed curriculum.
- Develop promotional materials on opportunities in the arts.
- Complete a feasibility Study of the Single Window Service Concept for NWT Aboriginal Languages.
- Complete a Review of Strategies for Supporting NWT Aboriginal Languages.
- Evaluate federally funded Aboriginal Language programs.
- Begin a GNWT Implementation Plan for French language services.
- Evaluate Services TNO.
- Hold an Aboriginal Languages Symposium in the NWT.
- Install an Aboriginal Languages Website.
- Develop Kindergarten to Grade 6 language curricula.

Action Plan Status Report

Culture, Heritage and Languages

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 1: *Preservation and Knowledge of Our Heritage*
Preservation of Our Heritage	■			Partner with communities to document traditional knowledge and archaeological and historical sites.
	■			Working with communities, identify gaps in current documentation and develop plans to address information gaps.
		■		Develop a strategy to systematically collect museum and archival materials for public collections.
	■			Develop new exhibits that convey messages about the culture and heritage of the people of the NWT.
		■		**NEW**: Develop a new policy to support community heritage organizations in their efforts to preserve and make heritage information accessible.
		■		**NEW**: Incorporate traditional knowledge and Elders in education programs.
Provide access to Heritage Information	■			Prepare new exhibits to travel to NWT communities.
	■			Improve web access to heritage and archival collections.
	■			Ensure that outreach programs are meeting the needs of schools and culture and heritage organizations in the NWT.
	■			Fully integrate Culture and Heritage programs in the school and postsecondary education systems.

				Objective 2: *Promotion of the Arts*
Provide opportunities for people to learn about and engage in the arts		■		Adapt a K-12 Arts Education Program from Alberta's proposed curriculum.
		■		Develop promotional materials on opportunities in the arts..
	■			Provide contributions to support community festivals
Support creation of arts	■			Implement the NWT Arts Strategy.
	■			Provide funding to artists at various stages of their career through the NWT Arts Council.
	■			Provide opportunities for artists to display their work to the public.
	■			Partner with Industry, Tourism and Investment (ITI) to conduct regular reviews of the results of the NWT Arts Strategy Implementation Plan.

Priority	Complete Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 3: *Support and Promote our Official Languages*
Provide program support	■			Negotiate contribution agreements and support Aboriginal language communities and Aboriginal broadcasting societies.
	■			Provide funding to create learning environments that support the efforts of language communities to revitalize their languages.
	■			Provide funding and supports to promote the value of the NWT's Official Languages and their continued use in day-to-day activities.
	■			Support Aboriginal language communities in developing and implementing their strategic language plans.
		■		**NEW:** Implement GNWT bilingual Service Centre in Yellowknife
		■		**NEW:** Provide in service training to teachers on Dene Kede Curriculum
Develop resource materials		■		Provide language resource materials to promote the use of NWT official languages as living and working languages.
	■			NEW: Provide resources to schools to meet the objectives of the *Aboriginal Language and Culture-Based Education Directive*.
		■		**NEW:** Develop K-6 Dene language curriculum.
Ensure compliance with the Official Languages Act	■			Create an Official Languages Division within ECE to support and promote the language use within the GNWT and in communities of the NWT
	■			Consolidate administrative and policy support for the implementation of the *Official Languages Act* within that division.
		■		Conduct routine compliance reviews within the GNWT regarding availability of language services as required under the *Official Languages Act* and the *Official Languages Policy*.
	■			Report on an annual basis on GNWT activities associated with official languages.

Early Childhood and Schools

Northern families developing a strong **foundation** for their **children's learning**

Objective 1

A Strong Foundation for Learning

- The Early Childhood Environment Rating Scale (ECERS) was introduced to the NWT and training was provided to the Department's regional early childhood consultants.
- Training was delivered for Hay River Reserve Language Nest staff on how to develop computer games for learning an Aboriginal Language.
- 10 Family Literacy northern resource kits were developed and a Family Tutoring program was piloted in the Sahtu and in Yellowknife.
- In 2008-09, the Aurora College Early Childhood Education Training program had 68 registrations and 55 successful course completions by students from 14 communities.

Objective 2

Students Achieving their Potential

- Kindergarten to Grade 12 physical education and Grades 10 to 12 trades training were supported by reducing the pupil teacher ratio by 1.0 in 2007-08 and 0.5 in 2008-09.
- In addition to providing large and small scale in-service training to teachers, the following were undertaken:
  + Science: Experiential Science 10 and 20 student textbooks completed. Biology, Chemistry, Physics 20 and 30, new textbooks developed.
  + Mathematics: Grades K to 9 student textbooks developed.
  + Social Studies: Social Studies K to Grade 3 curriculum developed and Grade 7 Circumpolar World text revision completed. Curriculum for Social Studies 20-1 and 20-2 completed.
  + French Programs: French Monitor Program established in 2007-08.
  + English Language Arts 30-3 curriculum completed.

Performance Measure: Access to Language Nest Programs
Indicator: Number of funded Language Nest programs, by fiscal year.

2005 Baseline: 2004-05	2007-08 Actual	2008-09 Actual	2010 Target	2015 Target
21	21	21	25	35

Performance Measure: Student Engagement
Indicator: Percentage of Grade 1 to Grade 9 students with a Functional Grade Level below their grade of enrollment in English Language Arts (ELA) and in Math who have either a Student Support Plan (SSP) or an Individual Education Plan (IEP), by academic year.

2006 Baseline: 2006-07	2007-08 Actual	2008-09 Actual	2010 Target	2015 Target
58% ELA	84% ELA	82% ELA	100% ELA	100% ELA
59% Math	83% Math	82% Math	100% Math	100% Math

Objective 3

A Results-based Education System

- The Review of Student Assessment, Evaluation and Reporting was completed in 2007-08.
- Toward Excellence 2007 was published.
- Attendance information was publicly released for the first time as part of the Minister's annual press release.
- A review of the Education Leadership program was completed and its recommendations were implemented.
- Schools began recording attendance data in eSIS and the Department conducted a preliminary analysis of this data.
- A NWT Principal Growth and Evaluation Model was completed and scheduled to be piloted in 2009-10 in two regions.

Performance Measure: Readiness for Work and Higher Education
Indicator: Average percentage of high school graduates compared with the population of 18 year olds, by calendar year

2005 Baseline: 2001-2005 Average	2007 Actual: 2003-2007 Average	2008 Actual: 2004-2008 Average	2010 Target: 2006-2010 Average	2015 Target: 2011-2015 Average
43%	48%	51%	55%	60%

Next Steps: 2009 – 11:

- Increase funding to the NWT Literacy Council to expand the Family Literacy program.
- Allocate funding for new Language Nests and increase funding to existing Language Nests.
- Undertake a review of the Aurora College Early Childhood Development Certificate program.
- Update the NWT Child Day Care Regulations and complete an Implementation Handbook for Day Care Operators to ensure compliance with the Regulations.
- Review small community schools with the goal of defining best approaches for funding and programming.
- Each year, review all education authorities in one area; the focus for 2009-10 is attendance.
- Expand collection, analysis and reporting of student attendance.
- Implement a two-day culture-based orientation for all school staff to promote a better understanding of the culture, history, traditions and values of the communities in which teachers work.
- Introduce Aboriginal Student Achievement Initiative and develop an implementation plan under the direction of a working group.
- Continue to work with education authorities to develop improvement plans and report on progress.

Action Plan Status Report

Early Childhood and Schools

Objective 1: *A Strong Foundation for Learning*

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	
Increase access to and support for programs	■			Assist communities to develop or expand early learning and childcare programs for children from infancy to preschool, according to their needs.
		■		Increase subsidy supports available to parents and licensed providers.
	■			Improve monitoring of the quality of early learning programs.
	■			Expand the number of affordable licensed programs and spaces.
		■		**NEW:** Provide a standardized orientation course for staff of early childhood programs.
		■		Provide guidelines and best practices to assist early childhood programs to implement the *Child Day Care Standards Regulations.*
	■			Work in cooperation with other GNWT, federal and Aboriginal governments to improve program coordination.
	■			Support family literacy programs offered through and in association with early learning centres.
		■		Evaluate early language immersion programs.
	■			Support the integration and inclusion of children who require additional assistance in early childhood programs.
Increase the skills of early childhood educators	■			Offer staff development and training to early learning and childcare educators through the Aurora College certificate program.
		■		Increase certification requirements for early learning and child care workers.
	■			Provide professional development for frontline staff during site visits by Departmental programming experts.
Regulate and monitor program quality and effectiveness		■		Establish mechanisms to support self-evaluation of programs by operators.
	■			Provide opportunities for operators to share knowledge and experiences with a goal to improving program quality.
	■			Conduct routine program monitoring in all regions and communities.
	■			Conduct quality-based monitoring and licensing in addition to monitoring health and safety requirements.

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 2: *Students Achieving their Potential*
Involve family and community	■			Regularly seek input and comments from parents regarding programs and services offered by ECE.
	■			Support parental understanding of the education system and build linkages between schools, teachers and parents.
	■			Increase information available to parents on early learning and school programs.
	■			Encourage community involvement in program development.
	■			Report to the public regularly on ECE supported programs.
Focus on language and culture		■		Develop K-6 Dene language curriculum and resources.
		■		Review Aboriginal second language delivery.
		■		Increase in-service and professional development for teachers in the area of Aboriginal Languages and culture.
		■		Develop resources and supports for the *Aboriginal Language and Culture-Based Education Directive*.
		■		Review the structures and functions of the Teaching and Learning Centres (TLCs) to increase linkages between language communities, TLCs and schools.
		■		**NEW:** Develop standards to assess Aboriginal Language proficiency.
		■		**NEW:** Increase the number of communities that have a Language Nest program.
		■		**NEW:** Increase human resources in Teaching and Learning Centres and Aboriginal Language Instructors in schools.
			■	**NEW:** Examine the options of re-instating the language immersion program to revitalize languages.
Increase the availability of student support		■		Develop a service delivery model in collaboration with other GNWT Departments and support partners to ensure that children's needs are identified and addressed at an early age and throughout their educational careers.
	■			Conduct the third Student Needs Assessment.
		■		Identify priority recommendations in the Student Needs Assessment and develop an implementation plan to address needs.
		■		Identify requirements for additional counselling and other required support services.
		■		Identify current use of student support services and increase accountability requirements of education authorities with respect to spending under the Inclusive Schooling Directive.
	■			Report, at least biannually, on spending related to student services.

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 2: *Students Achieving their Potential*
Expand course offerings in schools	■			Remove legislative barriers that prohibit full-day Kindergarten.
			■	Develop a program for full-day Kindergarten.
	■			Continue regular renewal of existing curriculum at all levels.
	■			Maintain linkage of high school curriculum with that used in the Province of Alberta.
	■			Provide a broader range of choices at the senior secondary level - particularly those related to preparation for occupations.
		■		Support the development of Aboriginal language and culture materials linked to the Dene Kede and Inuuqatigiit curricula.
		■		Complete a review of small high schools with the goal of defining best approaches to programming and funding.
	■			Complete an analysis of senior secondary enrollments.
	■			Examine alternative models of senior secondary delivery.
	■			Research, promote and test innovative approaches to support student achievement and success.
Provide pre-employment and in-service professional development for educators and other school staff		■		Work with education authorities and professional and employee representative organizations to design and implement pre-service training programs.
		■		Target improvement of the instructional skills for teachers and other staff that support student learning.
		■		Increase teacher skills in the assessment of student literacy.
		■		Evaluate current in-service and professional development models and research alternatives.
	■			Implement the Teacher Growth and Development Model to assess teacher performance and plan further development of teacher skills.
	■			Maintain a teacher induction program for new teachers.
	■			Review the structure of the Educational Leadership Program delivery model to ensure school principals are well prepared for their tasks.
		■		Open a dialogue with the Northwest Territories Teachers' Association (NWTTA) about a coordinated plan to increase student achievement.
			■	Double the number of Aboriginal teachers, senior managers, and principals in the school system.

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 3: *A Results-based Education System*
Strengthening educational leadership			■	Create a human development strategy that brings together the initiatives to strengthen educational leadership in the NWT school system.
	■			**NEW:** Joint meeting with Superintendents and H&SS - support for common areas of work.
Assess system performance	■			Gather student performance information from functional grade level assessment, Alberta Achievement Test scores, and senior secondary analysis.
	■			Report to the public on a regular basis about how students are doing in our school system.
	■			Set requirements for school and education authority planning.
	■			Review and confirm the roles and responsibilities of schools, education authorities and ECE with respect to planning and reporting.
	■			Assess student progress through the Student Assessment, Evaluation and Reporting Directive.
	■			Conduct regular reviews of key Departmental policy and operational matters.
	■			Renew the education authority review process.

Adults and Postsecondary Educ

Northern adults continuing to **learn** and **grow** to meet the **requirements** of **daily living**

Objective 1

Access and Choice for Adult Learners

- *Towards Literacy: A Strategy Framework 2008-2018* was developed and distributed.
- The Tlicho Community-Based Teacher Education program (CTEP) was delivered.
- The two year Aboriginal Language and Culture Instructor program (ALCIP) diploma was delivered in Behchoko.
- New ALBE curriculum and resources were developed and distributed including: English 110-130; Math 110-140; and Science 110-140 courses and Science labs.
- Six trades courses in two communities were delivered using the new Mobile Trades Training Unit in the Beaufort Delta.
- The Aurora Campus Indigenous Wellness and Addictions Prevention program

Objective 2

A Responsive College

- Conducted a review and accreditation of technical training courses for Thebacha Campus apprenticeship programs resulting in significant enhancements to trades programming in the NWT.
- Hosted a pan-territorial professional development event for community adult educators.
- Worked with Aurora College through the annual business planning process to secure new funding for Adult Literacy and Basic Education (ALBE) and Apprenticeship programs.
- Four underground miner training programs were delivered by Aurora College and its partners using the underground mining simulator. The underground miner simulator was also used to provide workshops, as well as job refresher and assessment sessions.

Performance Measure: Preparation for Higher Learning
Indicator: Percentage of students enrolled who completed their Adult Literacy and Basic Education program or Access program, by academic year.

2005 Baseline: 2004-05	2007 Actual: 2006-07	2008 Actual: 2007-08	2010 Target	2015 Target
30%	40%	41%	45%	50%

Performance Measure: Graduate Satisfaction
Indicator: Percentage of graduates surveyed who were satisfied, overall, with the quality of their Aurora College program. (Graduates from the four years up to and including the year of the survey are approached two years later for feedback.)

Baseline: 2004	2006 Actual	2008 Actual	2010 Target	2015 Target
92.1%	93.7%	Survey currently underway	94%	96%

cation

Objective 3

An Integrated Adult Learning Network

- Worked with a multi-stakeholder Literacy Strategy Renewal Working Group to guide the development of a NWT Literacy Strategy and Accountability Framework.
- The NWT Secondary School Diploma: Adult Recognition Model was developed.
- The NWT Prior Learning Assessment and Recognition (PLAR) committee, process and related ALBE course were established.
- Facilitated NWT Training Forum 2007 to build partnerships, and improve coordination and outcomes.
- Aurora College provided support to students through Student Success Centers at the three campuses.

Next Steps for 2009 – 11:

- Conduct research and gap analysis of youth literacy needs and develop a youth literacy action plan.
- Continue work with ALBE curriculum committees to develop curriculum outcomes, resources and assessment instruments for all subject areas with a focus on Social Studies and Information Technology.
- Implement the Private Vocational Training Designation Directive to regulate the quality and stability of private training.
- Establish a formal process for ongoing trade program accreditation at Thebacha Campus.
- Conduct evaluation of the Tlicho ALCIP program.
- Launch the NWT Secondary School Diploma for adults and implement the PLAR course.
- Support the establishment and activities of regional training partnerships.
- Include adult and postsecondary results in *Towards Excellence*, the Departmental education indicators report.
- Develop an Aurora College accountability framework.

Performance Measure: Readiness for the Labour Market
Indicator: Number of Aurora College certificate, diploma and trades program graduates, by academic year.

2005 Baseline: 2005-06	2007 Actual: 2006-07	2008 Actual: 2007-08	2010 Target	2015 Target
296	246	288	296	300

Action Plan Status Report

Adult and Postsecondary Education

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 1: *Access and Choice for Adult Learners*
Establish high school certification of adult learners	■			Identify students who did not complete high school and offer them opportunities to complete basic education courses.
	■			Define requirements for adult high school certification.
	■			Further develop the existing partnership with Alberta Distance Learning to increase course offerings for adults.
	■			Develop adult learning needs model to ensure adult access to accreditation.
Increase student services		■		Provide additional funding for student accommodation and supports, and create additional residence spaces at Aurora College campuses in Yellowknife and Inuvik.
	■			Provide ongoing funding support for student success centres at each of the three Aurora College campuses.
	■			Expand linkage between career development centres and College campuses so that College graduates have ready access to information regarding careers and jobs and can begin planning their careers prior to leaving school.
		■		Adjust Student Financial Assistance funding to reflect inflation and the cost of postsecondary education.
		■		Establish mechanism to provide financial assistance for students enrolled in upper-level adult basic education courses offered by Aurora College.
Regulate private sector provision of programs	■			Implement Private Vocational Training Directive to regulate the quality and stability of private training.
		■		Monitor private sector compliance with the directive.
		■		Measure the success of students enrolling in private sector training programs.
	■			Identify additional opportunities for collaboration between private sector trainers and Aurora College.
			■	Identify opportunities for effective private sector training and support the development of appropriate programming.
				Objective 2: *A Responsive College*
Define College Mandate and Priorities	■			Establish planning framework to guide Aurora College strategic planning that is linked to the ECE Strategic Plan.
	■			In cooperation with Aurora College, develop a business-planning model to guide program and service planning for College activities.
	■			Update the *Public Colleges Act* to reflect the evolution of the NWT College system.
Provide high quality programs		■		Develop a results-based accountability framework for the College.
		■		In cooperation with Aurora College, establish a schedule for the regular external evaluation of programming.
	■			Support College actions to maintain and expand current credit and program transfers with other postsecondary institutions.
	■			Seek student and employer feedback on College programs and graduate skill levels.
	■			Integrate workplace essential skills into adult programming.

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	
Provide pre-employment and in-service staff development for College personnels		■		Ensure that cultural awareness orientation training is provided for College staff.
		■		Provide mentorship supports for community adult educators.
	■			Share professional development activities between College and Education Authority staff.
		■		Support the College to fully implement a growth and development assessment model for instructional staff.
	■			Support the College's establishment of a comprehensive human resource development plan which focuses on technical and instructional excellence.
	■			Maintain Adult Learning Certificate program to encourage those training adult learners to build their skills and knowledge.

Objective 3: *An Integrated Adult Learning Network*

Encourage partnerships in program delivery	■			Work with Aboriginal governments and other training parties to establish regional and community training coordinating committees.
		■		Establish a regular consultation process for engaging communities, Aboriginal governments, employers and industry in identifying education and training priorities as well as supports for students and trainees.
	■			Share results of education and training outcomes with partners.
	■			Examine the potential for increased linkages between College Community Learning Centres and the school system.
		■		Establish pilot projects to test resource sharing and systems integration between senior secondary education, adult literacy and basic education, and trades and technology.
	■			Strengthen collaboration between Aurora College and school governance bodies.
Accreditation of learning across the system		■		Establish formal mechanisms for assessing prior learning.
		■		Increase understanding of prior learning by staff members working within the NWT learning system.
			■	Examine opportunity for a broad system of certification of training activities offered by public and private sector training institutions.
	■			Determine requirements for record keeping to document learner achievements.
Regularly evaluate program effectiveness			■	Develop schedule, process, and criteria for program and service reviews.
			■	Involve College, departmental and private sector representatives in evaluative activities.
	■			Implement Private Training Directive to ensure the quality of private sector training delivery.
			■	Report publicly on evaluation activities.

Employment and Labour

Northerners participating in a strong and prosperous environment

Objective 1

Northerners Making Informed Career Choices

- The Career Development Directive was reviewed based on regional consultations with schools, career centres and College campuses.
- A series of analytical sessions on key labour market trends were provided in partnership with the NWT Bureau of Statistics.
- The training and development of qualified career practitioners was supported through the Career LINX Conference hosted in February 2008.
- Evidence was prepared for and employment and training interests presented to the Joint Review Panel.
- Education, training and employment commitments were monitored and reported on under socio-economic agreements with BHP, Diavik and DeBeers.

Performance Measure: Effective Client Support
Indicator: Percentage of career centre clients who have worked on a career action plan by fiscal year.

2007-08 Baseline	2008-09 Actual	2010 Target	2015 Target
36.08%	32.14%	40%	50%

Objective 2

A Skilled Workforce

- Alberta Centennial Scholarships were awarded to 25 apprentices and occupational certification candidates in 2007-08 and 2008-09.
- Supported and monitored development of national certification for "Underground Miner" in cooperation with the Mining Industry Human Resource Council.
- Trade Advisory Committees were established for:
  + Carpenter
  + Electrician
  + Plumber
  + Housing Maintainer
  + Heavy Duty Equipment Technician
  + Welder
  + Hair Stylist
- Worked with Yukon and Nunavut to negotiate Territorial Labour Market Agreements with the federal government for non-EI eligible clients.
- Negotiated agreement with the federal government for a Targeted Initiative for Older Workers.
- Supported Status of Women Council's Northern Women in Mining, Oil and Gas project to research barriers, issues and success factors for women participating in mining and oil and gas industries.

Performance Measure: Qualified Workers
Indicator: Number of certifications issued in designated trades and occupations by fiscal year.

2005 Baseline: 2005-06	2007-08 Actual	2008-09 Actual	2010 Target	2015 Target
105	87	106	110	120

Objective 3

A Productive Work Environment

- NWT Regulatory Authorities were consulted to ensure understanding of, and compliance with, the Labour Mobility chapter of the Agreement on Internal Trade.
- Negotiated with Canada to establish Agreement on Provincial Nominees and developed NWT Nominee program to support employers in meeting labour demand in critical occupations.
- Signed Immigration Portal Agreement with the federal government to provide information on settlement and integration supports for newcomers to Canada.
- Provided funding and in-kind support and worked with employers and industry through the Mine Training Society and Aboriginal Futures Society.
- Employment standards legislation and regulations were revised, updated and came into force on April 1, 2008.

Next Steps for 2009 – 11:

- Host bi-annual LINX conference for Career Practitioners.
- Update the *Apprenticeship, Trade and Occupations Certification Act and Regulations*.
- Develop Employment Support for Community Employers, a wage subsidy program for youth in small and remote communities to gain essential skills.
- Develop programs and services to support women and Aboriginal persons to prepare for, participate in and successfully complete trades programs.
- Launch the NWT Nominee Program.
- Launch programs and services under the Canada-NWT Labour Market Agreement.
- Develop new Labour Force Development Framework.
- Update regulations and implement changes to increase minimum wage in the NWT.
- Research and develop policies and procedures for employment standards complaints and investigations.
- Implement pan-Canadian framework for Foreign Credential Recognition with NWT regulatory authorities.

Performance Measure: Timely Service
Indicator: Percentage of labour complaints resolved in 90 days or less by fiscal year.

2005 Baseline: 2005-06	2007-08 Actual	2008-09 Actual	2010 Target	2015 Target
58%	46%	56%	65%	70%

Action Plan Status Report

Employment and Labour

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	
				Objective 1: ***Northerners making Informed Career Choices***
Improve access to career development services		■		Dedicate career counseling resources specifically to support students and staff attending NWT schools and Aurora College.
	■			Build increased understanding of existing services through improved linkages with employers, schools, Aboriginal governments and communities.
		■		Update the Career Development Directive to ensure the roles, responsibilities and mandates for career development partners are clear and reflective of new and changing relationships.
			■	Provide access to career development services using new and emerging technologies.
Provide effective career counseling services	■			Increase skill levels of career counseling staff.
		■		Develop and implement process for obtaining results information about career development services.
	■			Partner with the schools and college on professional development activities.
	■			Provide routine updates of labour market information to educational institutions and the public.
	■			In cooperation with the NWT Bureau of Statistics provide labour market information along with career counseling information at school.
		■		Create career awareness with parents of students.
Link skilled employees with work		■		Develop an employer survey to identify essential skills required by employees.
	■			Raise awareness of job opportunities and the required skills for those jobs.
	■			Work with employers to remove barriers to employment.
	■			Encourage preference for employment of Northern workers by industry and new employers.
	■			Involve industry and employers in training to the greatest extent possible.
				Objective 2: ***A Skilled Workforce***
Provide institutional and workplace skills development	■			Develop and deliver programs through Aurora College that meet current and emerging labour market needs.
		■		Encourage employers to support the development of their employees by sharing best practices and exchanges of information.
	■			Support people to acquire workplace skills through "training on the job" subsidies.
	■			Partner with the schools and college to support the development of skills that lead to occupational certification.

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	
Certify workers	■			Identify key occupational categories in which certification is preferred by employers.
	■			Partner with employers and industry to identify required occupational skill competencies.
		■		Strengthen mechanisms to identify Northerners for apprenticeship programs and to help them enter into them.
	■			Promote training associated with all types of occupational certification.
	■			Work with employers to certify and re-certify employees.
Provide supports related to skills development		■		Work with the federal government to provide support for clients who are not eligible for employment insurance.
	■			Provide opportunities for high school students and youth to acquire skills required for the labour market.
	■			Work with Aboriginal organizations to coordinate efforts.
	■			Assess barriers to skills development and develop strategies to overcome them.
	■			Develop specific programs and services to address barriers to enrollment of Northerners in skill development programming.

Objective 3: *A Productive Work Environment*

Develop and monitor labour standards	■			Update the *Labour Standards Act*.
	■			Identify and implement efficient procedures for handling labour service issues.
	■			Promote labour standards and services with employers and employees.
Work with employers to define human resource requirements	■			Work with employers and employees to identify and clarify workplace expectations.
			■	Develop human resource planning frameworks for use by small and medium employers.
			■	Support the development and operation of economic sector councils focused on strengthening the skills and abilities in the labour force.
	■			Work with other provinces and territories to identify key issues and ways in which to collaborate to provide human resource requirements.

Income Security

People actively **participating** in **community** and **society** to their fullest **potential**

Objective 1

An Integrated System of Program Supports

- The Income Security Reform Framework was developed, including vision, guiding principles and goals.
- The Income Assistance and Child Care User Subsidy programs were reviewed and revised to align with new framework.
- A new Student Child Care User Subsidy program was developed for recipients of student financial assistance.
- An initial review of Income Security programs for persons with disabilities was completed.
- A Service Management model was developed and training provided to frontline staff on the first module.

Objective 2

A Comprehensive System of Financial Supports

- Through the Income Security Redesign initiative, enhancements were made across program areas.
- Senior Citizens Supplementary Benefits were increased from $135 to $160 per month.
- Senior Home Heating Subsidy income thresholds were increased by $10,000 to allow more seniors to access benefits.
- Annual program audits and ongoing special audits were completed.
- The repayable Student Loan limit was increased from $1,100 to $1,400 per month and the lifetime student loan limit was increased from $46,000 to $60,000.
- Benefits for tuition and books under the Student Financial Assistance program were increased.

Performance Measure: Self-Reliance
Indicator: Percentage of Income Assistance clients between the ages of 19 and 29 who exited the Income Assistance program for a period of 6 months or more, by fiscal year.

2005 Baseline: 2005-06	2007-08 Actual	2008-09 Actual	2010 Target	2015 Target
75.3%	72.3%	72.5%	75%	77%

Performance Measure: Quality Client Services
Indicator: Percentage of survey respondents who were very and somewhat satisfied, overall, with services received from Student Financial Assistance staff.

2005 Baseline	2008-09 Actual	2010 Target	2015 Target
77%	Next SFA survey to be carried out 2010-11	82%	87%

Objective 3

A Responsive Income Security System

- Customer satisfaction surveys were completed for income assistance and public housing rental subsidy programs.
- Income Security program staff at headquarters received customer service training.
- The number of ECE Service Centres in smaller, remote communities was increased.
- The Income Assistance Policy and Procedure Manual was revised.
- The 2007-08 Student Financial Assistance Annual Report was developed.
- Client Services Officer statutory training was expanded and training was provided to all Client Services Officers.
- Completed independent consultation with land claim groups regarding Income Assistance program requirements.
- NWT Social Assistance Appeal Board and Administrative Review Group members received training.

Next Steps for 2009 – 11:

- Complete independent review of the Public Housing Rental Subsidy program.
- Update Public Housing Rental Subsidy Cost of Living Rent Reduction.
- Transfer the Public Housing Rental Subsidy program to the NWT Housing Corporation.
- Distribute pamphlets on Income Security Programs.
- Complete 2008-09 Student Financial Assistance Annual Report.
- Complete Income Security Reform Update Report, 2009.
- Review Income Security forms to streamline delivery.
- Analyze Student Financial Assistance program in light of Canada Student Loan program changes.
- Complete review of Student Financial Assistance benefits.
- Complete Persons with Disabilities program design.
- Continue to expand the number of ECE Service Centres in small and remote communities.
- Complete Student Financial Assistance and Senior Home Heating Subsidy customer satisfaction surveys.

Performance Measure: Effective Client Support
Indicator: Percentage of clients surveyed who were very or somewhat satisfied, overall, with the Income Assistance program.

2005 Baseline	2008-09 Actual	2010 Target	2015 Target
Not available: first survey held in 2008	76.7%	80%	85%

Action Plan Status Report

Income Security

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Objective 1: *An Integrated System of Program Supports*
Program linked to expected outcomes	■			Identify and plan a program with an understanding of services provided by the Government of Canada.
	■			Identify clear outcomes for GNWT income security program and services that support people in need.
	■			Improve the match of program and benefits with expected outcomes.
Strengthen service management			■	Develop and introduce an integrated service management approach describing how various service providers will work together.
			■	Implement a service management service audit to identify best practices and make improvements where required.

				Objective 2: *A Comprehensive System of Financial Supports*
Access to program and services	■			Create one-stop community access centres linked to regional career centres.
			■	Make greater use of broadband technology to support program delivery in all communities.
	■			Work with communities and Aboriginal governments to coordinate delivery of program and services.
Consolidation and simplification of program	■			Assume responsibility for administering the Public Housing Rental Subsidy program.
	■			Reduce complexity of application processes through program consolidation and application simplification.
		■		**NEW:** Transfer the Public Housing Rental Subsidy Program to the NWT Housing Corporation.
			■	Identify and assume responsibility for other income security program.
	■			Publish information on program and services in a simple format to improve understanding of the purpose, benefits, processes and expectations.
			■	Expand use of the Case Management and Administration System (CMAS) to assess applicants of other program offered by the GNWT. (Ongoing)
	■			**NEW:** Establish child care user subsidy program for SFA recipients.

Action Plan Status Report

Income Security

Objective 3: *A Responsive Income Security System*

Priority	Completed Action or Ongoing Program/Service	Scheduled For 2009 – 11	Scheduled For 2011 – 15	
Comprehensive income security policy	■			Develop and introduce a common, comprehensive policy for GNWT income security program.
	■			**NEW:** Introduce changes to income assistance program based upon new income security model.
Assess the income security system	■			Develop an approach for reviewing the income security system (including individual program) against the goals and objectives described in the Income Security Policy.
	■			Develop a process for, and conduct, routine and periodic program compliance audits.
	■			Report to the public on a regular basis regarding the activities associated with income security program and services.
			■	**NEW:** Evaluate client outcomes of the service management approach.

Cross-Goal Strategies

Strong people…
A **Strong North**

Strategy 1

Strong and Effective Partnerships

- The Department worked with industry and Aboriginal partners to access additional funding under the Aboriginal Skills and Employment Partnership program.
- A multi-stakeholder working group, comprised of GNWT, Aurora College, NWT Literacy Council, nongovernmental literacy service providers and Aboriginal organizations was formed to oversee the implementation and evaluation of the NWT Literacy Strategy.
- The Department updated its Curriculum Review, Development and Implementation Cycle in consultation with education partners.

Strategy 2

High Quality Human Resources

- A training conference for Income Security Client Services Officers was held in 2007 and 2008.
- Conference for teachers across the NWT was held in February 2009.
- A museum workshop on artifact conservation was delivered in Fort Smith.
- Archives workshops were delivered in Deline and Fort Providence.

Next Steps for 2009 – 11:

- The Aboriginal Student Achievement Initiative will be led by a working group made up of industry, NWT Teachers' Association, education authority, NWT Literacy Council, and department of Justice and Health and Social Services representatives.

Next Steps for 2009 – 11:

- Aurora College and the Department will undertake a review of the Early Childhood Development Certificate program.
- A biannual teachers' conference will be established in collaboration with the NWT Teachers' Association.
- Pan-territorial in-service training will be provided for community adult educators and career practitioners on the adult high school diploma and Prior Learning Assessment.
- A new career development program will be established for students in grades 8 to 12 and adults in, or contemplating, career transition.

Strategy 3

Responsive Information Systems

- The Interprovincial Computerized Examination Management system was used in the NWT to generate, mark and analyze Red Seal exams.
- MyAccount for SFA recipients was installed.
- Several pilot projects were undertaken to investigate alternative methodologies for network services to address bandwidth issues.
- The eSIS web based school information system was implemented in all NWT schools.

Strategy 4

Facilities that Match Program Delivery Requirements

- The Department worked with Aurora College to access the Postsecondary Infrastructure Trust Fund to improve College facilities in Tsiigehtchic, Lutselk'e, Hay River Reserve, and at the Aurora Research Institute.
- Funding for 10 community libraries located in schools was increased to maintain a minimum of 20 hours a week for public access.
- A new school was built in Tulita, and an addition to Ecole Allain St-Cyr in Yellowknife was completed.

Next Steps for 2009 – 11:

- The Department website will be updated to ensure that information is accessible and user friendly.
- A NWT Immigration Portal and enhanced jobsnorth.ca website will be developed to ensure job seekers and newcomers to the NWT can access current and accurate online information.
- An audit and verification module for CMAS will be developed.
- Bandwidth requirements will be determined for ECE, schools and the College. The information gathered will be used as a basis for developing a strategic plan toward the development of future networks.

Next Steps for 2009 – 11:

- The Ten Year Facility Plan, including ways to address residence shortfalls, will be developed for Aurora College.
- A long-term plan for public library space in communities will be developed.
- Three new Community Learning Centres will be built with funding from the federal Knowledge Infrastructure Program.
- A new Aurora Research Institute will be built with funding from the federal Arctic Research Infrastructure Fund.
- Projects identified in the Infrastructure Acquisition Plan will be completed as scheduled.

Strategy 5

Effective Performance Planning, Monitoring and Measurement

- Towards Excellence 07: A Report on K-12 Education in the NWT was published.
- A summative evaluation of the Canada-NWT Labour Market Development Agreement was completed.
- Conducted comprehensive review of Apprenticeship and Occupational Certification program and developed an Action Plan.

Next Steps for 2009 – 11:

- A comprehensive review of Adult Literacy and Basic Education will be carried out.
- Planning and accountability frameworks will be developed for education programs, including Aurora College.

Action Status Report

Cross-Goal Strategies

Priority	Completed or ongoing	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Strategy 1: *Strong and Effective Partnerships*
Strengthen local, territorial and federal partnerships, and work collaboratively to address problems and achieve results			■	Develop a partnership strategy in each of the key areas of the mandate.
		■		Target and invest in partnerships that provide the most benefit to Northerners.
		■		Promote public awareness of the partnerships and the roles and responsibilities of the various partners.
		■		Develop staff skills related to working in partnership with others.
		■		Celebrate and promote key outcomes of partnerships.

Priority	Completed or ongoing	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Strategy 2: *High Quality Human Resources*
Develop a skilled, productive workforce that represents the people it serves			■	Develop a human resource strategy tailored to key areas of Departmental responsibility.
	■			Coordinate teacher recruitment with the DEAs, DECs and the Commission scolaire Francophone des Territoires du Nord-Ouest.
	■			Work to ensure Northern students and graduates are hired, particularly from the Aurora College Teacher Education program.
		■		Identify and develop training and education programs required to prepare Northerners for entry into jobs related to Departmental activities.
	■			Develop strategies to increase the number of Aboriginal and Northern students in the Aurora College Teacher Education program.
	■			Collaborate with the NWT Standing Committee on Teacher Education to ensure that the content of the Aurora College Teacher Education program is closely linked to the needs of employers.
		■		Celebrate and promote the quality of our human resources in their service to the public
Ensure our staff get the education and training that they need	■			Increase training and experiential opportunities to improve leadership within ECE, its boards, agencies and associated organizations.
	■			Maintain and enhance the New Teacher Induction program to include a focus on cross cultural awareness.
	■			Increase coordination and collaboration with the Northwest Territories Teachers' Association as well as regional management personnel, in planning and supporting professional improvement for teachers.
		■		Plan and support skills development among College staff by working with the College to develop a comprehensive approach to instructor development.
		■		Encourage common professional development opportunities among key partners.
		■		Expand Departmental staff development opportunities to include training programs related to the new realities of service delivery, such as collaborative management of programs and services, program assessment and evaluation.

Priority	Completed or ongoing	Scheduled For 2009 – 11	Scheduled For 2011 – 15	Strategy 3: *Responsive Information Systems*
Simplify processes and improve efficiency utilizing new technology	■			Improve or expand the capability of internal information systems by focusing on strengthening the Case Management and Administrative System (CMAS) that supports program delivery.
	■			Integrate new Departmental responsibilities such as Income Security and Labour into the internal information management system.
		■		Develop an audit and verification module in CMAS that will enable ECE to monitor compliance and improve accountability.
		■		Conduct an audit of the CMAS system to ensure that it continues to perform as designed and intended.
	■			Replace various student records systems in use by the education councils and authorities with a single system.
		■		Design and implement a database repository to capture student record information.
	■			Expand Web-based information systems and services: • Virtual Library Project
	■			• Student Financial Assistance
	■			• Student Records for teachers and students online
		■		• Aboriginal Languages Website
	■			• Museum Website
	■			• Distance Learning
	■			Work with the Department of Public Works and Services and the Chief Information Officer to address bandwidth issues.
		■		Assess new technologies that could support the work of organizations responsible for revitalizing and enhancing Aboriginal language use and literacy.
		■		Ensure information about Department programs and services on websites is accessible and user friendly.
				Strategy 4: *Facilities that Match Program Requirements*
Provide suitable facilities for schools and college programming	■			Identify facilities that need renovation to meet health and safety requirements and the associated costs.
	■			Identify facilities that need changes to meet emerging program needs and define those changes.
		■		Address Aurora College residence shortfalls.
		■		Secure long-term solution to college program delivery requirements in Yellowknife.
		■		Identify opportunities for the College and high schools to share facility space.

Priority	Completed or ongoing	Scheduled For 2009 – 11	Scheduled For 2011 – 15	
Define and address additional facility requirements		■		Establish long-term plan for the provision of public library space in communities.
		■		Complete renovation of the Prince of Wales Northern Heritage Centre.
		■		Review contribution policies related to space provision for heritage and childcare facilities.
			■	Identify and address the requirements for office and other support facilities needed to deliver programs and services.

Strategy 5: *Effective Performance Planning, Monitoring and Measurement*

Confirm program planning and reporting processes		■		Review and update existing program planning and reporting requirements for education authorities and Aurora College.
	■			Define mechanisms to share planning and activity information between ECE and its boards and agencies.
	■			Link and sequence planning and reporting efforts between ECE and its boards and agencies.
Create a program evaluation framework and function		■		Identify employees who will be responsible for coordination of performance measurement and reporting within ECE.
		■		Establish a plan which includes measurable goals and targets to improve ECE's activities; collaborate on this activity with those in regional, divisional and central agency roles.
Develop an accountability framework and an indicator report for each of the five main program areas.		■		Develop a results-based management and accountability framework for education program.
			■	Develop a results-based management and accountability framework for the remaining main program and service areas.
		■		Expand production of indicator reports which monitor early childhood, schools and postsecondary education to include the remaining three program areas: culture, heritage and languages, employment and labour, and income security.

MEADOWBANK GOLD PROJECT

Transportation Management Plan
All Weather Private Access Road

Prepared by:
Agnico-Eagle Mines Limited – Meadowbank Division

Version 1
September 2009

EXECUTIVE SUMMARY

Agnico-Eagle Mines Limited – Meadowbank Division (AEM) is required to implement an access management plan for the Tehek Lake All Weather Private Access Road (AWPAR) under covenant #54 of Indian and Northern Affairs Canada (INAC) Crown land lease 66A/8-71-2 and condition 47 of Kivalliq Inuit Association (KIA) Right of Way (ROW) Agreement KVRW06F04 and Condition 32 of Project Certificate No.004 issued by the Nunavut impact Review Board (NIRB). This Transportation Management Plan has been prepared to provide information on the planned utilization of the access road for the Meadowbank site. This Plan has been updated to include the criteria and processes used to authorize controlled non-mine use of the road for the purpose of traditional Inuit activities pursuant to the 2009 revision of NIRB Project Certificate No.004, Condition 32.

The Meadowbank Gold Project is located approximately 70 kilometers north of the Hamlet of Baker Lake, Nunavut (Figure 1). The mine plan includes open pit mining from three separate open pits at the site over a 10 year mine life. The Project is host to an open pit mineral reserve of 3.64 M ounces gold. The AWPAR extends from the Hamlet of Baker Lake to the Meadowbank Project site, a distance of approximately 110 kilometers.

Baseline environmental and geotechnical analysis of the proposed route was conducted prior to the submission of the Final Environmental Impact Statement. The right of way for the road was selected to minimize possible effects on the environment. The AWPAR was completed in March 2008 and was constructed above grade, using quarried material from non-acid generating country rock, with a minimum number of bridge crossings (nine).

The AWPAR is used to provide access to the site during construction of the mine and milling facilities, and to provide a transportation route from Baker Lake to the site for supplies (dry goods, fuel, etc.) required until the end of production and reclamation (through 2020 at the earliest). Year-round road access reduces the amount of infrastructure required at the site by significantly reducing the volumes of fuel and other consumable supplies that must be stored at the mine in order to support ongoing operations.

IMPLEMENTATION SCHEDULE

This Plan will be implemented immediately.

DISTRIBUTION LIST

Hamlet of Baker Lake
Baker Lake Hunter and Trapper's Organization
Meadowbank Health & Safety Committee
Meadowbank Community Liaison Committee
Government of Nunavut – Department of Environment
Indian and Northern Affairs Canada – Water Resources and Land Administration
Kivalliq Inuit Association
Nunavut Impact Review Board
Nunavut Water Board
AEM - Health & Safety Superintendent
AEM - Environmental Superintendent
AEM - Site Services Superintendent
AEM - Security Director
AEM - Mine Superintendent
AEM - Mine General Manager
AEM - AWPAR Dispatch & Gatehouse
AEM Meadowbank Intranet
Arctic Fuels in Baker Lake
Peter Tapatai Expediting in Baker Lake
BLCS in Baker Lake

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
Draft	07/18/31			Comprehensive plan for AWPAR
Draft	09/04/17			Updated to reflect completion of road construction and compromise solution for limited public access
1	09/10/03	2.2 Appendix A	4	Updated to include criteria and processes to authorize non-mine use of the road pursuant to 2009 revision of NIRB Project Certificate No.004, Condition 32

Prepared and Approved By: _____
Stéphane Robert
Environment Superintendent

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SECTION 1 • AWPAR CONSTRUCTION

In order to facilitate the movement of equipment and supplies from Baker Lake to Meadowbank during construction and subsequent production at the site, the 110 km long AWPAR was constructed in 2007 and 2008, see figure 2. The route from Baker Lake to the Meadowbank site traverses lands administered by the Hamlet of Baker Lake, INAC (Crown lands) and the KIA (Inuit Owned Lands). The land tenure along the route is broken down as follows:

- 6.92 km within the municipal boundaries of Baker Lake;
- 61.34 km on Crown Land; and
- 43.08 km on Inuit Owned Lands (25.38 km within IOL BL-14 and 19.24 km within IOL BL-18).

In selecting the preferred route for the road, care was taken to select a route which would have a minimal impact on the environment by avoiding environmentally sensitive areas and by keeping the number of required stream crossings to a minimum. The current planned route for the road required 22 stream crossings to be constructed. Nine of these proposed crossing sites are bridge crossings due to either the physical size of the channel to be crossed or because the stream is ranked as having a high fish habitat value. The remainder of the proposed crossings were accomplished using culverts of various dimensions and configurations specific to the requirements for each individual drainage channel.

Road construction required the development of a total of 22 quarries along the route to provide the necessary aggregate for construction.

1.1 DESIGN CRITERIA

The following criteria were followed during the design and construction of the AWPAR:

Length…….approximately 110 km long
Travel surface width (nominal) ……8.2 m (27 ft)
Maximum Slope Gradient ……8%
Maximum design speed……..50 km/h
Travel surface ……3" minus crushed rock
Stream crossings ……22 (9 bridges, 13 culverts)
Bridge type…….. prefabricated steel *(*logging industry style)

The AWPAR has the following features:

- Flexible delineators (flags) at 100 m intervals each side;
- Kilometer markers each kilometer each side;
- Refuge stations every 10 kilometers;

- Single lane bridges; and
- Radio controlled traffic

1.2 CONSTRUCTION AND MAINTENANCE

The AWPAR was constructed using conventional road building techniques used in permafrost conditions. Construction of the road began in early 2007 and was completed in March 2008. NUNA M&T Services Ltd. was retained as contractor for the road construction. Work on the road began from the Baker Lake end and progressed toward the site. This allowed for equipment and materials to be shipped to Baker Lake and transported to the site for the beginning of mine site construction in mid 2008. All of the proposed stream crossings had shallow water depths (<0.8m) and were frozen to the bottom during culvert or bridge installation. This reduced or eliminated potential problems related to sedimentation in the watercourse and erosion of the stream bed.

The road was constructed above current grade using mostly quarried non-acid generating country rock. To preserve the underlying permafrost, there was virtually no removal or disturbance of the natural ground surface, except in localized instances. Wherever possible, permanent freezing of the natural sub grade was promoted by placing fills when the ground was frozen to surface. The construction standards for the road adhered to the design recommendations developed by Golder Associates Ltd. These construction standards were outlined in a report entitled "Design Recommendations for the Proposed Tehek Lake Access Road" produced by Golder on July 7, 2006 and further clarified in a memo dated December 14, 2006.

The road was constructed to the same standards, regardless of land owner (IOL, Crown or Commissioner's Lands). In order to maintain the integrity of the permafrost under the road bed, the following minimum thickness guidelines were followed for the road. In areas of thaw susceptible soils, the road bed was constructed to a minimum thickness of 1.05 metres overlain by 0.15 metres of surfacing material for an overall thickness of 1.20 metres. In areas underlain by thaw stable soils, the road bed was constructed to a minimum thickness of 0.85 metres overlain by 0.15 metres of surfacing material for an overall thickness of 1.0 metre. However, in areas of exposed bedrock or where bedrock is known to be within 0.5 metres of surface, the road bed was constructed to a minimum thickness of 0.35 metres overlain by 0.15 metres of surfacing material for an overall minimum thickness of 0.50 metres. Drainage ditches were constructed where appropriate on either side of the road to direct run-off.

The top width or travel surface of the road was maintained with a minimum width of 8.2 metres. This minimum width is the optimal size for the road, from both an economic and ease of construction perspective, based on the type of equipment being used.

Due to the lack of significant quantities of marine gravels or glacio-fluvial gravels that are suitable for road construction along the route, most of the material for the road bed was quarried. A total of twenty-two quarry sites were selected along the proposed route to provide the crushed material for road construction; six quarries are located on Inuit Owned Lands, fifteen are located on Crown Land and one is located within the Baker Lake municipal boundary. Each quarry has a footprint of approximately 150 m by 150 m.

There are 22 stream crossings along the route for the access road. The stream crossings consist of either culverts or bridges, depending on the potential of these streams for fish habitat. Thirteen of the proposed stream crossings are characterized as having no potential for fish habitat and were crossed using culverts, while nine of the proposed stream crossings are characterized as having potential fish habitat and are crossed using prefabricated bridges.

Bridge installations were accomplished using steel bridges of a prefabricated design with span lengths of either 12 m or 30 m depending on the width of the wetted channel. Two different abutment designs were employed for the bridges, depending on the span length. These abutments were constructed on each side of the channel so that they did not encroach on the watercourse, thereby reducing the environmental impact of the construction. For the 30 m bridges, the abutments utilized a bin wall design. The framing for the bin wall was constructed from bolted together sheets of corrugated steel and filled with rock. The abutments for the 12 m spans were constructed using a pre-cast concrete pad foundation with a structural steel support for the bridge. This configuration was filled in with rock from the road bed. The bridge deck, for both designs, was launched from one side or installed with the use of a mobile crane.

SECTION 2 • ROAD OPERATION

The road is designed for use by conventional tractor trailers which will transport supplies from a storage depot in Baker Lake to the site. The road will be used year round however the road can be close for different reason (bad weather, wildlife, heavy traffic, etc).

The key haulage equipment operating on the road is supported by radio controls. All vehicles using the road will be equipped with safety provisions and equipment so that major blizzards can be safely waited out at any point along the road, in addition, refuge stations have been established approximately every 10 km along the access road to provide shelter in case of emergency. Refuge stations are built from insulated sea cans and contain an oil stove for heat, emergency rations, blankets and/or sleeping bags and first response spill kits. The refuge stations are being maintained by a local contractor from Baker Lake.

It is anticipated that approximately 60,000 to 70,000 tonnes of dry freight and diesel fuel will have to be transported to the site each year. At approximately 40 tonnes per load, this translates into the delivery of 11,750 loads (or 3,500 passes including return trip) of supplies each year.

The road will be maintained by AEM to ensure timely delivery of freight for mine operations. Policing of the road will be conducted by AEM's security and road maintenance and haulage staff.

2.1 HAULAGE AND ROAD SAFETY

All of the required fuel and supplies for the operation of the mine will be transported to the site via the AWPAR. During the life of the mine, the transportation of freight and road maintenance operations will be conducted by an owner operated fleet. All drivers will either be employees of the company or a company hired contractor (such as Arctic Fuels) and must possess a valid driver's license from a Canadian province or territory, for the appropriate class of vehicle, in order for them to be allowed to operate vehicles on the access road.

2.2 ROAD ACCESS

As mandated by Condition 32 of the NIRB Project Certificate, amended in July 2009, the AWPAR is maintained and operated as a private access road for the Meadowbank Project with controlled access for non-mine use by ATV for the purpose of carrying out traditional activities. The following measures have been implemented to manage access and use of the road:

- A manned gatehouse with lockable gate is in operation at KM 5 (on Commissioner’s land administered by the Hamlet of Baker Lake). The gatehouse is manned by an AEM employee whenever the road is in operation. This employee acts as the Dispatch for all traffic on the road and all vehicles are required to stop and report in at the gate prior to entering or exiting the road;

- English and Inuktitut signs are posted at the gatehouse, at each bridge crossing, and every 10 kilometers along the road, stating that unauthorized public use of the road is prohibited;

- Signs in English and Inuktitut are posted along the road route to indicate when entering and leaving Crown Land;

- Notices are placed on radio and television to inform the residents of the Hamlet of Baker Lake that the road is private with non-mine use limited to authorized use by ATV for pursuit of traditional Inuit activities; and

- All mine personnel using the road are required to monitor and report unauthorized non-mine use of the road.

To ensure safe and controlled use of the AWPAR by ATVs for the purpose of traditional Inuit activities, AEM has implemented the following measures:

1. The road remains closed to cars and trucks owned by the public. Access is restricted to All Terrain Vehicles (ATVs) only;

2. Residents of Baker Lake who need to access the road for traditional pursuits may obtain a pass from the Baker Lake Hunter and Trapper's Organization (HTO);

3. All ATVs accessing the road are required to report to the gatehouse. The resident will present the pass at the AEM gatehouse and will then be given access to the road. Prior to granting access, the AEM Dispatch will:

    - Provide a safety briefing on the road, specifically on the prevailing traffic and road conditions of the day and time, the safety rules and procedures and the extent of the no-shooting zone (Appendix A);
    - Record who is traveling on the road, where they are heading and when they expect to return so that other traffic can be warned by radio of their presence;
    - Have the driver acknowledge that they are traveling on a mining road and have been informed of the risks.

4. AEM collaborates with the HTO and the Hamlet of Baker Lake to develop the safety rules and procedures for all ATV's using the road including pulling off the road whenever a truck approaches. These safety rules are published in Inuktitut and English and then provided to all ATVs at the gatehouse. AEM, the HTO and the Hamlet will jointly educate the residents of Baker Lake on these safety procedures through community radio and through community training sessions;

5. AEM provides buggy whips and safety vest for on all ATVs using the road in order to improve its visibility on hills;

6. For security purposes, access is forbidden past km 85 for all the ATVs. AEM has established a second barrier at the mine site end of the road to prevent ATVs from traveling into the active mine zone where special safety equipment and training is required under the Nunavut Mining Act. This consists of a crossing gate constructed at the mine site airstrip terminal building (which also doubles as the site security office). This structure has been

sited so that it can be used both to service the airstrip and to control access onto the mine site.

7. All hunting activity must avoid cross shooting over the road, respect a safe zone along the road and no shooting around work area; and

8. AEM reserves the right to refuse future access to individuals who do not respect the rules on safety, speed and the no shooting zone when using the road.

2.3 OPERATIONAL PARAMETERS

In general, the operational parameters for the road are summarized below:

- Wildlife has the right of way;
- All vehicles (except ATVs) are to be insured and licensed;
- Refuge stations to be provided with first response spill kits;
- Hunting and fishing restrictions will be as per HTO's stipulations. All AEM employees are not allowed to hunt or fish while they are on their work rotation. Outside of the work rotation employees are subject to control measures as set by the Baker Lake HTO;
- All spills of any materials will be reported and cleaned up, as set out in the spill contingency plans. The haulage fleet will be required to have appropriate spill containment and clean-up equipment on hand or available on demand;
- Signs will be posted at key points near and around the site again to advise the public traveling by skidoo or ATVs that they are in a restricted and potentially hazardous area.

2.3.1 Mitigation Measures – Potential Effects From Traffic

Mitigative measures taken to limit potential effects from traffic during mine construction and mine operations are:

- Provide all road operators informational and training sessions regarding the potential for wildlife/vehicle collisions;
- Implement dust control measures during construction and operations at critical locations (watering or dust suppressant application to the road as required);
- Restrict vehicles to designated roads and approved construction areas (i.e. no off road travel allowed);
- Ban any AEM use of off-road vehicles outside exploration to avoid damage to local vegetation (tundra);

- Monitoring and reporting of significant numbers of wildlife observed in the vicinity of roads and immediately reporting to appropriate environmental mine staff who will issue notices to vehicle operators accordingly;
- Posting appropriate speed limits (e.g., 50 km/h);
- Giving wildlife the right of way and reducing traffic speeds when animals are detected near roads or other approved work areas;
- Reporting and disposing of accidental wildlife mortalities near the mine site.

2.3.2 Mitigation Protocols – Wildlife

Wildlife is expected occasionally to be observed on the site roads, the airstrip, or the access road. Caribou and other wildlife will have the right-of-way at all times. All project personnel will be notified by dispatch radio if any wildlife is observed in the site vicinity. In some cases, it may be practical for environmental staff to safely herd caribou away from roads and airstrips towards compatible and safe pathways. Wildlife movement will be monitored throughout the mine life and improvements in mitigation plans made as appropriate (adaptively managed).

Wildlife mitigation for potential effects of road and airstrip construction includes:

- Protecting locally sensitive areas;
- Temporarily suspending circulation on the road when the safety of caribou, grizzly bears, or other wildlife is threatened and using appropriate herding techniques to remove caribou and other wildlife from hazardous areas before resumption of activities; and
- Implementing dust control measures as appropriate.

2.3.3 Spill Contingency Plan

A trained site-based emergency response and spill clean-up team is available on site with appropriate equipment to respond to all spills. Spill response is implemented by environmental staff who advise, document, and report on initial response and clean-up actions.

SECTION 3 • DECOMMISSIONING AND RECLAMATION

Decommissioning of the all-weather access road will be accomplished by loosening compacted surfaces, flattening side slopes, and removing all culverts and other potential obstructions to drainages paths. Details are provided in Appendix C of the "*Meadowbank Gold Project Closure and Reclamation Plan Development Phase, Version 1, September 2008*".

Figures

CUMBERLAND RESOURCES LTD.

MEADOWBANK PROJECT LOCATION

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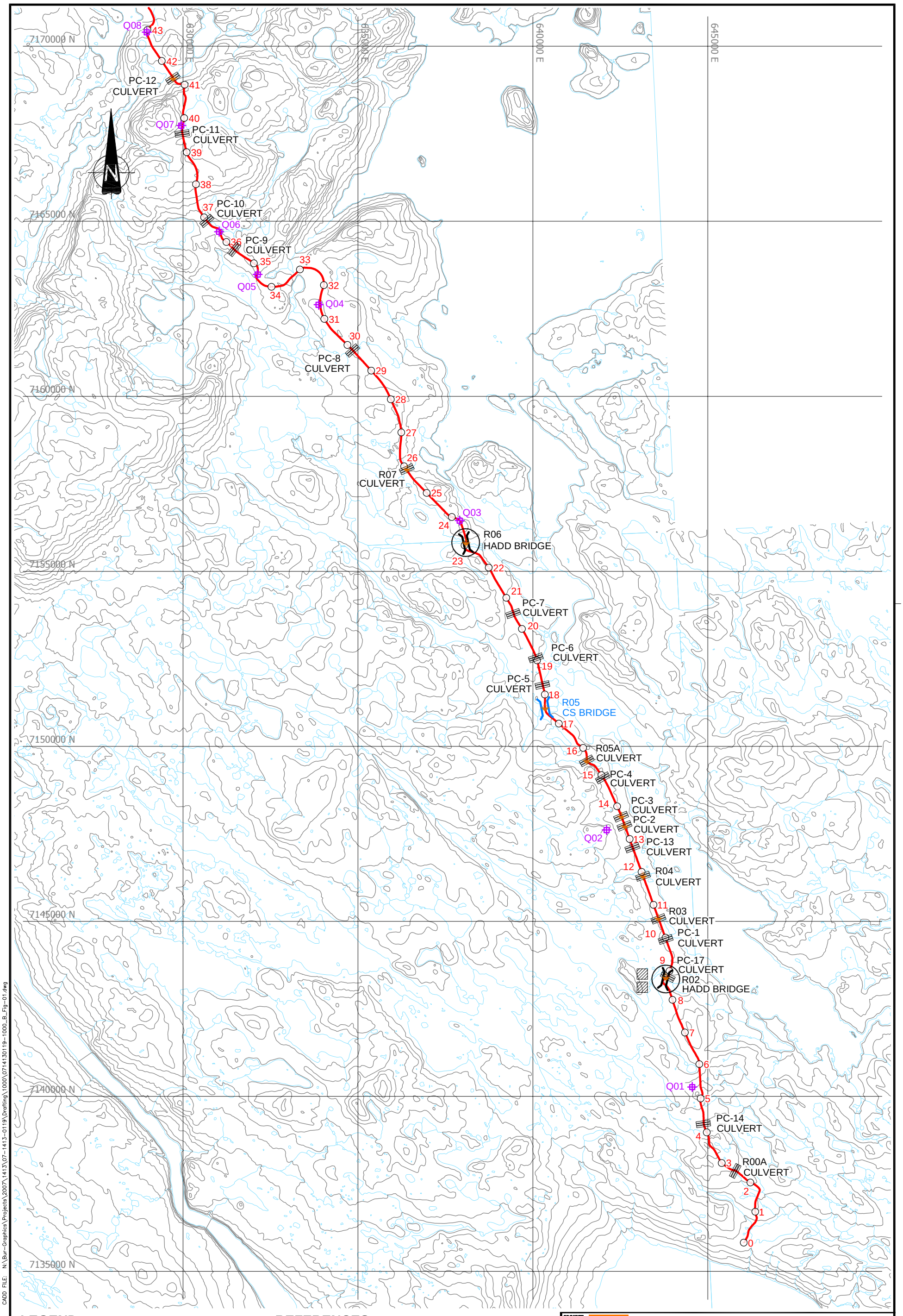
Drawn by: RAM	Checked by: CK	Fig No. Figure1
Filename: Project Location.cdr		



LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- HOOP NETS INSTALLED
- LARVAL DRIFT TRAP
- EXISTING QUARRY
- 10 KILOMETER MARKER

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES Ltd.
2) BASE DRAWING FROM GOLDER ASSOCIATES Ltd.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION

TITLE

ALL-WEATHER PRIVATE ACCESS ROAD

AZIMUTH

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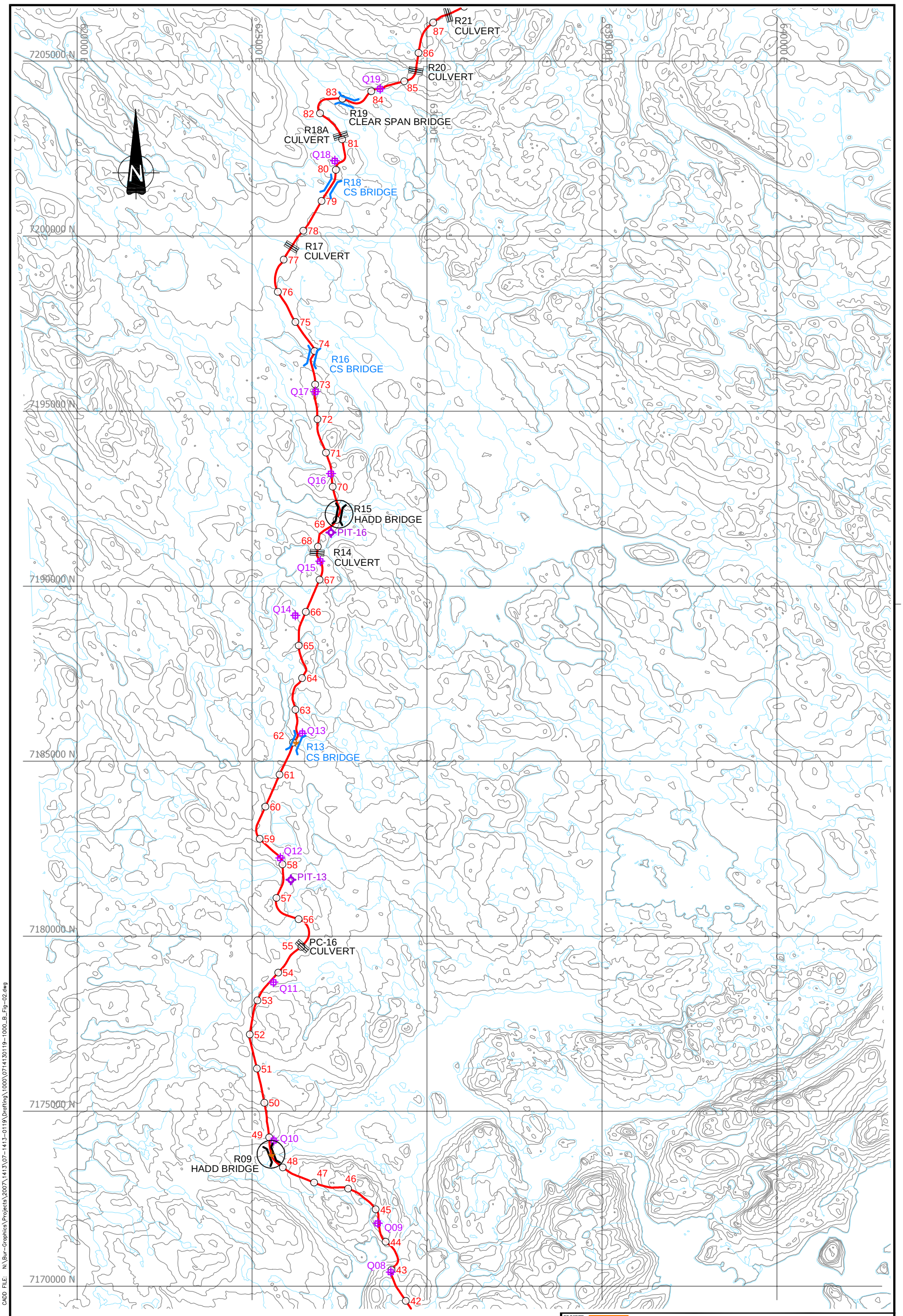

LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- HOOP NETS INSTALLED
- LARVAL DRIFT TRAP
- EXISTING QUARRY
- 10 KILOMETER MARKER

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES Ltd.
2) BASE DRAWING FROM GOLDER ASSOCIATES Ltd.

PROJECT

AEM **AGNICO-EAGLE MINES LIMITED**
MEADOWBANK DIVISION

TITLE

ALL-WEATHER PRIVATE ACCESS ROAD

AZIMUTH

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Q22
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R26 CULVERT
R24 CULVERT
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PIT-22
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Q21
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R20 CULVERT
Q19
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R19 CLEAR SPAN BRIDGE
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R18A CULVERT
81
Q18
80
R18 CS BRIDGE
79
78
R17 CULVERT
77
76
75
74
R16 CS BRIDGE

LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- HOOP NETS INSTALLED
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REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES Ltd.
2) BASE DRAWING FROM GOLDER ASSOCIATES Ltd.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION

TITLE

ALL-WEATHER PRIVATE ACCESS ROAD

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Appendix A

AWPAR Safety Briefing

MEADOWBANK GOLD PROJECT

All Weather Private Access Road Safety Briefing For Non-Mine Users

Prepared by:
Agnico-Eagle Mines Limited – Meadowbank Division

Version 1
September 2009

Safety Briefing for AWPAR Non-Mine Users

In July 2009, Condition 32 of the Meadowbank Project Certificate was amended by the Nunavut Impact Review Board to allow limited use of the All Weather Private Access Road to local Baker Lake residents for the purpose of accessing traditional hunting grounds. AEM has collaborated with the Baker Lake Hunters and Trappers Organization (HTO) in efforts to control non-mine access to the AWPAR and to properly inform Baker Lake residents. The HTO will issue authorizations to requiring residents who in turn will need to present the said authorizations to the AEM Baker Lake gatehouse Security guard to obtain access to the AWPR. AEM Security guard will give a mandatory safety briefing to the resident prior to road access. The Security guard will make sure residents understand all the points listed in the Safety Briefing Procedure.

This document provides a standard procedure for implementing the AWPAR safety briefing to Baker Lake residents who require road access. Delivering the safety briefing in a consistent manner by addressing each point below and recording information about the road users will help ensure that AEM has performed its due diligence in educating each individual on the safety procedures and inherent risks of using the road.

Safety Briefing Procedure

The Security guards will:

1. Request the HTO authorization and fill out the related control log form.
2. If the resident does not have an authorization, advise him / her that entry cannot be granted and that document can be obtained from the Baker Lake HTO.
3. Give the resident a printed copy of the Safety Rules and Procedures available in Inuktitut and English.
4. Explain each safety rule and procedure.
5. Explain current road and weather conditions.
6. Explain that any violation of the rules or procedures may result in refusal of future entry.
7. Ask for verbal confirmation that the resident understands the safety rules and procedures and make sure he /she signs and dates our related document.
8. Give resident a buggy whip and assist with installation if required. Explain purpose of buggy whip and that it must be returned to AEM upon their return to Baker Lake Gatehouse.
9. Give resident a safety vest and write the number of the vest on the form. Explain that it must be returned to AEM upon their return to Baker Lake Gatehouse.

AWPAR Record of Non-Mine Use

DATE	FIRST NAME LAST NAME	EXPECTED RETURN DATE	EXPECTED TIME OF RETURN	HTO PERMIT #	ATV LICENSE PLATE	SECURITY VEST #	BUGGY WHIP #	RESP. WAVER	EXPL. SHOOTING ZONE/ ROAD ACCESS	PHONE #	RETURN DATE	RETURN TIME	RETURNED SECURITY VEST	RETURNED BUGGY WHIP	SECURITY GUARD PRINT NAME
06/13/09	HUNTER FISHER	6/14/2009	1:30 PM	123	ABC	10	20	√	√	793-1234	6/14/2009	1:40 PM	√	√	WILLIAM SCOTTIE

Meadowbank Gold Project

All Weather Private Access Road

Safety Rules and Procedures

Safety Rules

- This is not a public road. Access to the road is not allowed without an HTO Pass and authorization from AEM Security Guard at the Baker Lake Gatehouse.
- Only ATVs are allowed to travel on the road.
- If the Gatehouse is closed, the road is also closed, and access is not allowed. This is likely due to unsafe weather, road conditions or safety reasons.
- Use of the Meadowbank All Weather Private Access Road is at your own risk. AEM is not responsible for personal injury or property damage.
- AEM reserves the right to refuse entry to anyone who does not respect these safety rules and procedures.
- AEM reserves the right to restrict public access in periods of heavy mine traffic flow, for example, during the transfer of supplies from Baker Lake to Meadowbank after the annual sealift.

Procedures For Road Access

1. Report to the Baker Lake Gatehouse to access the road. Show your HTO Pass to AEM Security guard and provide your name and expected time of return. AEM Dispatch will explain the safety rules and procedures and provide an update on current road and weather conditions.
2. Install a buggy whip on the ATV while at the AEM Gatehouse. The buggy whip must remain installed until the ATV returns to Baker Lake Gatehouse
3. AEM traffic has the right of way – the ATV must pull off the road when a vehicle is oncoming or approaching from behind and wait for that vehicle to pass before entering back onto the road.
4. Maximum speed is 50 km/hr.
5. All hunting activity must avoid cross shooting over the road, respect a safe zone along the road and no shooting around work area.
6. Access is forbidden upon km 85.
7. Return buggy whip and safety vest to Baker Lake Gatehouse.

_____	_____	_____
Printed name	Date	Signature

AGNICO-EAGLE MINES LIMITED
Meadowbank Division

MEADOWBANK GOLD PROJECT

WATER LICENSE 8BC-TEH0809
MONITORING PLAN

JULY 2008

EXECUTIVE SUMMARY

The Nunavut Water Board (NWB) has issued Type B Water License 8BC-TEH0809 to Agnico-Eagle Mines Limited (AEM) for the Meadowbank Project site authorizing the use of water and the disposal of waste required by a number of activities including:

- Completion of road construction, culvert installations and routine activities along the All Weather Private Access Road;
- Camp construction;
- Set-up and operation of a batch concrete plant;
- Set-up and operation of a sewage treatment plant
- Pre-development of two on-land starter pits; and
- Construction of a bulk fuel storage facility.

AEM has prepared the following document which summarizes the monitoring locations, sampling frequency, monitored parameters and visual inspection requirements for these activities. This report documents the stand alone Monitoring Plan specified under Water License 8BC-TEH0809 Part I, Item 2 and includes the following requirements:

a. Incorporates the monitoring related contents of the Technical Memorandum regarding Water Management and Monitoring Plan for Type "B" Water Licence Number 8BC-TEH0708, Meadowbank Gold Project Access Road, Kivalliq Region, Nunavut, dated March 21, 2007 (Section 2);

b. Incorporates the monitoring related components contained in the Water Licence Application for this licence renewal and amendment (Sections 3 and 4);

c. Quarry monitoring plans (Section 2.2 and 2.3); and

d. Addresses the issues identified by INAC in its July 6th, 2007 comments on the document entitled "Water Management and Monitoring Plan" dated March 12, 2007 (Sections 3.2.1, 3.2.2, 7)

This Plan will be immediately implemented (July of 2008) subject to any modifications proposed by the NWB as a result of the review and approval process**.**

TABLE OF CONTENTS

LIST OF TABLES

SECTION 1 • INTRODUCTION

This Plan outlines monitoring protocols for the All Weather Private Access Road (AWPAR) and associated quarries, camp construction and batch concrete plant, sewage treatment plant (STP) the pre-development starter pits and the bulk fuel storage facility at the Meadowbank Project site.

SECTION 2 • CAMP CONSTRUCTION & BATCH CONCRETE PLANT

Water license 8BC-TEH0809 authorizes construction and operation of a 340 person camp and the set-up and operation of a batch concrete plant to support pre-development construction activities. Both have an allowable water usage limit of 45 m^3/day and 15 m^3/day respectively.

Monitoring procedures include volume monitoring to be reported in the monthly summary report as per 8BC-TEH0809, Part I, Item 3:

Table 2.1: Water Volume Monitoring

Monitoring Station	Description	Parameter	Frequency
TEH- 1 and TEH-2	Water intake for camp and concrete batch plant purposes	Volume (m^3) for each individual purpose	Monthly

SECTION 3 • ALL WEATHER PRIVATE ACCESS ROAD

The All Weather Private Access Road extends 115 km between the Hamlet of Baker Lake and the Meadowbank Project site. License 8BC-TEH0809 authorizes completion of road construction, culvert installations, and routine operation activities. Monitoring procedures include visual inspections and water quality monitoring.

3.1 VISUAL INSPECTIONS

The watercourse crossings along the access road will be visually inspected on a regular basis to confirm their structural integrity, to confirm soil and permafrost stability, to confirm the crossings have been located adequately with respect to the watercourse, as well as to confirm there is minimal impact to fish habitat. This will involve two aspects:

- An erosion inspection program to monitor erosion and sediment transport at the channel crossings; and

- A crossing inspection and maintenance program to confirm the structural integrity and stability and adequate location selection of the crossings structure.

A habitat compensation monitoring program for fish-bearing watercourse crossings will be described in the Aquatics Effects Management Program (AEMP) monitoring plan. This plan will include detailed habitat compensation sampling and contingency measures.

3.1.1 Erosion Inspection Program

The watercourse crossings erosion inspection program has two main objectives:

(a) a regular inspection program to confirm that no significant erosion and sediment transport is occurring; and,

(b) an event inspection program to track the impacts of large storm events on sediment transport during the ice-free period.

Table 3.1 summarizes the watercourse crossings regular and event inspection schedule during ice free periods.

Table 3.1: Regular and Event Based Erosion Inspection Schedule

Regular Inspection Schedule		Event Inspection Schedule
Mid-May through June	July through October	Following large storm events
Twice weekly	Weekly	As required

The regular inspection program during the snowmelt and ice-free period is based on a schedule of visual inspections twice weekly during periods of high flow of the freshet (mid-May through June) and weekly during the remainder of the ice-free period prior to fall freeze up (July through October). Additional visual inspections will occur after large storm events.

3.1.1.1 Regular Erosion Inspections

It is important to inspect the watercourse crossings to confirm no downstream transport of sediments occurs due to erosion of the channel bed or scour around the crossings structure during spring freshet and the ice-free period. Visual observations of the crossings structure integrity will assess the erosion and scour potential or whether erosion or scour has already

occurred. Results will be recorded regularly and reported in the annual report to the NWB. Remediation of any detected problems would be undertaken as soon as possible.

3.1.1.2 Event Erosion Inspections

Following a large storm event, visual observations will be made to assess whether erosion has occurred. Results will be recorded regularly and reported in the annual report to the NWB. Remediation of any detected problems would be undertaken as soon as possible.

3.1.2 Crossing Inspection and Maintenance Program

The watercourse crossing inspection and maintenance program has three main objectives:

(a) a regular inspection program to identify issues relating to watercourse crossings structural integrity and hydraulic function;

(b) an event inspection program to track the impacts of large storm events on watercourse crossings structural integrity and hydraulic function; and,

(c) a culvert location inspection program to ensure culvert crossings has been installed in the adequate location with respect to the watercourse.

Table 3.2 summarizes the watercourse crossing inspection schedule during ice-free periods.

Table 3.2: Regular and Event Based Crossing Inspection Schedule

Regular Inspection Schedule		Event Inspection Schedule
Mid-May through June	July through October	Following large storm events
Twice weekly	Weekly	As required

The regular inspection program during the snowmelt and ice-free period is based on a schedule of visual inspections twice weekly during periods of high flow of the freshet (mid-May through June) and weekly during the remainder of the ice-free period prior to fall freeze-up (July through October). Additional visual inspections will be planned after large storm events. Table 3.3 summarizes the culvert crossings location inspection schedule.

Table 3.3: Culvert Crossings Location Inspection Schedule

Inspection Schedule
Mid-May through June
Twice weekly, for the first year

3.1.2.1 Regular Crossing Inspection and Maintenance

Regular inspection activities for each watercourse crossing will consist of:

- Visual inspection of its infrastructure to identify defects, cracks or any other risks to structural integrity. Particular attention will be paid to the inlet and outlet structures of culverts, and to bridge abutments and their foundations, as required.

- Visual inspection to identify sediment or other debris accumulation impeding the free flow of water through the crossings. Maintenance operations will consist of hand removal of accumulated debris and repairing damages as soon as possible.

- Visual inspection of upstream and downstream channel to identify bed erosion or scour around the watercourse crossing structure. Particular attention will be paid to bridge abutments and abutment foundations as they are vulnerable to scour and erosion. Particular attention will also be paid to potential sources of sediment transport at the crossing.

Inspection results will be recorded and reported in the annual report to the NWB. Maintenance operations consist of undertaking remediation of any detected problems and repairing damage as soon as possible.

3.1.2.2 Event Crossing Inspection and Maintenance

Following heavy or prolonged rainfall storm events, visual inspection of each watercourse crossing will be completed to identify potential risks to the crossing's structural integrity, debris accumulation and whether erosion and scour have occurred, as described in the regular monitoring program. Results will be recorded and reported in the annual report to the NWB. Remediation of any detected problems and necessary damage repairs would be undertaken as soon as possible.

3.1.2.3 Culvert Location Inspection

Following their installation, the culvert crossings will be visually inspected to confirm they have been properly executed and installed at the appropriate location with respect to the watercourse. It will be critical to inspection the installed location of the culverts during the first spring freshet period as the culverts are installed during the winter, when the watercourse crossings are not readily identifiable. Additional culverts will be installed, if necessary, should the inspection indicate that the culverts were installed in a location that does not optimally route watercourse flows.

3.2 WATER QUALITY MONITORING

Rock quarry geochemistry reports have been submitted that indicate that there are no water quality issues with the quarried rock[1]. In the spring of 2008 (June 22nd thru the 25th), a survey of each road quarry was completed and samples of standing water collected. The location of ponded water in each quarry and predicted drainage directions (if appropriate) were mapped. Each quarry condition was photo documented. The following field parameters were measured at each quarry where ponded water was evident:

- Temperature, pH, Dissolved Oxygen, Conductivity and Turbidity.

The water samples were sent off site to a commercial laboratory for analysis of the following parameters:

- pH, hardness, conductivity, total suspended solids (TSS), oil and grease, sulphate, explosive residues (nitrate and ammonia) and the list of regulated total metals from CCME *Guidelines for Freshwater Aquatic Life* (dated December 2006): aluminum, arsenic, cadmium, chromium, copper, fluoride, iron, mercury, molybdenum, nickel, lead, selenium, silver, thallium and zinc. The results will be tabulated and reported as part of the Water License Annual Report for 2008.

In 2008 the road alignment will be periodically surveyed by the site environmental team for any significant water seeps and/or water ponded in contact with the road. Water samples will be collected at locations where road rock appreciably contacts ponded or flowing surface water, as identified during these visual surveys. The sampling locations will be identified as part of the 2008 annual report along with the sampling results. The sample locations will be chosen to represent areas where standing water is in regular contact with the road rock fill to allow water quality to be measured in surface waters that are in regular contact with the road rock fill. Other criteria for selecting a sampling location include:

- Areas of evident rock staining (rust colour particularly);
- An area where an accidental spill has previously occurred.

In addition, starting in 2008 sampling locations will be set up both up stream and down stream from the 9 major road stream crossings in order to confirm there are no water quality

[1] *Geochemical Assessment of Potential Quarry Rock Along the Proposed Mine Access Road, Meadowbank Project Nunavut*, Golder, 2007;

Assessment of the Acid rock Drainage and Metal Leaching Potential of Rock from Potential Quarry Site Pit 6, Meadowbank Project Nunavut, Golder 2007;

Assessment of the Acid Rock Drainage and Metal Leaching Potential of Rock Samples Collected from an Esker along the Tehek Lake Access Road, Meadowbank Project, Nunavut, Golder 2007

issues resulting from these crossings or the adjacent road rock fill. In 2008 these sample points are being sampled on a monthly basis during the open water season. The samples are being sent off site to an accredited laboratory (Maxim Labs in Montreal) for analysis of the following parameters: pH, hardness, conductivity, total suspended solids (TSS), oil and grease, sulphate, explosive residues (nitrate and ammonia) and the list of regulated total metals from CCME *Guidelines for Freshwater Aquatic Life* (dated December 2006): aluminum, arsenic, cadmium, chromium, copper, fluoride, iron, mercury, molybdenum, nickel, lead, selenium, silver, thallium and zinc. The results will be tabulated and reported as part of the Water License Annual Report for 2008.

Sampling frequency will be re-evaluated after the first year (2008 ice-free period) of monitoring, and if the frequency is revised, the justification for this change will be provided to the NWB and other interveners for comment.

3.2.1 Monitored Parameters

Monitored parameters include: pH, hardness, conductivity, total suspended solids (TSS), oil and grease, sulphate, explosive residues (nitrate and ammonia) and the list of regulated total metals from CCME *Guidelines for Freshwater Aquatic Life* (dated December 2006): aluminum, arsenic, cadmium, chromium, copper, fluoride, iron, mercury, molybdenum, nickel, lead, selenium, silver, thallium and zinc. These parameters are applied to all sample locations along the AWPAR and in the quarries.

Water quality as monitored in the quarries, in ponded or flowing water along side the road and downstream of the road stream crossings will be compared against CCME Criteria for the protection of freshwater aquatic life and against background values as measured upstream at each road stream crossing. Where water quality exceeds CCME criteria or background values the following actions will be initiated:

- The location will be immediately re-sampled to verify the exceedance;
- A field investigation will be launched to investigate the cause and source of the noted exceedance;
- The Nunavut Water Board and Water Resources Inspector will be informed of the exceedance and the actions being taken.

The findings of the field investigation will be used to determine an appropriate mitigative action, such as removing the offending source rock or taking measures to prevent surface waters coming into contact with the offending source rock. The Nunavut Water Board and Water Resources Inspector will be consulted prior to implementing the planned mitigative action.

3.2.2 Sampling Method

Surface grab samples will be collected from the monitoring locations during ice free periods. Table 3.4 summarizes the monitored parameters, minimum sample volumes, container, preservation, and holding times as specified by USEPA Methods for Chemical Analysis of Water and Waste Water (EPA-600/4-79-020, 1979).

Table 3.4: Summary of Analytes for the AWPAR Water Quality Monitoring Program[(a)]

Parameter	Min. Vol. (ml)	Bottle[b]	Preservation	Holding Time
pH	25	P,G	None	Immediately (on site measurement)
Conductivity	50	P	Unfiltered, cool 4˚C	28 days
Hardness	-	P	HNO3- pH below 2	6 months
Mineral Oil and Grease	1000	G (Amber)	Unfiltered, cool 4˚C HCl (optional)	7 days w/o HCl; 28 days with HCl
NO3_N	100	P,G	Unfiltered, cool 4˚C	48 hrs
NH3_N	400	P,G	cool 4˚C, H_2SO4 – pH below 2	28 days
SO_4	50	P,G	Unfiltered, cool 4˚C	28 days
TSS	1000	P	Unfiltered, cool 4˚C	7 days
F	300	P,G	None	28 days
Ag	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Al	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
As	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Cd	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Cr	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Cu	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Fe	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Hg	100	P,G	Filtered on site, HNO_3 – ph below 2	28 days
Mo	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Ni	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months

Pb	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Se	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Tl	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months
Zn	200	P,G	Filtered on site, HNO_3 – ph below 2	6 months

(a) USEPA Methods for Chemical Analysis of Water and Waste Water, EPA-600/4-79-020.

(b) P: plastic bottle; G: glass bottle

3.3 QUARRY MONITORING

The freshet survey will also include the quarry sites from which construction rock was extracted. Currently, a total of 22 quarry sites were used for the construction of the AWPAR. An additional two quarries (QM-01 and QM-02) were developed at the location of the site airstrip to provide rock fill for the site roads and building pads (QM-01 and QM-02 are now one continuous quarry sited on either side of the site airstrip). As indicated above water quality samples were collected from ponded water in each quarry site in June of 2008.

Additionally, during the summer of 2008, AEM will conduct a program of geological mapping and chip sampling of all exposed quarry faces. The chip samples will be sent off site for geochemical characterization (conventional acid-base accounting testing, total and leachable metals using the BC MEM shake flask extraction procedure). The objective is to further verify that the rock used in road and site construction is not potentially acid generating or a source of significant metal leaching. These results will be reported in the 2008 annual report.

SECTION 4 • SEWAGE TREATMENT PLANT

To support the pre-development activities at the Meadowbank Project site, Water License 8BC-TEH0809 authorizes the operation of a rotary biological contactor (RBC) sewage treatment plant (STP) and the use of Tear Drop Lake with an allowable discharge standard for overflow. Monitoring procedures for the STP include discharge water quality monitoring with results to be reported in the Monthly summary report.

4.1 WATER QUALITY MONITORING

Tear Drop Lake is a small non-fish bearing pond located in the vicinity of the mill and site service facilities. It is the proposed Stormwater Management Pond for the Meadowbank

Project. During the pre-development phase authorized under 8BC-TEH0809, the treated sewage from the STP will be pumped into this Stormwater Management Pond. Overflow from this pond will be pumped into the northwest arm of Second Portage Lake only after it has met the discharge criteria listed in table 4.1.

Table 4.1: Tear Drop Lake Proposed Discharge Criteria

Parameter	Maximum Average Concentration	Maximum Allowable Concentration of a Grab Sample
pH	6.0 to 9.5	6.0 to 9.5
TSS	25 mg/L	50 mg/L
BOD_5	25 mg/L	50 mg/L
F.Coli	1000 CFU/dl	2000 CFU/dl
Oil & Grease	15 mg/L and no visible sheen	15 mg/L and no visible sheen
Benzene*	370 µg/L	370 µg/L
Toluene*	2 µg/L	2 µg/L
Ethylbenzene*	90 µg/L	90 µg/L
Lead*	1 µg/L	1 µg/L
Al	1.5 mg/L	3.0 mg/L

***** if discharge from bulk fuel storage facility is received by Stormwater Management Pond

Water samples will be collected according to the following parameters and frequency (as per 8BC-TEH0809 Part I, Item 3):

Table 4.2: STP Discharge Monitoring

Monitoring Station	Description	Parameter	Frequency
TEH-9	Discharge from Lake #1 of Contact Water Collection System (Stormwater Management Pond) to Second Portage Lake	pH, TSS, T-Al, BOD, F.Coli, T-As, T-Cu, T- CN, T-Pb, T-Ni, T-Zn, T-Radium226,	Once before discharge and weekly during periods of discharge
		Flow (m^3/day)	Daily during discharge
		Acute Lethality	Once, prior to discharge and monthly thereafter
	In addition, if discharge from Bulk Fuel Storage Facility directed to Lake #1	Benzene, Lead, Toluene, Ethylbenzene, oil and grease	Once before discharge and weekly during periods of discharge

SECTION 5 • PRE-DEVELOPMENT STARTER PITS

Two on-land starter pits (north and south pre-development zones) will be pre-developed on the Portage deposit to develop a stockpile of broken rockfill material that will be required to construct the outer shells of the East Dike. Water will be managed with the contact water collection system consisting of trenches, attenuation ponds #1 and #2 and Lakes #1 and #2 Monitoring procedures for the pre-development starter pits include water quality monitoring.

5.1 CONTACT WATER QUALITY MONITORING

Water, if any, accumulated in the pre-development zones (noted as monitoring stations TEH-3 and TEH-4 in 8BC-TEH0809 Part I, Item 3) will be monitored as follows:

Table 5.1: Monitoring Requirements for Pre-development Zones

Monitoring Station	Description	Parameter	Frequency
TEH-3 and TEH-4	Water, if any, accumulated in the North and South predevelopment zones	pH, turbidity	Weekly
		Metals using an ICP Metals Scan 36 element scan, Total Ammonia, Nitrate, Sulphate	Monthly

In the event that this accumulated water needs to be pumped to the sumps and Lakes, the following water quality monitoring will be conducted:

Table 5.2: Monitoring Requirements for Water Pumped from Pre-development Zones

Monitoring Station	Description	Parameter	Frequency
TEH-5 and TEH-6	Water pumped from north and south development zones to Contact Water Collection System	pH, turbidity	Daily during periods of pumping
TEH-7 and TEH-8	Contact Water Collection System Lake #1 and #2	pH, turbidity, Metals using an ICP Metals Scan 36 element scan, Total Ammonia, Nitrate, Sulphate	Weekly during periods of pumping from the predevelopment pits

All monitoring results from the contact water quality monitoring in the predevelopment starter pits will be reported to the NWB in the Monthly Summary report and to the Kivalliq Inuit Association (KIA) on a monthly basis.

Only water meeting the following discharge criteria will be transferred to Lake #1 and #2 from the starter pits without further treatment being required:

Table 5.3: Discharge Criteria for Water Transferred Between Starter Pits and Lakes #1 and #2

Parameter	Units	Proposed Discharge Criteria
pH		6.0 to 9.0
TSS	mg/L	50
Total Ammonia-N	mg/L	15
Total Metals		
Aluminium Al	mg/L	2.0
Arsenic As	mg/L	0.5
Copper Cu	mg/L	0.3
Lead Pb	mg/L	0.2
Nickel Ni	mg/L	0.5
Zinc Zn	mg/L	0.5

If water quality does not meet these discharge criteria, then it will be treated in the two attenuation ponds prior to being transferred into Lakes #1 and #2. The contingent treatment methods are presented in section 5.2.

5.2 CONTACT WATER STORAGE AND TREATMENT SYSTEM

In the event that water is pumped from the pre-development zones into Lake #1 or Lake #2, water quality monitoring will be able to detect if water treatment is necessary prior to discharge. If the water quality problem is an excess of suspended solids, a coagulant will be added using a temporary addition system with a metering pump. If the water quality problem is a low pH value or metal concentrations in excess of the limits, lime will be added. Both types of treatment would be done in the attenuation pond to allow sufficient time for sedimentation to occur in Lakes #1 and #2.

5.3 CONTACT WATER COLLECTION SYSTEM DISCHARGE

Any overflow directed from Lake #1 or Lake #2 into the northwest arm of Second Portage Lake must not exceed the following effluent quality limits:

Table 5.4: Effluent Quality Limits for Lake #1 and Lake #2 Overflow

Parameter	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
Arsenic (mg/L)	0.5	1.0
Copper (mg/L)	0.3	0.6
Cyanide (mg/L)	1.0	2.0
Lead (mg/L)	0.2	0.4
Nickel (mg/L)	0.5	1.0
Zinc (mg/L)	0.5	1.0
pH	6.0 to 9.5	6.0 to 9.5
Radium-226 (Bq/L)	0.37	1.11
TSS (mg/L)	15	30

Specific monitoring requirements for the discharge of Lake #1 and Lake #2 are as follows, based on 8BC-TEH0809, Part I, Item 3:

Table 5.5: Monitoring Requirements for Lake #1 and Lake #2 Discharge

Monitoring Station	Description	Parameter	Frequency
TEH-9	Discharge from Lake #1 of Contact Water Collection System (Stormwater Management Pond) to Second Portage Lake	pH, TSS, T-Al, BOD, F.Coli, T-As, T-Cu, T- CN, T-Pb, T-Ni, T-Zn, T-Radium226,	Once before discharge and weekly during periods of discharge
		Flow (m^3/day)	Daily during discharge
		Acute Lethality	Once, prior to discharge and monthly thereafter
	In addition, if discharge from Bulk Fuel Storage Facility directed to Lake #1	Benzene, Lead, Toluene, Ethylbenzene, oil and grease	Once before discharge and weekly during periods of discharge
TEH-10	Discharge from Lake #2 of Contact Water Collection System to Second Portage Lake	pH, TSS, T-As, T-Cu, T-CN, T-Pb, T-Ni, T- Zn, T-Radium226, Acute Lethality	Once before discharge and weekly during periods of discharge
		Flow (m^3/day)	Daily during discharge
		Acute Lethality	Once, prior to discharge and monthly thereafter

SECTION 6 • BULK FUEL STORAGE FACILITY

Water License 8BC-TEH0809 has been amended to include the construction of the 5.6 Ml bulk fuel storage tank at the Meadowbank site. Monitoring procedures include discharge water quality monitoring.

Should discharge be land applied, the following monitoring will be conducted:

Table 6.1: Bulk Fuel Storage Facility - Monitoring Requirements for Land Applied Discharge

Monitoring Station	Description	Parameter	Frequency
TEH-11	Land applied discharge from the Bulk Fuel Storage Facility	Benzene, Toluene, Ethylbenzene, Lead, oil and grease	Once before discharge and weekly during periods of discharge
		Flow (m^3/day)	Daily during discharge

Any discharge shall not exceed the following effluent quality limits:

Table 6.2: Bulk Fuel Storage Facility - Effluent Quality Limits for Land Application

Parameter	Maximum Average Concentration (µg/L)
Benzene	370
Toluene	2
Ethylbenzene	90
Lead	1
Oil and Grease	15,000 and no visible sheen

SECTION 7 • QA/QC PROGRAM

The QA/QC program is designed to identify and minimize the impacts of potential sampling and analytical errors on the monitoring program. The QA/QC program is based upon an industry standard frequency of 1 field duplicate[2] and 1 trip blank[3] for each 10 samples and

[2] A field duplicate sample set consists of a thoroughly homogenized sample collected from one desired location that has been split between two sets of bottleware and labeled as representing two separate sample locations as a method for evaluating sampling procedures and analytical precision.

[3] A trip blank is a sample of analytefree media collected in the same type of container that is required for the analytical test, taken from the sampling site to the laboratory. A trip blank is used to document contamination attributable to shipping and field handling procedures.

each sampling event. This will apply to the all AEM environmental monitoring and sampling programs. In addition, the following will be adhered to:

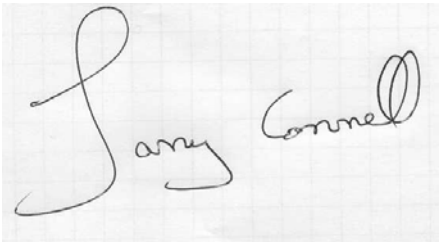
- All sampling programs will be overseen and reviewed by a qualified Professional as appropriate,

- All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board, and

- All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.

This document, "*Water License 8BC-TEH0809 Monitoring Plan, July 2008*" has been prepared by Agnico-Eagle Mines Limited.

Prepared By



Lawrence J. Connell
NWT/NU Registration Number L1720
Regional Manager: Environment, Social and Government Affairs

DEVELOPER RESPONSE TO EIRB

As requested by the Environmental Impact Review Board (EIRB) on October 25, 2011, the Developer is pleased to provide further information on upcoming and completed studies (EIRB Request #2(b)), and mitigation measures, residual effects, Developer commitments, and monitoring (EIRB Request #2(c)).

EIRB Request #2(b):

A consolidated list of any new information that will be provided for this review, the planned studies that have begun or are planned for a future data, and a discussion of how this new information will address information requirements found in the EIS Terms of Reference (sections 9.1, 10.1, 10.2, 13.1). The Developer should also provide a schedule for when these studies will be undertaken and completed, and when the new information will be submitted. Also, clearly identify whether any of the new information is planned to be provided for the review phase or for the regulatory phase.

Developer's Response #2(b):

INUVIK TO TUKTOYAKTUK HIGHWAY
BASELINE DATA COLLECTION PROGRAMS SCHEDULE & STATUS

Program	Activity	Proposed Program Timing	Responsible	Status	Application in Project EA/Design/Planning/Regulatory Applications
Aerial Photography	1:10,000 scale photos Final Digital prints	August 31, 2011	DOT	**Completed**	Used in LSA mapping for vegetation and design
	Ortho-Photo Mosaic	September 2011	DOT	**Completed**	Used in engineering design and a variety of field surveys
LiDAR	LiDAR Survey	August 2011		**Completed**	n/a
	LiDAR Analysis	November 2011	DOT	Underway	Used in detailed engineering and terrain baseline mapping Used in field survey planning for wildlife and wildlife habitat

Program	Activity	Proposed Program Timing	Responsible	Status	Application in Project EA/Design/Planning/Regulatory Applications
Fisheries	Fish Habitat Assessment	August 22 – September 23, 2011	IMG-Golder	**Completed**	Used in report preparation
	Draft Report	October 28, 2011	IMG-Golder	**Under Review by DOT. DFO**	
	Final Report	Mid – December 2011	IMG-Golder		Provides, in conjunction with 2010 surveys, site specific baseline for refined effects assessment Supports development of Fish and Fish Habitat Protection Plan Supports HADD application if necessary Supports TC Navigable Waters application Supports Water Licence application
Archaeology Impact Assessment	Field Survey	August 22 – September 23, 2011	IMG-Golder	**Completed**	Provides adequate baseline for Project EA assessment including site specific mitigation
	Draft Report	October 28, 2011	IMG-Golder	**Under Review by DOT, PWNHC**	Provides, in conjunction with 2009 surveys, site specific baseline for refined effects assessment
	Final Report	Mid - December	IMG-Golder		Supports Archaeological Impact Assessment including defining site-specific mitigations Supports Archaeological Protection Plan development
Potential Borrow Source Reconnaissance	On ground reconnaissance of suitability of potential borrow sources	July – August 2011	**Kavik-Stantec**	**Partially Completed**	Supports 2011 and 2012 winter geotechnical investigation contracts

Program	Activity	Proposed Program Timing	Responsible	Status	Application in Project EA/Design/Planning/Regulatory Applications
Terrain and Geotechnical	Draft Surficial Geology Map of LSA and borrow sites at 1:20,000 including delineation and classification of surficial geology Mapping from digital imagery and High Definition and Mapping and APPlications system	March 1, 2012	KAVIK-STANTEC	*Underway*	Supports detailed route alignment and costing Supports design of geotechnical program for site investigations of landforms, terrain stability, permafrost conditions, presence of waterbodies, identification of winter access road stream crossings, and hydrological factors affecting access or borrow extraction activities Supports planning of borrow source geotechnical investigations Supports vegetation landcover mapping Supports identification of potential wildlife habitat. Supports mitigation design and planning
	Draft Terrain Constraints Map of LSA and potential borrow sites at 1:20,000 including delineation and classification of ice-rich deposits and terrain related geohazards	March 1, 2012	KAVIK-STANTEC	*Underway*	Supports detailed route alignment and engineering Supports planning of borrow source geotechnical investigations Supports mitigation planning
	Final Terrain and Geotechnical Constraints report including identification, delineation and classification of surficial geology, ice-rich deposits and terrain constraints at a representative scale of 1:7,500; to be reproduced at 1:20,000	March 31, 2012	KAVIK-STANTEC	Underway	Assists with detailed engineering and design Supports wildlife habitat mapping and field survey planning Supports Sediment and Erosion Plan development Supports LUP and WL applications
	Winter geotechnical drilling, sampling and lab testing of portions of 9 borrow sources to confirm the extent, quantity and quality of materials.	March - October 2012	TBD		Supports project planning and design, costing. Supports Pit Development Plans for Quarry Permits

Program	Activity	Proposed Program Timing	Responsible	Status	Application in Project EA/Design/Planning/Regulatory Applications
Traditional Knowledge/ Traditional Land Use	Literature Review	September 2011	KAVIK-STANTEC	**Completed**	Used in TK Workshop preparation
	TK/TLU workshop material preparations	November 31, 2011	KAVIK-STANTEC	**Revised Schedule**	Used in conducting workshops
	Workshop - Inuvik	December 12, 2011	KAVIK-STANTEC	**Confirmed Date**	Confirms understanding of site specific traditional knowledge and site specific traditional land use activities Provides adequate baseline for Project EA assessment including site specific mitigation Supports planning of geotechnical investigations
	Workshop - Tuktoyaktuk	December 13, 2011	KAVIK-STANTEC lead	**Confirmed Date**	Confirms understanding of site specific traditional knowledge and site specific traditional land use activities Provides adequate baseline for Project EA assessment including site specific mitigation Supports planning of geotechnical investigations
	Analysis and community review	January/ February 2012	KAVIK-STANTEC		Used in mitigation confirmation and construction phase Wildlife Mitigation and Monitoring Plan
	Final Report	April 30, 2012	KAVIK-STANTEC		Assists with detailed engineering and design Used in mitigation confirmation and construction phase Wildlife Mitigation and Monitoring Plan Supports TC Navigable Waters application

Program	Activity	Proposed Program Timing	Responsible	Status	Application in Project EA/Design/Planning/Regulatory Applications
Vegetation Baseline	Preliminary LSA vegetation cover map	March 31, 2012	KAVIK-STANTEC		Used in field survey planning Used to confirm impact predictions Informs habitat potential mapping and wildlife field surveys
	Rare Plant literature review				
	Vegetation cover and Rare Plant Field Surveys and Sampling	June 2012	KAVIK-STANTEC		Used in vegetation mapping and to confirm EIS vegetation typing Used in final design and mitigation determination
	Draft Report including vegetation cover map at 1:20,000 and rare plant occurrences	August 15, 2012	KAVIK-STANTEC	*Revised Schedule*	Used in final design and mitigation implementation Used in wildlife habitat mapping
	Final Baseline Report including vegetation cover map at 1:20,000	August 31, 2012			Used in final design and mitigation implementation Used in mitigation / compliance monitoring
Wildlife and Wildlife Habitat	LSA Features Relevant to Wildlife	March 31, 2012	KAVIK-STANTEC	*Revised Schedule*	Used in refining construction phase Wildlife Mitigation and Monitoring Plan Used in design and implementation of habitat mitigations
	Spring Waterfowl Staging Survey	May 2012	KAVIK-STANTEC in consultation with EC		Used in refining construction phase Wildlife Mitigation and Monitoring Plan Used in design and implementation of habitat mitigations
	Breeding Waterfowl Survey	June 2012	KAVIK-STANTEC in consultation with EC		Used in refining construction phase Wildlife Mitigation and Monitoring Plan Used in design and implementation of species mitigations
	Breeding Passerines/ Shorebirds Survey	June / July 2012	KAVIK-STANTEC in consultation with EC		Used in refining construction phase Wildlife Mitigation and Monitoring Plan Used in design and implementation of species mitigations
	Draft Report including wildlife, key wildlife habitat features and observations map at 1:20,000	August 15, 2012	KAVIK-STANTEC	*Revised Schedule*	Used in design and implementation of species mitigations Used in refining Construction Wildlife Mitigation and Monitoring Plan

Program	Activity	Proposed Program Timing	Responsible	Status	Application in Project EA/Design/Planning/Regulatory Applications
	Final Baseline Report	August 31, 2012	KAVIK-STANTEC		Used in refining construction phase Wildlife Mitigation and Monitoring Plan Used in mitigation / compliance monitoring
	Grizzly Bear Den Survey	October 12, 2011 October 2012	ENR - Inuvik	Conducted October 12	Used in implementation of den mitigations prior to subsequent winter geotechnical investigations and construction
	Raptor Nest Survey	June 2012	ENR - Inuvik		Used in design and implementation of habitat mitigations
Engineering	Right-of-Way Surveys	July – August 2012	DOT		Used in implementation of mitigations
	Bridge Design	July 2012	DOT		Design and implementation of habitat mitigations
Hydrological Assessments	Determine span widths and abutment placement	June 2012	TBD		Support bridge crossing design and engineering Supports Water Licence application Support Navigable Water permit applications
Water Source Studies	Bathymetric Mapping of proposed water sources	June 2012	TBD		Supports Water Licence application Supports construction planning
	Assessment of allowable withdrawal quantities per source	July 2012	TBD		Supports Water Licence application Supports construction planning

EIRB Request #2(c):

A detailed description and discussion of their views on other ways they propose to use to make impact predictions and develop appropriate mitigation measures (Sections 9.1, 10.1, 10.2, 13.1).

Developer's Response #2(c):

The Developer prepared the mitigation measures for the Highway based on previous northern experience and accepted practices, including those practices outlined in Section 6.0 (Guidance on Mitigative and Remedial Measures) of the EIRB's *Environmental Impact Review Guidelines* (2011, referred to as the "Guidelines"). In particular, Section 6.2 (What a Developer Should Consider) of the EIRB Guidelines provides guidance on the preparation of mitigation measures and examples of appropriate mitigation measures, which are comparable to those provided by the Developer in the EIS and Addendum. Portions of Section 6.2 are provided as follows.

6.2 What a Developer Should Consider (EIRB 2011)

To properly address the requirement for mitigative and remedial measures, a development proposal submission should include:

- A description of any potential impacts to the biophysical and human environment, wildlife, wildlife habitat, and wildlife harvesting activities.
- A description of the proposed mitigation to reduce or eliminate potential impacts.
- An outline of emergency response plans and any management and monitoring plans proposed and/or required for the development to proceed.

Mitigation measures to be used to reduce the potential negative effects of a development should be identified as part of the EIS. Measures that are built into the design of the development can be included in the discussion of development activities. For example, all land users shall avoid harm to wildlife and wildlife habitat and damage to community travel routes through the timing of their operations, through careful selection of the location of their main camps and travel routes and through other mitigative measures. Descriptions of mitigative measures should be specific (i.e., mitigative measures that require actions or responses by the Developer should be explicitly identified and explained).

Such measures may include:

- Mandatory restrictions imposed by laws of general application, regulations and guidelines. Laws of general application include territorial or federal statutes which are justified for conservation or public safety reasons such as the NWT's Wildlife Act or the Fisheries Act.
- Voluntary measures taken by the Developer (e.g., to use a different technology, to change the timing of activity or to commit to suspending activities in certain circumstances).
- Attachment of terms and conditions to specific authorizations that are required and that can be enforced, such as authorizations under the National Parks Act, or Species At Risk Act.

- Regional mitigation measures (e.g., Beaufort Sea Beluga Management Plan, NWT Guidance for the Protection of Land, Forest and Wildlife – Oil and Gas Seismic Exploration, Yukon North Slope Wildlife and Conservation Plan, Community Conservation Plans,) that were considered and will be implemented by the Developer.

Furthermore, the Developer believes that it has complied with the goal oriented approach established by the EIRB under Section 8.1 of the *Environmental Impact Review Guidelines* (EIRB 2011). Section 8.1 is provided as follows.

8.1 Goal Oriented Approach to Environmental Impact Review (EIRB 2011)

The EIRB encourages a Developer to use a goal oriented approach to achieve sustainable human and biophysical environmental protection in the design, construction, operation and decommissioning of proposed developments. The Review Board has adopted a goal oriented approach to environmental impact review to encourage a more sustainable approach to development, by:

- Establishing performance goals for sustainable human environment and environmental protection.
- Allowing flexibility for a Developer to apply their own knowledge and experience to achieve these human environment and environmental protection goals and to demonstrate how their proposed development contributes to sustainable development.
- Encouraging innovation and performance beyond a prescriptive minimum.
- Assigning responsibility to a Developer for demonstrating sustainable human environment and environmental protection for all phases of a proposed development.

The Review Board will use the human environment and environmental protection goals as a measure against which the Developer's Final EIS will be evaluated.

The Developer remains confident that the goals identified by the EIRB in the *Environmental Impact Review Guidelines* (Table 1, EIRB 2011) and repeated in the Terms of Reference (EIRB 2010), can be met by using the well-established mitigation measures, guidelines and best management practices identified throughout the EIS and in the Addendum. Table 4-1, extracted from the EIRB (2010) Terms of Reference for this Project, identifies the goal statements which the Developer is working towards in the design of this Project.

TABLE 4-1: BIOLOGICAL, PHYSICAL, AND HUMAN ELEMENTS AND GOAL STATEMENTS

Element	Goal Statements
Migratory Birds and Habitat	Protect and avoid disturbance or destruction to migratory birds and their habitat throughout all phases of the proposed development.
Species at Risk	Avoid the loss, damage or destruction of species at risk and their critical habitat throughout all phases of the proposed development.
Wildlife and Wildlife Habitat	Protect all wildlife and wildlife habitat and minimize habitat losses throughout all phases of the proposed development.

TABLE 4-1: BIOLOGICAL, PHYSICAL, AND HUMAN ELEMENTS AND GOAL STATEMENTS	
Element	**Goal Statements**
Fish and Fish Habitat	Protect all fish and fish habitat and establish a "no-net-loss" of fish habitat throughout all phases of the proposed development.
Vegetation	Maintain the diversity of all vegetation communities throughout all phases of the proposed development.
Waterbodies and Wetlands	Conserve and minimize or avoid negative impacts to all waterbodies and wetlands throughout all phases of the proposed development.
Soil	Protect and sustain soils and minimize losses through erosion throughout all phases of the proposed development
Surface water and Groundwater	Protect or minimize impacts to all ground and surface water throughout all phases of the proposed development.
Permafrost	Protect and minimize impacts to permafrost throughout all phases of the proposed development.
Noise	Minimize anthropogenic noises throughout the duration of the proposed development.
Climate Change	Minimize contributions to climate change throughout all phases of the proposed development.
Air Quality	Minimize air pollution throughout all phases of the proposed development.
Navigation	Avoid impeding navigation throughout all phases of development.
Wildlife Harvesting	Conserve species used for wildlife harvesting throughout all phases of the proposed development.
Culture, Heritage and Archaeology	Preserve culture, heritage and archaeology throughout all phases of development.
Communities	Minimize or avoid negative impacts to local communities throughout all phases of the proposed development
Economy	Pursue economic development opportunities that do not adversely impact environmental, social, and cultural conditions/wellness
Human Health and Safety	Avoid negative impacts to human health and safety throughout all phases of development
Land Use	Protect important land use areas.
Participation Agreement (IBA) if required	Commitment from the Developer to participate (section 10 of the IFA.)
Migratory Birds and Habitat	Protect and avoid disturbance or destruction to migratory birds and their habitat throughout all phases of the proposed development.
Species at Risk	Avoid the loss, damage or destruction of species at risk and their critical habitat throughout all phases of the proposed development.
Wildlife and Wildlife Habitat	Protect all wildlife and wildlife habitat and minimize habitat losses throughout all phases of the proposed development.
Fish and Fish Habitat	Protect all fish and fish habitat and establish a "no-net-loss" of fish habitat throughout all phases of the proposed development.
Vegetation	Maintain the diversity of all vegetation communities throughout all phases of the proposed development.
Waterbodies and Wetlands	Conserve and minimize or avoid negative impacts to all waterbodies and wetlands throughout all phases of the proposed development.

In the Addendum provided to the Environmental Impact Review Board (EIRB) in response to the EIRB's letter dated July 15, 2011: *Conformity Statement and Board Direction Regarding the Draft Environmental Impact Statement for the Hamlet of Tuktoyaktuk, Town of Inuvik and GNWT – Construction of the Inuvik to Tuktoyaktuk Highway, Northwest Territories* [02/10-05], the Developer provided detailed information on the use of best management practices and guidelines that were and will be used throughout the planning, construction, and operations phases of the Highway development and the pit development, operation and closure phases. The response provided to the EIRB in the August 2011 Addendum is as follows.

The Developer has reviewed the EIS and prepared a consolidation of the list of guidelines and best practice documents cited throughout the EIS (Table 1). To assist reviewers, the table provides the page reference of each time that a document is cited. In addition, the Developer has provided more specific details on a best practices manual identified in the EIS that is in preparation. The list (provided in Table 1 of the Addendum, and reproduced below) will be maintained to ensure new guidelines and best practices are incorporated throughout the EA and regulatory phase.

It is important to note that the guidelines and best management practices cited in the EIS and the Addendum are typically created by the responsible regulatory authority on the subject. These guidelines were prepared based on lessons learned and provide the current and foremost expertise and accepted practices in that discipline. These guidelines should be considered evidence for the success of the proposed mitigation measures discussed therein.

The Developer has also provided additional source documents that are currently under development. For example, GNWT DOT contracted Dillon Consulting Ltd. (Dillon) to prepare an erosion and sediment control best practices / mitigation techniques document, entitled *Environmental Best Practices for Erosion and Sediment Control: A Manual for Transportation Maintenance and Construction,* for the specific environmental requirements of typical GNWT DOT earthwork-type projects. The resource material provided to Dillon included DFO's best practices from various "working near water" documents and a nationally accepted guide authored by the Transportation Association of Canada (TAC 2005) entitled *National Guide to Erosion and Sediment Control on Roadway Projects.* Once completed, this document will become a standard guidance document for application in GNWT DOT contracts including this Project. The new guidance document is referenced in Table F and pages 469 and 507 of the EIS.

Furthermore, guidelines corresponding to specific mitigation measures for the Valued Components are identified in Table 6-1 of the EIS, which has been reproduced in Section 18.0 of this document.

TABLE 1: CONSOLIDATED LIST OF GUIDELINES AND BEST PRACTICES FOR CONSTRUCTION AND OPERATIONS

Title	Source	EIS References	Changes?
Environmental Policy (Draft)	GNWT DOT 2010 (to be finalized 2011)		New guidance
Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions	Transportation Association of Canada. 2010	Table 6.1, Table F, 63, 85, 644	No change
Environmental Guidelines for the Construction, Maintenance, and Closure of Winter Roads in the Northwest Territories.	GNWT DOT 1993 (Stanley Associates Engineering Ltd. and Sentar Consultants Ltd.)	Table F, 492	No change

TABLE 1: CONSOLIDATED LIST OF GUIDELINES AND BEST PRACTICES FOR CONSTRUCTION AND OPERATIONS			
Title	**Source**	**EIS References**	**Changes?**
Highway Maintenance Manual	GNWT DOT 1993	Table F, 492	No changes
Environmental Best Practices for Erosion and Sediment Control: A Manual for Transportation Maintenance and Construction (DRAFT)	GNWT DOT 2011 (Dillon Consulting Limited)	Table F, 469, 507	New guidance
Guideline for Dust Suppression	GNWT 1998	Table 6.1, T Table F, 91, 474, 481, 482, 491, 492, 503, 516, 522, 524, 541, 644	No changes
Land Development Guidelines for the Protection of Aquatic Habitat.	DFO 1993	Table 6.1, Table F, 488, 490, 492, 493, 495, 500, 507	DOT approach to culvert installation gives consideration to permafrost specific considerations.
Northern Land Use Guidelines - Access: Roads and Trails.	INAC 2010	Table 6.1, 488, 490, 500	Special consideration will be given to culvert installation techniques that are appropriate for permafrost areas.
Northern Land Use Guidelines: Camp and Support Facilities.	INAC 2011	89, 609, 610	No changes
Northern Land Use Guidelines Access: Pits and Quarries.	INAC 2010	Table 6.1, 63, 85, 501	No changes
ISR Granular Resources Management Plan Section 3: Pits and Quarries Guidelines	ILA and INAC 2010	63, 85, 501	No changes
Canadian Water Quality Guidelines for the Protection of Aquatic Life: Summary Table.	CCME 2007	Table 6.1	No changes
Freshwater Intake End-of-Pipe Fish Screen Guidelines	DFO 1995	502	No changes
Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut	DFO 2005 (revised June 21, 2010)	Table 6.1, Table F, 88, 491, 493, 497, 502	No changes
Temporary Stream Crossing. NWT Operational Statement. Version 1.0	DFO 2008	Table 6.1 Table F, 492	No changes
In-Water Construction Timing Windows for the Protection of Fish Habitat. NWT Operational Statement. Version 3.0	DFO 2009	Table F	No changes
Clear Span Bridges. NWT Operational Statement. Version 3.0	DFO 2009	Table F, 489, 493, 497, 498, 507	No changes
Culvert Maintenance. Operational Statement. Version 3.0.	DFO 2010	Table 6.1, Table F?, 490, 493, 497, 498, 499, 500, 507	No changes
A Guide to Spill Contingency Planning and Reporting Regulations	GNWT ENR 2011	674	No changes
Guidelines for Spill Contingency Planning	INAC 2007	Table F (says 1987), 458, 610	No changes

TABLE 1: CONSOLIDATED LIST OF GUIDELINES AND BEST PRACTICES FOR CONSTRUCTION AND OPERATIONS			
Title	**Source**	**EIS References**	**Changes?**
Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.	CCME 2003	90, 609	No changes
Guideline for the General Management of Hazardous Waste in the NWT	GNWT RWED 1998	612	No changes
Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters	DFO 1998 (Wright, and. Hopky)	Table 6.1, Table F, 486, 497, 501	Standards for explosives have been updated with regards to the NWT. All operations involving explosives near waterbodies will be reviewed by DFO
Monitoring Explosive-Based Winter Seismic Exploration in Water Bodies NWT 2000 - 2002.	Cott and Hanna 2005		Activities involving explosives near waterbodies will be reviewed by DFO.
Discussion on Seismic Exploration in the Northwest Territories 2000–2003	Cott, Hanna and Dahl 2003		Activities involving explosives near waterbodies will be reviewed by DFO.
Guidelines for Developers for the Protection of Archaeological Sites in the Northwest Territories.	PWNHC ND	Not in Table 6-1	No changes
A Field Guide to Ice Construction Safety	GNWT DOT 2007	86	No changes
Bear Safety Guidelines	GNWT RWED 1998	Table F, 534	No changes

The EIRB, through its technical advisors, have stated that they would like evidence for how well the proposed mitigation works and how they will be measured in the future (Dr. Petr Komers, pers. comm., 2011), based on a comparative analysis from other projects or from a literature review. As discussed previously, many of the mitigation measures presented in the EIS are based on the guidelines prepared for the specific activities and valued components by the regulatory agencies or responsible authorities; therefore, it is unclear what statistical or quantitative evidence is required to prove that the mitigation measures produced by these authorities are accurate.

Furthermore, the EIRB Terms of Reference (Section 13.1) state that "the [monitoring] targets shall be used in defining the expected success of mitigation" (EIRB 2010, p. 51). According to the *Canadian Environmental Effects Act*, a "follow-up program", by definition, will provide that information as it is a program for "verifying the accuracy of an environmental assessment of a project, and determining the effectiveness of any measures taken to mitigate the adverse environmental effects of a project". The results of a follow-up program may be used for implementing adaptive management measures and improving the quality of future environmental assessments.

This method for measuring the effectiveness of mitigation measures is reflected in the document entitled *Guidelines for Environmental Impact Assessment (EIA) in the Arctic: Arctic Environmental Protection Strategy,* which was prepared by agency representatives from several countries including Canada (represented by Indian and Northern Affairs Canada), Finland, Greenland/Denmark, Iceland, Norway, Russia, Sweden, and the United States. These guidelines state that the effectiveness of mitigation is determined through monitoring the activity once the project is implemented. Monitoring can measure actual environmental effects and assess the extent to which mitigation measures are reducing impacts, and may result in the implementation of new or revised mitigation measures.

As requested by the Environmental Impact Review Board (EIRB) on October 25, 2011, the Developer is pleased to provide further information on the mitigation measures, residual effects, Developer commitments, and monitoring. The following sections re-present the Project Design and Mitigation Measures and Residual Effects sections for each biophysical and human environment component, as originally provided in Section 4.2 (Biophysical Components) and Section 4.3 (Human Environment Components) of the EIS. Following these sections, the related Developer Commitments originally provided in Table F (Summary of Developer Commitments) of the EIS are re-stated. The Proposed Effects Monitoring sections are re-presented from the Addendum and/or the EIS. Where possible, additional information is provided to support the impact predictions and mitigation measures, and describe how the success of the mitigation measures will be measured in the future.

In addition, a letter prepared by the GNWT discussing the various roles of their departments in administering socio-economic programs and monitoring changes over time is provided as Attachment 1.

For clarity, the guidelines referenced in the EIS text and mitigation measures are highlighted in bold and underlined.

BIOPHYSICAL ENVIRONMENT

1.0 Terrain, Geology, Soils and Permafrost (Section 4.2.1 of the EIS)

1.1 Project Design and Mitigation Measures (Section 4.2.1.3 of the EIS)

To mitigate the effects described above (in EIS Section 4.2.1), Project design elements and measures will be initiated in the design and construction of the Highway to address possible issues or concerns. The current approach to highway design and construction in permafrost regions is documented in the national guidelines entitled ***Development and Management of Transportation Infrastructure in Permafrost Regions*** published by the Transportation Association of Canada (TAC) in May 2010. The design parameters and construction techniques presented as mitigative measures in this section are based on previous experience in the north and case studies and lessons learned as presented in the TAC guideline.

TABLE 4.2.1-1: SUMMARY OF MITIGATION MEASURES		
Cause	**Potential Effects**	**Mitigation Measures**
Travel across the ground along the alignment or to borrow sources with tract or wheeled vehicles.	Change in drainage and surface hydrology, thaw slumps, melting of ice-rich ground, slope and soil instability, erosion and subsidence in the permafrost.	Access to and hauling from borrow sources during winter months using winter roads. Construction of highway embankment during winter months. Summer activities such as grading and compaction of the embankment, and placing of surfacing materials only where the Highway can be accessed over embankment constructed the previous winter. Stockpiling surfacing material along the previously constructed embankment during the winter for use in the summer.
Cutting into the ground and removing material.	Exposes the permafrost and ice-rich materials to thaw resulting in similar effects to those noted above.	Avoid or minimize the surface area of open cut. Grade slopes to minimize slumping. Grade material storage and working areas to promote drainage and avoid standing water. Restore the borrow source when construction is completed by grading slopes to match the natural ground and drainage of the surrounding area, and replacing overburden.
Introduction of the granular material embankment.	Alters the air/surface temperature balance such that heat is gained, the active layer becomes deeper and there is thawing of ice-rich soils and subsidence due to permafrost loss.	Design and construct embankments with thickness or height based on terrain type. Thicker embankments on more thaw-sensitive ground to provide an insulative layer and promote the development of a frozen embankment core. Use and place frozen fill on the frozen right-of-way. Design the alignment to avoid unfavorable thick organic and ice-rich polygonal terrain.
Accumulation of snow on the sideslope and along the natural ground beyond the toe of the slope.	Insulates the permafrost, the air/surface temperature regime is impacted and the result is permafrost thaw and differential settlement, resulting in areas of standing water that will further result in thaw.	Use of geotextile fabric to maintain embankment integrity The installation of culverts to balance seasonal overland surface flows; Install sufficient cross drainage to prevent or minimize potential water ponding; and spring and fall inspections of drainage.
Introduction of the granular material embankment	Forms a barrier to movement of unchannelized surface water. Surface water can accumulate or pond along the toe of the embankment creating negative effects similar to those described above.	

1.2 Residual Effects (Section 4.2.1.4 of the EIS)

There will be residual effects of the Highway construction that are not likely to be fully mitigated. A borrow source will leave some mark on the land even with the best and most well thought out management practices during the material extraction. The construction practices noted above are, therefore, intended to minimize the footprint of a single borrow source and minimize the number of borrow sources that are opened for the construction phase.

1.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
PLANNING AND DESIGN	
The Developer commits to using, as a guideline, the design parameters and construction techniques in the Transportation Association of Canada (TAC 2010) ***Development and Management of Transportation Infrastructure in Permafrost Regions.***	Design, Construction
This will include mitigation strategies such as: -Accessing and hauling from borrow sources during the winter months; -Constructing embankments during the winter months; -Installing geotextile fabric beneath highway embankment; -Conducting summer construction activities (such as grading and compacting the embankment, and placing of surfacing materials) only when the Highway can be accessed over the embankment; -Stockpiling surfacing material along the embankment during the winter for use in the summer; -Minimizing the surface area of open cut; -Grading slopes to minimize slumping; -Grading material storage and working areas to promote drainage ; -Reclaiming borrow sources when construction is complete by grading slopes to blend with the natural topography and drainage of the surrounding area; -Designing and constructing thick or high embankments to create an insulative layer that promotes the development of a frozen embankment core; -Designing the alignment to avoid unfavorable terrain, such as areas with thick organic deposits and ice-rich polygonal or patterned ground; -Installing culverts to manage seasonal overland flows; -Installing sufficient cross drainage during construction to prevent or minimize potential water ponding; and -Inspecting and maintaining culverts, as needed, in the spring and fall.	Design, Construction
CONSTRUCTION	
The Developer and its contractors will adhere to all applicable legislation, regulations, guidelines, and terms and conditions.	Construction
The Developer and on-site Project contractors will implement the mitigation measures identified in this EIS.	Construction
The Developer is committed to constructing the proposed Inuvik to Tuktoyaktuk Highway, borrow sources, and associated winter access roads in a safe and environmentally responsible manner.	Design, Construction
The Developer commits to working towards achieving the Environmental Impact Review Board's goal statements for all phases of the proposed development.	Design, Construction, Operations
The Developer will use winter roads to access borrow sources; permanent all-weather access roads will not be required.	Construction
The Developer is committed to performing the majority of the construction activities during the winter months.	Construction
BORROW SOURCES	

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer is committed to limiting the footprint of each borrow source and minimizing the number of borrow sources developed.	Construction.
Borrow pits will be closed as soon as they are no longer required and reclaimed in a progressive manner, as described in the Pit Development Plan.	Construction, Operations, Reclamation
Pit Development Plans will conform to the approving authority's regulations and permitting requirements.	Design, Construction, Operations
Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans. Mitigation measures include: -Developing borrow sources only during winter periods; -Maintaining an appropriate amount of undisturbed land between borrow source locations and any waterbody; and -Applying appropriate erosion and sediment control BMPs for the construction of ditches and cross drainage channels.	Construction
The Developer commits to ensuring that borrow source development is monitored by environmental monitors.	Construction
OPERATIONS	
The Developer will construct and operate the Highway to GNWT DOT standards and guidelines for public highways.	Construction, Operations
MANAGEMENT PLANS	
An Environmental Management Plan (EMP) will be prepared prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.	Construction
The EMP will contain the following types of plans: -Environmental management; -Erosion and sediment control; -Pit development for borrow sources; [*items not relevant to terrain, geology, soils and permafrost have been removed for brevity*] Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.	Construction
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

1.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Terrain, Geology, Soil and Permafrost	• Environmental monitoring	• Soil disturbance • Changes in permafrost • Intensity of use of granular materials	• Evidence of rilling • Ground cover disturbance by construction • Mean annual ground temperature • Mean annual air temperature • Volume of material taken from borrow sources • Permafrost aggradation

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted. Environmental and wildlife monitoring will be done by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring is conducted on a part-time basis unless activities are occurring in a sensitive area. Monitoring frequency will be determined once the EMP is finalized.

A comparable monitoring program was used for the Tuktoyaktuk to Source 177 Access Road. In June 2011, the Network of Expertise in Northern Transportation Infrastructure Research in Permafrost Regions (NoENTIR) conducted a site visit of the Access Road to solicit comments to inform the monitoring program. The group reviewed several features of the Access Road, including road integrity and stability, fill, side slopes, drainage, surface materials, and borrow source stability and material. In particular, the group observed the difference in a historic road that had been constructed using different design and the current Access Road. The group made recommendations for performance monitoring options, design and construction considerations, and comments related to terrain. Many of

the comments were also directed towards design, and will be considered in the Inuvik to Tuktoyaktuk Highway detailed design process.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Aboriginal Affairs and Northern Development Canada (AANDC) (formerly INAC)
  - Responsible for Granular Management Planning and pit and quarry management strategy processes in cooperation with the Inuvialuit Regional Corporation (IRC)
  - Administers *Territorial Lands Act* and regulations including Territorial Land Use Regulations and Territorial Quarry Regulations and ensures compliance with authorizations
  - Responsible for Cumulative Impact Monitoring Program (CIMP) in the ISR under MOU with IRC
  - Responsible for cumulative effects assessments
  - Administers funding for Beaufort Regional Environmental Assessment (BREA)
- Natural Resources Canada
  - Provides expert advice and monitoring on permafrost and climate change
  - Maintains national database on permafrost
- GNWT Department of Transportation
  - Plans, designs, constructs or reconstructs, acquires, operates and maintains public transportation infrastructure in the Northwest Territories, including community airports, docks and the highway system, pursuant to devolved authorities and/or MOU between the Government of the Northwest Territories and the federal government
  - Responsible for setting contracts related to maintenance of the public roads

2.0 Air Quality (Section 4.2.2 of the EIS)

2.1 Project Design and Mitigation Measures (Section 4.2.2.6 of the EIS)

The schedule of the construction phase, Highway design and application of mitigation measures will help to minimize potential air quality effects. Earth moving construction activities are scheduled to occur primarily during the winter months, when frozen ground conditions naturally minimize the amount of fugitive dust that would otherwise be created, although some grading and compaction are scheduled during summer.

The Developer will conform to applicable ambient air quality objectives, such as those stated in Section 4.2.2.1 of the EIS, by using pollution prevention measures and best management practices (CCME 2007).

Mitigation measures to be implemented during the construction phase will include:

- The application of water as per the GNWT's ***Guideline for Dust Suppression*** (GNWT 1998) during summer months. Water will be effective in controlling dust

created by grading and compaction activities, loading and unloading materials, stockpiling and wind erosion;

- To the extent possible, aggregate stockpiling activities will be conducted well downwind of potentially sensitive receptors (based on prevailing winds);
- Effective logistics planning such as the use of buses to haul workers to minimize vehicle movements;
- Closing and progressively reclaiming borrow pits as soon as they are no longer required to reduce potential fugitive dust;
- Ensure proper maintenance of heavy equipment to minimize air emissions;
- Restrict speed limits along the access roads and Highway during construction; and
- Temporarily avoid areas with sensitive wildlife activity or migration (based on recommendations from wildlife monitors).

The GNWT Department of Transportation will be responsible for the ongoing maintenance of the Highway during the operations phase. Specific mitigation measures during the operations phase include conforming to the GNWT's ***Guideline for Dust Suppression*** (GNWT 1998).

2.2 Residual Effects (Section 4.2.2.7 of the EIS)

Construction and operations phase traffic are expected to have temporary and intermittent effects in the immediate vicinity of the proposed Highway. Following the application of mitigation measures during construction and operation of the Highway, no residual effects in terms of air emissions products are anticipated. Potential residual effects on wildlife, vegetation and humans are discussed in the corresponding effects sections of this document.

2.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
AIR QUALITY	
The Developer will conform with applicable ambient air quality objectives by using pollution prevention measures and best management practices.	Construction
Mitigation measures for air quality during the construction phase will include: -Applying water as per the GNWT's ***Guideline for Dust Suppression*** (GNWT 1998) during summer months; -To the extent possible, aggregate stockpiling activities will be conducted well downwind of potentially sensitive receptors (based on prevailing winds); -Closing and progressively reclaiming borrow pits as soon as they are no longer required to reduce potential fugitive dust; -Ensuring proper maintenance of heavy equipment to minimize air emissions; and -Restricting speed limits along the access roads and Highway during construction to minimize dust production.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will be responsible for the ongoing maintenance of the Highway during the operations phase and will conform to the GNWT's ***Guideline for Dust Suppression*** (GNWT 1998).	Operations
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.	Construction
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations
SOCIO-ECONOMIC	
The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions).	Construction

2.4 Proposed Effects Monitoring

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

During the operations phase, the contractors hired to manage dust generated by vehicles driving on the Highway will be expected to monitor prevailing and forecasted weather conditions during the snow-free period and the condition of the road (dryness) to ensure that water is applied to the Highway to control dust as necessary.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Health Canada
  - Administers Canada *Health Act*
  - Develops, implements, and enforces legislation, regulations, policies, programs, services, and initiatives and works with the provinces and territories, and other partners
  - Provides contribution funding to GNWT to support Non-Insured Health Benefits for First Nation and Inuit residents and health promotion/disease prevention programs
  - With Statistics Canada, is responsible for generating, managing, and reporting health information. Statistics Canada is mandated to provide accurate, timely, and relevant information about the health of Canadians and the health care system
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
  - Conducts health risk assessments and provides human health warning on contaminants in country foods to GNWT
- Environment Canada
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee.
  - Coordinates the National Air Pollution Surveillance Network to monitor pollutants and other chemicals in the atmosphere from a series of measuring stations. Data are used to support the reporting of Canadian Environmental Sustainability Indicators (CESI), which provides Canadians information on key environmental issues.
- Natural Resources Canada
  - Provides expert advice and monitoring on climate change
- Environment & Natural Resources – Environment Division
  - Generally regulates air quality activities on commissioner's land, under the *Environmental Protection Act*.
  - Operates an air quality monitoring program, consisting of four (4) state-of-the-art, continuous ambient air quality monitoring stations across the NWT.
  - Provides advice and recommendations on air quality to federal regulatory agencies, industry, and other parties.

3.0 Noise (Section 4.2.3 of the EIS)

3.1 Applicable Standards and Guidelines (Section 4.2.3.3 of the EIS)

Occupational noise guidelines, as indicated in Section 3.1.4.2, are applicable during all phases of the Project.

Because of the proximity of the potential borrow sources to waterbodies, some blasting activities may occur near waterbodies that provide fish habitat. The Developer and its

contractors will be required to adhere to the DFO's ***Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*** (Wright and Hopky 1998). Highlights of the Guidelines include:

- No explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e., overpressure) greater than 100 kPa (14.5 psi) in the swim bladder of a fish.
- No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than 13 m/s in a spawning stream bed during the period of egg incubation. For confined explosives, setback distances from the land-water interface (e.g., the shoreline) or burial depths from fish habitat (e.g., from under the riverbed) that will ensure that explosive charges meet the 100 kPa overpressure guideline are identified in the guidelines.

3.2 Project Design and Mitigation Measures (Section 4.2.3.4 of the EIS)

The schedule of the construction phase, Highway design and application of mitigation measures and best management practices are intended to minimize the potential effects of noise, including the following practices:

- Limit construction activity during sensitive periods (based on recommendations from wildlife experts) to minimize effects on wildlife, particularly blasting activities;
- Effective logistics planning such as the use of buses to haul workers to minimize vehicle movements; and,
- Maintenance of equipment in good repair and provision of appropriate mufflers for all internal combustion engines.

3.3 Residual Effects (Section 4.2.3.5 of the EIS)

Noises produced by construction and operation activities are anticipated to have a localized, temporary, and intermittent effect in the immediate vicinity of the Highway.

During construction, noise contributions will be of low to moderate magnitude and will be continuous during work hours, but of temporary duration overall. That is, at the end of construction all noise contributions from these activities will cease. It is anticipated that wildlife and birds may temporarily avoid areas with construction or excavation due to human activity and/or noise. However, no residual effects, following completion of construction activates, are anticipated for noise emissions generated during construction.

Noise contributions during the operations phase will be highly limited in duration because of the mobile and temporary nature of noise emission sources (i.e., vehicles moving along the Highway will not contribute noise to any one area for a long period of time). Due to the limited amount of traffic (150-200 vehicles per day) anticipated for the Highway, the average noise levels associated with vehicles being (72 to 86 dBA), and the diminishing nature of sound levels with increased distance from the source, it is anticipated that noise contributions during the operations phase will be negligible within the LSA and RSA and no residual effects are anticipated during this phase.

3.4 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
NOISE	
The Developer will consult with wildlife experts to minimize noise effects on wildlife, particularly blasting activities.	Construction
The Developer will use appropriate design, scheduling, logistics, and maintenance measures to reduce the effects of noise.	Design, Construction
Project contractors will be directed to apply reasonable mitigation measures to reduce possible effects associated with construction noise, including adequate maintenance of construction equipment and provision of appropriate mufflers for all internal combustion engines.	Construction
Blasting activities, if required, will be timed to avoid periods when sensitive wildlife species are in the area.	Construction
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.	Construction
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations
SOCIO-ECONOMIC	
The Developer commits to ensuring that its contractor(s) have Health, Safety and Environment (HSE) manuals; work procedures documents; and site-specific health and safety plans.	Design, Construction
The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions).	Construction
CONSTRUCTION	
The Developer and its contractors will adhere to all applicable legislation, regulations, guidelines, and terms and conditions.	Construction
The Developer and on-site Project contractors will implement the mitigation measures identified in this EIS.	Construction
The Developers and their contractors will meet the standards required for a safe work environment.	Design

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
Blasting, if required, will occur only during winter borrow source development.	Construction

3.5 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Noise	• Noise monitoring, if required	• Population exposed to noise from construction activities • Wildlife disturbance	• Population exposed to noise >65 dB • Liaise with local co-management agencies and identify complaints

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

4.0 Water Quality and Quantity (Section 4.2.4 of the EIS)

4.1 Project Design and Mitigation Measures (Section 4.2.4.2 of the EIS)

Table 4.2.4-1 provides a summary of the expected activities, potential effects and mitigation measures that will apply to the design, construction and operation of the Highway. The potential for erosion and sedimentation effects exists at all phases of the Project due to the nature of Highway construction activities. In recognition of the potential adverse effects of sediment, an environmental management plan (EMP) will be prepared prior to construction and submitted to regulators for approval, to provide specific and detailed guidance to avoid sediment releases to the aquatic environment. The EMP will refer to appropriate erosion and sediment control guidelines, GNWT erosion and sediment control best management practices (currently being prepared in coordination with DFO), and measures outlined in the DFO (1993) ***Land Development Guidelines for the Protection of Aquatic Habitat***.

Some of the important measures to be followed include:

- Limiting the use of construction equipment to the immediate footprint of the Highway or borrow source;
- Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations and borrow sources;
- Keeping ice bridge and ice road surfaces free from soils and fine gravel that may be tracked out by vehicles;
- Avoiding the use of heavy equipment in streams or on stream banks during summer months, and adherence to the ***DFO Operational Statement for Temporary Stream Crossings*** (DFO 2008), where this is deemed necessary;
- Installing silt fencing and/or check dams, and cross drainage culverts as necessary to minimize siltation in runoff near waterbodies; and,
- Appropriate sizing and installation of culverts, based on hydrological assessments and local experience, to avoid backwatering and washouts.

TABLE 4.2.4-1: POTENTIAL EFFECTS OF CONSTRUCTION AND OPERATION OF THE PROPOSED HIGHWAY ON WATER QUALITY AND QUANTITY

Activity	Potential Effect	Avoidance or Mitigation
Highway Construction	Erosion and sedimentation	Complete Highway embankment construction during winter months Implement erosion and sediment control plan and best management practices, as appropriate
	Surface drainage pattern changes due to stream constriction	Abutments to be placed in accordance with DFO's ***Operational Statement for Clear-Span Bridges*** Appropriate sizing of culverts based on hydrological assessments and local experience
	Temporarily reduce lake levels due to water extraction	Follow DFO (2010) ***Protocol for Winter Water Withdrawal in the Northwest Territories***
Clear-span Bridge Construction	Sediment release during construction of abutments	Employ erosion and sediment control best management practices and guidelines, as appropriate; adhere to DFO ***Clear-span Bridge Operational Statement*** Complete abutment construction during winter period
	Flow changes due to stream constriction	Abutments to be placed at a sufficient distance from active stream channel
Culvert Installation	Sediment release during culvert installation	Implement erosion and sediment control best management practices, and culvert installation guidelines, as appropriate (e.g. DFO ***Land Development Guidelines***, Dane 1978)
	Changes in surface drainage patterns	Appropriate sizing of culverts based on hydrological assessments and local experience
Use of Heavy Equipment	Soil erosion and sedimentation	Apply erosion and sediment control best management practices

TABLE 4.2.4-1: POTENTIAL EFFECTS OF CONSTRUCTION AND OPERATION OF THE PROPOSED HIGHWAY ON WATER QUALITY AND QUANTITY		
Activity	**Potential Effect**	**Avoidance or Mitigation**
Highway Operation and Maintenance	Increased dust generation and fine particle settlement into adjacent waterbodies	Effective dust suppression (water trucks) during dry season
	Sediment release during maintenance	Implement erosion and sediment control best management practices as appropriate
	Temporarily reduced surface water quantity	Water withdrawal to occur from appropriately sized lakes in accordance with Water Licence and DFO (2010) ***Protocol for Winter Water Withdrawal in the Northwest Territories***.
Road Drainage	Sediment discharge to watercourses	Filtration by natural vegetation Silt fences installed at each road-stream intersection Regular spacing of cross-drainage culverts
Culvert Maintenance	Sediment release during maintenance	Apply erosion and sediment control best management practices Inspect and maintain culverts, as needed, in the spring and fall Follow the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2010) as appropriate

4.2 Residual Effects (Section 4.2.4.3 of the EIS)

Based on the previously discussed assessments of the various components of Highway construction, operation, and maintenance, the Project is not expected to result in residual effects on water quality, water quantity and flow patterns, following the implementation of mitigation.

4.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WATER QUALITY AND QUANTITY	
The Developer will ensure that the DFO water withdrawal protocol criteria are followed.	Construction
The Developer is committed to carrying out bathymetric surveys on all lakes proposed for water extraction.	Construction
The Developer will minimize effects to water quality and quantity as a result of Highway design through the design and use of crossing structures that are appropriate for site-specific flow conditions; by employing erosion and sediment control best management practices and DFO ***Operational Statements*** (where possible) as per approved Environmental Management Plans; installing appropriately sized culverts to divert and manage Highway and surface drainage flows; and undertaking primary Highway embankment construction activities during the winter months.	Design, Construction
The Developer is committed to completing hydrological assessments prior to bridge design to determine suitable span widths and abutment placement.	Design, Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
During the bridge design of the Project, should individual site-specific circumstances preclude complete adherence to the DFO ***Operational Statements***, the Developer will consult with DFO in advance to discuss and approve of proposed plans.	Design
Some of the mitigation measures for water quality and quantity effects the Developer will follow include: -Limiting the use of construction equipment to the immediate footprint of the Highway or borrow source; -Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations, and borrow sources; -Keeping ice bridge and ice road surfaces free from soils and fine gravel that may be tracked out by vehicles; -Avoiding the use of heavy equipment in streams or on stream banks during summer months, and the adherence to the DFO ***Operational Statement for Temporary Stream Crossing****s* (DFO 2008), where this is deemed necessary; -Implementing the erosion and sediment control plan to be developed as part of the overall EMP; -Appropriately sizing and installing culverts based on hydrological assessments and local experience, to avoid backwatering and washouts.	Construction
-Completing Highway embankment construction during winter months; -Adhering to the DFO ***Operational Statement for Clear-Span Bridges*** for all applicable activities; -Implementing appropriate dust control measures to minimize effects to waterbodies and aquatic habitat; -Following the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2010) where necessary; -Maintaining equipment away from waterbodies; and -Adhering to spill contingency plans, as required, in a timely manner	Construction
STREAM CROSSINGS	
The Developer (under appropriate seasonal conditions), will conduct further assessments of the proposed water crossing locations and will provide information about watercourse characteristics and proposed crossing structure designs sufficient to meet the requirements of the Northwest Territories Waters Regulations.	Design, Construction
The Developer is committed to working closely with DFO to design appropriate crossing structures for each stream and to obtain Fisheries Authorizations, if determined to be required.	Design, Construction
The Developer will install culverts according to established guidelines and will follow culvert installation guidelines such as those contained within the DFO ***Land Development Guidelines*** (1993) and the INAC ***Northern Land Use Guidelines for Roads and Trails*** (INAC 2010).	Construction
The Developer will install appropriately sized culverts to minimize changes in water flow pattern and timing.	Construction
The Developer will carry out routine monitoring and inspections as appropriate at watercourse crossings and culverts, including reporting on culvert performance and maintenance requirements.	Construction, Operations
The Developer will ensure that maintenance requirements for culverts will adhere to the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2010)	Operations

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will ensure that when crossings are completed, disturbed materials will be replaced with similar-sized substrates and the bed and banks of the watercourse are stabilized and restored.	Construction
FUEL MANAGEMENT	
The Developer commits to storing fuel used for borrow source and Highway construction activities in double-walled fuel storage tanks, and in accordance with CCME **guidelines**.	Construction
All vehicles and equipment will be refueled at least 100 m from water bodies following INAC (AANDC/DIAND) **fuel storage guidelines**.	Construction
SPILL CONTINGENCY PLAN	
The Developer will require that Project contractors prepare spill contingency plans, outlining spill reporting, containment, and clean-up, in accordance with INAC's ***Guidelines for Spill Contingency Planning*** (2007).	Design, Construction
The Developer will ensure that the Project contractor has appropriate spill response equipment on-site.	Construction
The Developer's contractors will report all spills greater than 5 litres to the GNWT Spill Line and other appropriate agencies.	Construction
In the event of a spill, the Developer's contractors will respond according to the site-specific spill contingency plan and the contractor's HSE manual and procedures.	Construction
The Developer will develop and implement an erosion and sedimentation control plan as part of the EMP. The plan will comply with appropriate erosion and sediment control guidelines, GNWT best management practices (currently being prepared in coordination with DFO), and measures outlined in the DFO (1993) ***Land Development Guidelines for the Protection of Aquatic Habitat***. Some measures that will be followed include: -Limiting the use of construction equipment to the immediate footprint of the Highway or borrow source; -Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations and borrow sources; -Keeping ice bridge and ice road surfaces free from soils and fine gravel that may be tracked out by vehicles; -Avoiding the use of heavy equipment in streams or on stream banks during summer months, and the adherence to the ***DFO Operational Statement for Temporary Stream Crossings*** (DFO 2008), where this is deemed necessary; -Installing silt fencing and/or checking dams, and cross drainage culverts as necessary to minimize siltation in runoff near waterbodies; and -Appropriately sizing and installing culverts, based on hydrological assessments and local experience, to avoid backwatering and washouts.	Design, Construction
The Developer commits to ensuring that any exposed areas will be suitably stabilized prior to the spring thaw period.	Construction
BORROW SOURCES	
The Developer is committed to limiting the footprint of each borrow source and minimizing the number of borrow sources developed.	Construction.
Borrow pits will be closed as soon as they are no longer required and reclaimed in a progressive manner, as described in the Pit Development Plan.	Construction, Operations, Reclamation

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
Pit Development Plans will conform to the approving authority's regulations and permitting requirements.	Design, Construction, Operations
Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans. Mitigation measures include: -Developing borrow sources only during winter periods; -Maintaining an appropriate amount of undisturbed land between borrow source locations and any waterbody; and -Applying appropriate erosion and sediment control BMPs for the construction of ditches and cross drainage channels.	Construction
The Developer commits to ensuring that borrow source development is monitored by environmental monitors.	Construction
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.	Construction
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

4.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring programs were proposed to monitor the effectiveness of proposed mitigation measures on water quality and quantity in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Water Quality and Quantity	• Erosion and sediment control monitoring • Environmental monitoring	• Intensity of use of water resources • Changes in surface water quality	• Frequency, duration and extent of water use • Chemical and physical assessment (dissolved oxygen, pH, temperature, conductivity, total suspended solids, turbidity, total dissolved solids, total/ dissolved organic carbon, total/ dissolved metals, poly-aromatic hydrocarbons)
Changes to Hydrological Regime	• Environmental monitoring • Fish habitat monitoring • Erosion and sediment control monitoring	• Intensity of use of water resources • Infrastructure design and effectiveness	• Frequency, duration and extent of water use • Areas with disrupted, increased, reduced or eliminated flow • Ice plugs/ blocked flow in culverts

In addition, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring is conducted on a part-time basis unless activities are occurring in a sensitive area.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Health Canada
  - Administers Canada *Health Act*
  - Develops, implements, and enforces legislation, regulations, policies, programs, services, and initiatives and works with the provinces and territories, and other partners
  - Provides contribution funding to GNWT to support Non-Insured Health Benefits for First Nation and Inuit residents and health promotion/disease prevention programs
  - With Statistics Canada, is responsible for generating, managing, and reporting health information. Statistics Canada is mandated to provide accurate, timely, and relevant information about the health of Canadians and the health care system
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
  - Conducts health risk assessments and provides human health warning on contaminants in country foods to GNWT
- Aboriginal Affairs and Northern Development Canada (AANDC) (formerly INAC)
  - Administers legislation concerning use of Crown lands and non-renewable resources within the ISR
  - Signatory to *Northwest Territories/Nunavut Spills Working Agreement* and responsible for implementation as defined in the agreement as modified from time to time
  - Responsible for Granular Management Planning and pit and quarry management strategy processes in cooperation with the Inuvialuit Regional Corporation (IRC)
  - Administers *Territorial Lands Act* and regulations including Territorial Land Use Regulations and Territorial Quarry Regulations and ensures compliance with authorizations
  - Administers *NWT Waters Act* and regulations and ensures compliance with authorizations
  - Responsible for Cumulative Impact Monitoring Program (CIMP) in the ISR under MOU with IRC
  - Responsible for cumulative effects assessments
  - Administers *Northern Contaminants Program* to address human exposure to contaminants in wildlife, fish and marine mammal species important to the traditional diet of northern Aboriginal peoples. Chairs Northern Contaminants Program Management Committee and allocates funds for research and related activities in four main areas: Human Health Research, Environmental Monitoring and Research, Education and Communications, National/Regional coordination and Aboriginal Partnerships
  - Administers funding for Beaufort Regional Environmental Assessment (BREA)
- NWT Water Board
  - Administers *NWT Waters Act* and regulations
- Transport Canada
  - The Navigable Waters Protection Program (NWPP) ensures the public's right to navigate Canada's waters without obstruction through the administration of the

Navigable Waters Protection Act (NWPA), a federal law designed to protect the public right of navigation.

- In order to minimize the impact to navigation, the NWPP ensures that works constructed in navigable waterways are reviewed and regulated for works built in, on, over, under, through or across navigable water in Canada prior to construction of work(s).

- GNWT Department of Transportation
  - Plans, designs, constructs or reconstructs, acquires, operates and maintains public transportation infrastructure in the Northwest Territories, including community airports, docks and the highway system, pursuant to devolved authorities and/or MOU between the Government of the Northwest Territories and the federal government
  - Commercial vehicle inspections including enforcement of *Transportation of Dangerous Goods Act*
  - Responsible for setting contracts related to maintenance of the public roads

5.0 Fish and Fish Habitat (Section 4.2.5 of the EIS)

5.1 Potential Effects and Mitigation Measures (Section 4.2.5.1 of the EIS)

The principal fish habitat issues and mitigation measures that should be considered as part of the regulatory approval process are discussed below and summarized in Table 4.2.5-1. The appropriate crossing structures and avoidance or mitigation measures designed to achieve no net loss (NNL) of productive capacity of fish habitat will be guided in part by the designated category of stream for each site (as stated previously).

Road embankment construction activities will primarily be conducted during the winter months when all of the watercourse crossings will be frozen. Summer-related work will be on a smaller scale and will include compaction and grading of the embankment (Highway surface), installation of certain culverts, or adjustments to culverts installed in the previous winter.

The installation of culverts in fish-bearing streams in summer is necessary due to the requirement that culverts be buried into the stream bottom to prevent downstream erosion and culvert perching. This latter effect can occur when culverts are set on (rather than into) the stream bottom, resulting in undercutting of the stream bottom, leaving the downstream end of the culvert raised (or perched) above the water surface. This can creates a barrier to upstream fish passage, particularly for small fish. Frozen channel and stream bed conditions preclude the partial burial of culverts in winter.

In accordance with DFO (2009a), the installation of culverts in fish-bearing streams is not permitted between April 1 and July 15 for watercourses that provide habitat for spring/summer spawners (i.e. grayling, which is the only species potentially spawning in Project area streams). These installations will adhere to appropriate guidelines, such as those contained in the DFO ***Land Development Guidelines for the Protection of Aquatic Habitat*** (DFO 1993) and in Dane (1978), to avoid or minimize the potential for

erosion, sedimentation or channel effects. Various methods are available for installing culverts in flowing streams. Appropriate techniques will be determined on a site specific basis by qualified biologists working in conjunction with fluvial geomorphologists and road construction engineers, and in consultation with DFO habitat biologists.

Cross drainage culverts or those installed in non-fish bearing streams will be installed under frozen conditions in winter and as such, construction of these watercourse crossings will not result in effects to downstream fish habitat. No instream work will occur in fish-bearing streams during critical time periods.

Construction-related effects with respect to fish and fish habitat are all considered to be local effects, as they are confined to the local study area, of short-term duration and are infrequent, since effects occur in isolation spatially and temporally from one another. Operational effects of the Highway with respect to fish and fish habitat are similarly considered to be local effects but will vary in duration and frequency.

For construction activities taking place in summer, potential erosion and sedimentation effects will be minimized or avoided through approved design and the application of appropriate guidelines and BMPs, as described previously. An erosion and sediment control plan will be developed to integrate existing guidelines and to provide site-specific erosion and sediment control guidance.

TABLE 4.2.5-1: POTENTIAL EFFECTS OF CONSTRUCTION AND OPERATION OF THE PROPOSED HIGHWAY ON FISH AND FISH HABITAT

Activity	Potential Effect	Avoidance or Mitigation
Highway Construction	Direct loss of habitat	Avoid critical habitats Design appropriate crossing structures based on site conditions
	Erosion and sedimentation	Complete Highway embankment construction activities during winter months Apply erosion and sediment control plan and best practices
Clear-span Bridge Construction	Direct loss of riparian habitat within abutment footprints	Minimize riparian disturbance (footprint) Follow the DFO ***Operational Statement for Clear-span Bridges*** (DFO 2009b) where appropriate
	Sediment release during construction of abutments	Apply erosion and sediment control plan and best practices Complete primary construction activities during winter period
	Flow changes due to stream constriction	Abutments to be placed at a sufficient distance from active stream channel
Culvert Installation	Direct loss of habitat	Avoid critical habitats
	Barrier to migration	Employ best management practices for culvert installation Annual monitoring to detect culvert subsidence or lifting
	Sediment release during construction	Construction during winter in non-fish bearing streams Apply appropriate design and erosion and sediment control plan and best practices
	Changes in stream flow patterns	Appropriate sizing of culverts based on hydrological assessments and local experience

TABLE 4.2.5-1: POTENTIAL EFFECTS OF CONSTRUCTION AND OPERATION OF THE PROPOSED HIGHWAY ON FISH AND FISH HABITAT		
Activity	**Potential Effect**	**Avoidance or Mitigation**
Use of Heavy Equipment	Soil erosion and sedimentation	Apply erosion and sediment control plan and best practices
Borrow Source Development	Erosion and sedimentation	Maintain sufficient buffer of undisturbed land between borrow sources and waterbodies Apply erosion and sediment control measures and best management practices
	Fish mortality due to blasting	Follow DFO ***Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*** **(Wright and Hopky 1998).**
Water Extraction	Oxygen level depression Exposure of eggs and larvae Reduction of available habitat for spring spawners	Follow DFO (2010) ***Protocol for Winter Water Withdrawal in the Northwest Territories***
Road Drainage	Sediment discharge to watercourses	Filtration by natural vegetation Silt fences installed at each road-stream intersection Regular spacing of cross-drainage culverts
Culvert Maintenance	Sediment release during maintenance	Employ erosion and sediment control measures as per an Approved erosion and sediment control plan Follow the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2009b) where applicable
Highway Operation and Maintenance	Sediment release during maintenance	Implement erosion and sediment control best management practices as appropriate Follow the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2009b) where applicable
	Dust generation and fine particle settlement into adjacent waterbodies	Effective dust suppression (water trucks) during dry season Water Licence and DFO protocol to be followed.
Increased Access to Fish Resources	Increased harvest pressure due to improved access to remote fishing areas	Creation and enforcement of Regulations or guidelines on fish harvest by FJMC with input from DFO, local fisherman and Hunters and Trappers Committees Signage posted at regular intervals on Highway

Highway Design (Pre-construction)

The mitigation of potential effects to fish and fish habitat is most effectively accomplished during Highway routing and design. Appropriate planning will avoid or minimize potential effects due to:

- Loss of instream and riparian habitat at crossing footprints;
- Reduced habitat quality due to erosion and sedimentation from construction activities; and,
- Alteration of surface drainage pattern due to stream constriction.

Effects to fish and fish habitat as a result of Highway construction will be minimized by the planned avoidance of critical fish and fish habitat areas, where possible. Where critical fish habitat cannot be avoided, mitigation will be incorporated into the design, including:

- Sizing and design of appropriate crossing structures based on site conditions present at each crossing;
- Employing erosion and sediment control best management practices according to an approved EMP;
- Undertaking Highway embankment construction during the winter months; and
- Constructing or installing stream crossing structures to avoid the impingement of the active stream channel.

Clear-span Bridge Construction (Construction)

As noted in Section 4.2.4.1, the siting and construction of bridges will be consistent with the DFO ***Operational Statement (OS) for Clear Span Bridges*** (DFO 2009b). Adherence to the conditions of this OS will result in avoidance of adverse effects on water quality and water flow that can occur when structures are placed within the flowing portion of a stream or due to excessive soil disturbance or removal of riparian vegetation. Hydrological analysis will be completed prior to bridge design to determine suitable span widths and abutment placement.

During the bridge design stage of the Project, it is possible that individual site-specific circumstances might preclude complete adherence to the OS. In particular, there may be cases where abutments, for engineering or practical reasons, must impinge on the floodplain. In such cases, DFO will be consulted in advance to discuss and approve of proposed plans, which will include mitigation measures necessary to prevent or minimize sedimentation or flow constriction.

Erosion during site preparation and bridge construction will largely be avoided due to restriction of construction to the winter period. However, any exposed areas will be suitably stabilized prior to the spring thaw period. As a result, erosion and sedimentation can be avoided or minimized and residual adverse effects are anticipated to be minor.

Culvert Installation and Maintenance (Construction and Operations)

As discussed in Section 4.2.4.1, appropriate culvert sizing, the application of recognized installation guidelines and adherence to erosion and sediment control measures will reduce the magnitude, frequency, and duration of potential effects related to ground disturbance and culvert installation. In addition, since Highway embankment construction is to occur primarily during winter months, to the extent possible, the potential for erosion and sedimentation effects will be minimized or avoided.

Culverts in fish-bearing streams will be installed during the fish window and will be sized and carried out using methods determined on a site specific basis to minimize erosion and sedimentation, and to ensure that flow is maintained during installation. Generally, summer flows in such streams are low and fish movements are limited. As a result, it is anticipated that effects on water quality, fish habitat, and fish behaviour will be minor.

Routine monitoring and inspections at watercourse crossings will be carried out to confirm the correct performance of each culvert. This will involve examination for debris buildup, culvert subsidence or lifting, and stream bank or bed erosion. Where applicable, maintenance activities will be carried out in adherence to the DFO Culvert Maintenance OS (DFO 2010), which includes the removal of accumulated debris (e.g., debris, boulders, garbage, ice build-up) that prevents the efficient passage of water and fish through the structure and may also include the reinforcement of eroding inlets and outlets.

The measures outlined above are proposed to mitigate potential adverse effects to fish and fish habitat that can result from culvert installation, which include:

- Loss of instream habitat to culvert footprints;
- Creation of migration barriers;
- Reduced habitat quality due to erosion and sedimentation; and
- Changes in surface drainage patterns.

Culverts will be designed and installed according to established guidelines (TAC 2010; DFO 1993; INAC 2010c) to avoid the creation of migration barriers, which can occur when culverts are embedded too deeply into the substrate, or more likely, when they are perched above the substrate. Periodic monitoring during the operations phase of the Highway will be carried out routinely to identify culvert maintenance requirements, which will adhere to the DFO Culvert Maintenance OS (DFO 2010).

In summary, no residual effects on fish and fish habitat are anticipated from culvert installation and maintenance due to application of the mitigation measures prescribed.

Use of Heavy Equipment (Construction)

Heavy equipment will be on-site throughout the Highway construction process and during isolated events for Highway maintenance. Effects on fish habitat due to the operation of heavy equipment relate primarily to the potential for ground disturbance, soil exposure, rutting, and the consequent mobilization and flow of suspended particulates to streams during snowmelt and rainfall events. The effects of sedimentation on fish and fish habitat were discussed earlier in this section.

The use of heavy equipment during Highway embankment construction will occur through the winter months when all watercourse crossing locations will be frozen. Therefore, the potential for erosion and sedimentation from this activity is very low.

Potential effects resulting from erosion and sedimentation during the summer months will be mitigated by the implementation of approved erosion and sediment control plans contained in the construction EMP. In addition, monitoring of construction works by environmental and wildlife monitors will: ensure the application of prescribed mitigation; identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater; and, prevent erosion and subsequent sedimentation.

Based on adherence of approved guidelines and BMPs, and the EMP developed for this Project, residual effects on water quality from the use of heavy equipment during construction are not anticipated.

Borrow Source Development (Construction)

Borrow source locations between Inuvik and Tuktoyaktuk are identified in Figure 1.5-2 (in the EIS). This figure identifies the general location of borrow sources, some of which are in the vicinity of streams or lakes. However, borrow sources will not be developed immediately in or adjacent to any watercourse. A minimum 50 m vegetated setback will be retained between borrow sites and watercourses.

Drill-and-blast methods may be used to break up and excavate the required volumes of material for construction from frozen borrow sources; therefore, borrow source development near waterbodies has the potential to affect fish and fish habitat. Potential direct effects include reduced habitat quality while indirect effects include the potential for erosion and sedimentation into fish-bearing waterbodies.

Borrow pits will be developed, operated and decommissioned in full compliance with all regulatory requirements (e.g. ILA Land Use Permit and Quarry Permit, INAC Quarry Permits, ILA's ISR ***Pits and Quarries Guidelines***, INAC's ***Northern Land Use Guidelines: Pits and Quarries*** and according to pit development plans (PDPs). PDPs will include mitigation measures to address potential environmental concerns, and operational and reclamation plans. Mitigation includes developing borrow sources primarily during winter periods, maintaining sufficient distance of undisturbed land between borrow source locations and any waterbody, and application of appropriate erosion and sediment control BMPs for the borrow source activities.

Monitoring of borrow source development will be undertaken by environmental and wildlife monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to watercourses and prevent erosion and subsequent sedimentation by stopping specific activities causing or likely to cause erosion and off-site discharges of turbid water. If blasting is required, it will be conducted according to DFO's ***Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*** (Wright and Hopky 1998).

Highlights of the Guidelines include:

- No explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e., overpressure) greater than 100 kPa (14.5 psi) in the swim bladder of a fish.
- No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than 13 m/s in a spawning stream bed during the period of egg incubation. For confined explosives, setback distances from the land-water interface (e.g., the shoreline) or burial depths from fish habitat (e.g., from under the riverbed) that will ensure that explosive charges meet the 100 kPa overpressure guideline are identified in the guidelines.

Care will be taken when using explosives in borrow sources located near a stream or lake as the pressure from blasting may harm fish and fish habitat in the proximity of the blasting area. Potential effects include loss of fish and fish habitat and the contamination of waters by blasting residues. Blasting, if required, will occur primarily during winter borrow source development when streams within the Project footprint area are frozen and fish are absent.

DFO blasting guidelines (Wright and Hopky 1998) will be followed to preclude the possibility of adverse effects.

Through implementation of mitigation measures during borrow source development, significant adverse residual effects are not expected.

Water Extraction (Construction)

Considerable amounts of water will be required for annual winter access road construction. It is proposed that water for this purpose will be extracted from lakes of suitable size in proximity to the Highway corridor. It is anticipated that water requirements will exceed 300 m^3/day, which will trigger the need for a NWT Water Board Type A Water Licence.

Excessive water withdrawal from small ice covered lakes can potentially result in: the depression of dissolved oxygen concentrations, leading to lethal and sub-lethal effects on fish; exposure or freezing of littoral spawning beds due to falling water levels; and, loss of important habitats for spring spawning fish (e.g., northern pike) if water levels do not sufficiently rebound to flood critical spawning habitats (Cott et al. 2008a and 2008b).

To mitigate these effects, DFO, in conjunction with other regulators and industry, developed the ***Protocol for Winter Water Withdrawal in the Northwest Territories*** (DFO 2010), for projects where a water withdrawal of greater than 100 m^3 is required from any individual waterbody that has the potential to provide fish habitat. Based on recent research in NWT lakes, this protocol sets limits to water withdrawal as a percentage of available under ice water volume, with consideration given to latitude and maximum lake water depth (Cott et al. 2008b). Water withdrawal thresholds for the region encompassing the Inuvik to Tuktoyaktuk Highway are:

- 0% for lakes with less than 1.5 m of free water below the maximum ice thickness (i.e., 2 m);
- 10% of available under ice water volume for lakes with a minimum depth of ≥ 3.5 m; and
- 100% if the maximum depth of the waterbody is less than the predicted maximum ice thickness (implying no available overwintering fish habitat).

In addition, the protocol directs that water be withdrawn from depths greater than 2 m below the ice surface to avoid removing the more highly oxygenated water that tends to collect at the water-ice interface. Water intake screening with mesh of 2.5 mm should be used to avoid entrainment of fish (DFO 1995).

To conform to the thresholds set out in the ***Protocol for Winter Water Withdrawal in the Northwest Territories*** (DFO 2010), it will be necessary to carry out bathymetric surveys on all lakes proposed for water extraction. Minimum requirements for the collection and submission of bathymetric survey information are provided in the Protocol, and are further detailed in Cott et al. (2005).

Following criteria set out in the water withdrawal protocol (2010) and any criteria included within a Type A Water Licence, residual effects on fish and fish habitat are not anticipated.

Road Drainage (Construction)

The potential exists for sediment releases to ephemeral and permanent streams due to drainage in summer months from the newly constructed road embankment, and localized slumpage of road slopes prior to compaction and stabilization. However, since vegetation will not be disrupted at the toe of the road slopes, it is expected that sediment flow will be limited and filtered by this vegetation to reduce this potential risk. In addition, silt fences will be installed at each road-channel intersection to prevent sediment releases to streams. Silt fences will be left in place until roadways are compacted and stable, and will be routinely monitored and maintained. Cross drainage culverts, which will be installed at regular intervals, will channel road drainage away from streams and allow filtration by natural vegetation. Because of these measures, no residual effects on fish habitat due to road drainage are anticipated.

Highway Maintenance (Operations)

During the operations phase of the Highway, it is anticipated that the Highway surface will require routine maintenance (e.g., grading, resurfacing, and dust suppression). The frequency of Highway maintenance is dependent on factors such as Highway safety and condition, the effects of periodic severe weather, and the extent of required maintenance. Highway maintenance and the application of dust suppression techniques can result in the release of fine or granular material directly into streams, and the creation of fine dust, which can settle in nearby watercourses. When discharged or settled in fish-bearing waters, these particulates can potentially affect fish habitat, as described at the beginning of Section 4.2.5.1.

Potential effects to water quality from dust generation and settlement are anticipated to be minor and of short-duration due to mitigation by the application of non-toxic dust suppression techniques (water trucks) that conform to the GNWT's ***Guideline for Dust Suppression*** (GNWT 1998). Based on adherence to the dust suppression guidelines, no adverse residual effects are anticipated from maintenance activities.

Increased Access to Fisheries Resources (Operations)

Rescan (1999a) concluded that the greatest potential indirect impact from Highway construction is the potential increase in fish harvest pressure through domestic and sport fishing. This would be due to the improved access that will be afforded by the Highway to important, but currently remote fish harvest areas in some of the lakes along the proposed Highway, as well as the numerous watercourse crossings. Potential effects of increased harvest pressure include:

- Reduced levels of fish available for subsistence fishing; and
- Increased potential for anthropogenic disturbances to remote fishing areas (i.e., garbage and/or disruption of fish habitat, and increased use of waterbodies for recreational purposes, such as boating).

Potential effects can be avoided or minimized through consultation with and involvement of stakeholders, such as the FJMC and the HTCs in identifying issues of concern and jointly developing strategies and guidelines, in conjunction with regulatory bodies, to manage sensitive fisheries resources. For example, appropriate signage posted at regular intervals on

the Highway, and public education can assist with the minimization of effects due to habitat damage and overexploitation of resources.

However, while it is likely that effects will be minimized, it is unlikely that these measures will entirely mitigate the potential for increased harvest pressure during operation of the Highway and residual effects are, therefore, expected. With public involvement and coordination of efforts, adverse residual effects to fish and fish habitat are anticipated to be low and not significant.

5.2 Monitoring (Section 4.2.5.2 of the EIS)

Monitoring of the Highway construction will be carried out by ILA environmental monitors and HTC wildlife monitors who will be on-site throughout construction. Construction monitoring will be carried out as required to ensure that prescribed mitigation measures and BMPs are implemented and to detect and correct unanticipated problems.

Post-construction monitoring will be carried out according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance. Since the Highway construction will proceed over successive years, there is an opportunity to apply adaptive management procedures to this Project. Adaptive management includes learning from experience and applied practices so that modifications can be applied to improve results, if necessary. Methods and procedures applied during a construction season can therefore be evaluated and modified, if necessary, to improve environmental protection in the following construction period.

5.3 Residual Effects (Section 4.2.5.3 of the EIS)

Based on the previously discussed assessments of the various components of Highway construction, operation, and maintenance, and following the implementation of mitigation measures, the Project may result in residual effects on fish or fish habitat. However, these effects are expected to be minor and will not significantly reduce the productive capacity of fish habitat within the area.

5.4 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
FISH AND FISH HABITAT	
No instream work will occur in fish bearing streams during critical time periods.	Construction
Where critical fish habitat cannot be avoided, mitigation will be incorporated into the design.	Construction
Individual site-specific circumstances might preclude complete adherence to DFO ***Operational statements***. In such cases, DFO will be consulted in advance to discuss and approve of proposed plans, which will include mitigation measures necessary to prevent or minimize effects.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
In accordance with DFO (2009a), the installation of culverts in fish bearing streams will not be permitted between April 1 and July 15 for watercourses that provide habitat for spring/summer spawners.	Construction
The Developer will develop and implement a fish and fish habitat protection plan in consultation with DFO that will include mitigation measures such as: -Designing appropriate crossing structures based on site conditions; -Completing primary construction activities during winter months; -Applying erosion and sediment control measures and best practices -Minimizing riparian disturbance (footprint); -Following the DFO ***Operational Statement for Clear-span Bridges*** (DFO 2009b) where appropriate; -Placing abutments at a sufficient distance from active stream channels; -Employing best management practices for culvert installation; -Annually monitoring for culvert subsidence or lifting; -Sizing culverts appropriately based on hydrological assessments and local experience; -Maintaining equipment away from waterbodies; -Having on-site spill containment equipment and operators trained to handle spills; -Reported spills will be contained by trained maintenance crews; -Maintaining a sufficient buffer of undisturbed land between borrow sources and waterbodies; -Following DFO ***Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*** (Wright and Hopky 1998); -Following DFO (2010) ***Protocol for Winter Water Withdrawal in the Northwest Territories***; -Allowing filtration by natural vegetation; -Installing silt fences at each road-stream intersection; -Building regularly spaced cross-drainage culverts; -Following the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2009b) where applicable; -Creating and enforcing Regulations or guidelines on fish harvest by FJMC with input from DFO, local fisherman and Hunters and Trappers Committees; -Posting signage at regular, visible intervals on Highway; -Constructing or installing stream crossing structures to avoid the impingement of active stream channels; -Effectively suppressing dust (i.e., through the use of water trucks) during the dry season; and -Following the recommendations of the Water License (once approved)	Design, Construction, Operation
STREAM CROSSINGS	
The Developer (under appropriate seasonal conditions), will conduct further assessments of the proposed water crossing locations and will provide information about watercourse characteristics and proposed crossing structure designs sufficient to meet the requirements of the Northwest Territories Waters Regulations.	Design, Construction
The Developer is committed to working closely with DFO to design appropriate crossing structures for each stream and to obtain Fisheries Authorizations, if determined to be required.	Design, Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will install culverts according to established guidelines and will follow culvert installation guidelines such as those contained within the DFO ***Land Development Guidelines*** (1993), TAC ***Development and Management of Transportation Infrastructure in Permafrost Regions*** (2010), and the INAC ***Northern Land Use Guidelines for Roads and Trails*** (INAC 2010).	Construction
The Developer will install appropriately sized culverts to minimize changes in water flow pattern and timing.	Construction
The Developer will not install culverts in critical aquatic habitats.	Construction
The Developer will carry out routine monitoring and inspections at watercourse crossings and culverts, including reporting on culvert performance and maintenance requirements.	Construction, Operations
The Developer will ensure that maintenance requirements for culverts will adhere to the DFO ***Operational Statement for Culvert Maintenance*** (DFO 2010).	Operations
The Developer will ensure that when crossings are completed, disturbed materials will be replaced with similar-sized substrates and the bed and banks of the watercourse are stabilized and restored.	Construction
MANAGEMENT PLANS	
An Environmental Management Plan (EMP) will be prepared prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.	Construction
The EMP will contain the following types of plans: -Environmental management; -Spill contingency; -Erosion and sediment control; -Pit development for borrow sources; -Fish and fish habitat protection; -Wildlife management; -Health and safety; -Waste management; -Hazardous waste management; and -Archaeological site(s) protection. Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
SPILL CONTINGENCY PLAN	
The Developer will require that Project contractors prepare spill contingency plans, outlining spill reporting, containment, and clean-up, in accordance with INAC's ***Guidelines for Spill Contingency Planning*** (2007).	Design, Construction
The Developer will ensure that the Project contractor has appropriate spill response equipment on-site.	Construction
The Developer's contractors will report all spills greater than 5 litres to the GNWT Spill Line and other appropriate agencies.	Construction
In the event of a spill, the Developer's contractors will respond according to the site-specific spill contingency plan and the contractor's HSE manual and procedures.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will develop and implement an erosion and sedimentation control plan as part of the EMP. The plan will comply with appropriate erosion and sediment control guidelines, GNWT best management practices (currently being prepared in coordination with DFO), and measures outlined in the DFO (1993) ***Land Development Guidelines for the Protection of Aquatic Habitat***. Some measures that will be followed include: -Limiting the use of construction equipment to the immediate footprint of the Highway or borrow source; -Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations and borrow sources; -Keeping ice bridge and ice road surfaces free from soils and fine gravel that may be tracked out by vehicles; -Avoiding the use of heavy equipment in streams or on stream banks during summer months, and the adherence to the DFO ***Operational Statement for Temporary Stream Crossings*** (DFO 2008), where this is deemed necessary; -Installing silt fencing and/or checking dams, and cross drainage culverts as necessary to minimize siltation in runoff near waterbodies; and -Appropriately sizing and installing culverts, based on hydrological assessments and local experience, to avoid backwatering and washouts.	Design, Construction
The Developer commits to ensuring that any exposed areas will be suitably stabilized prior to the spring thaw period.	Construction
The Developer is committed to using heavy equipment during Highway embankment construction through the winter months when all watercourse crossing locations are frozen.	Construction
BORROW SOURCES	
The Developer is committed to limiting the footprint of each borrow source and minimizing the number of borrow sources developed.	Construction.
Borrow pits will be closed as soon as they are no longer required and reclaimed in a progressive manner, as described in the Pit Development Plan.	Construction, Operations, Reclamation
Pit Development Plans will conform to the approving authority's regulations and permitting requirements.	Design, Construction, Operations
Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans. Mitigation measures include: -Developing borrow sources only during winter periods; -Maintaining an appropriate amount of undisturbed land between borrow source locations and any waterbody; and -Applying appropriate erosion and sediment control BMPs for the construction of ditches and cross drainage channels.	Construction
The Developer commits to ensuring that borrow source development is monitored by environmental monitors.	Construction
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species are adequately protected during all phases of construction.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

5.5 Proposed Effects Monitoring

Water quality and quantity, and changes to the hydrological regime may affect fish and fish habitat. As such, the proposed effects monitoring programs are discussed in Section 4.4 of this document.

In addition, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring related to fish and fish habitat issues will be carried out to the extent, frequency and duration required by regulators (primarily the ILA, DFO and the NWT Water Board) and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring is expected to be focussed on specific stream crossings of concern.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Health Canada
  - Administers Canada *Health Act*
  - Develops, implements, and enforces legislation, regulations, policies, programs, services, and initiatives and works with the provinces and territories, and other partners
  - Provides contribution funding to GNWT to support Non-Insured Health Benefits for First Nation and Inuit residents and health promotion/disease prevention programs
  - With Statistics Canada, is responsible for generating, managing, and reporting health information. Statistics Canada is mandated to provide accurate, timely, and relevant information about the health of Canadians and the health care system
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
  - Conducts health risk assessments and provides human health warning on contaminants in country foods to GNWT
- Aboriginal Affairs and Northern Development Canada (AANDC) (formerly INAC)
  - Signatory to *Northwest Territories/Nunavut Spills Working Agreement* and responsible for implementation as defined in the agreement as modified from time to time
  - Responsible for Granular Management Planning and pit and quarry management strategy processes in cooperation with the Inuvialuit Regional Corporation (IRC)
  - Administers *Territorial Lands Act* and regulations including Territorial Land Use Regulations and Territorial Quarry Regulations and ensures compliance with authorizations
  - Administers *NWT Waters Act* and regulations and ensures compliance with authorizations
  - Responsible for Cumulative Impact Monitoring Program (CIMP) in the ISR under Memorandum of Understanding with IRC
  - Responsible for cumulative effects assessments
  - Administers *Northern Contaminants Program* to address human exposure to contaminants in wildlife, fish and marine mammal species important to the traditional diet of northern Aboriginal peoples. Chairs Northern Contaminants Program Management Committee and allocates funds for research and related activities in four main areas: Human Health Research, Environmental Monitoring and Research, Education and Communications, National/Regional coordination and Aboriginal Partnerships
  - Administers funding for Beaufort Regional Environmental Assessment (BREA)
- Department of Fisheries and Oceans (DFO)
  - Responsible for implementing the *Fisheries Act* including annually establishing *Northwest Territories Fishery Regulations*
  - Promotes cooperative management of ISR fisheries resources including support to the Fisheries Joint Management Committee (FJMC)
  - Funds research on fish and fish habitat
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee

- GNWT Department of Transportation
  - Plans, designs, constructs or reconstructs, acquires, operates and maintains public transportation infrastructure in the Northwest Territories
  - Commercial vehicle inspections including enforcement of *Transportation of Dangerous Goods Act*
  - Responsible for setting contracts related to maintenance of the public roads
- GNWT Environment & Natural Resources - Wildlife Division
  - Promotes and supports sustainable use and development of natural resources in the NWT
  - Regulates wildlife harvest in ISR through *Wildlife Act* and Regulations in conjunction with Wildlife Management Advisory Council (WMAC) and other co-management boards
  - Develops wildlife management plans in conjunction with co-management boards
  - Conducts wildlife research and provide wildlife population information through Inuvialuit funding
  - Administration of sport fishery in the NWT (delegated by DFO in 1976) including implementing Sport Fishery Regulations for NWT and enforcing sport fishing regulations
  - Prepares jurisdictional recovery strategies and management plans for federally listed species
  - Leads implementation of the *Species at Risk (NWT) Act*, in cooperation with the Conference of Management Authorities
  - Establishes status ranks for NWT species in cooperation with federal resource departments and others
  - Maintains wildlife management information system (WMIS) and rare plants information system
  - Participates on Northern Contaminant Program Management Committee and NWT Territorial Contaminants Committee
- Joint Secretariat
  - Funds Inuvialuit Game Council Wildlife Management Advisory Council, Fisheries Joint Management Committee, Environmental Impact Screening Committee and Environmental Impact Review Board
  - Provides administrative and technical support to co-management bodies
- Inuvialuit Game Council
  - Allocates Inuvialuit quotas among the six ISR communities and appoints members for any co-management body dealing with Inuvialuit fish and wildlife harvesting and environment
  - Provides implementation funding for wildlife research to GNWT and Environment Canada
  - Responsible for harvest monitoring
  - Participates in NWT Environmental Contaminants Committee
- Fisheries Joint Management Committee
  - Makes recommendations to the Minister of Fisheries and Oceans on subsistence quotas for fish, Inuvialuit commercial fishing, allocation of the preferential fishing

licences to be granted under subsections (29) to 932), regulations regarding sport and commercial fishing in waters on 7(1)(a) and (b) lands and the identification of waters where such fishing may be prohibited
- Restricts and regulates the public fishing on 7(1)(b) lands where a management is required to: conserve a stock, prevent serious conflict or interference with Inuvialuit activities or enjoyment of the land
- Register Sport Fishing Licence holders intending to fish lakes or rivers on Inuvialuit Private Lands

- Hunters and Trappers Committee
  - Represents the collective Inuvialuit interest in wildlife and upholds harvest rights
  - Sub-allocate the subsistence quota for animals referred to in paragraph (6)(a) within its area of responsibility
  - Sub-allocate any Inuvialuit quota set for fish and the animals referred to in paragraphs (6)(a), (b) and (c)
  - Make by-laws, subject to the laws of general application, governing the exercise of the Inuvialuit rights to harvest referred to in paragraphs (6)(a), (b), (c) and (d) which are enforceable under the NWT Wildlife Act
  - Register Sport Fishing Licence holders intending to fish lakes or rivers on Inuvialuit Private Lands

6.0 Vegetation (Section 4.2.6 of the EIS)

6.1 Project Design and Mitigation Measures (Section 4.2.6.6 of the EIS)

The primary mitigation measure for reducing potential effects to vegetation and vegetation cover will be to minimize the size of the overall Highway footprint, where possible, and to carefully plan the overall route, which includes avoiding sensitive and unique vegetation types and rare plant species (Table 4.2.6-2). The route options considered limit effects to Bryoids and Shrub Lowland cover types by avoiding more sensitive areas such as wetlands and riparian areas.

The most effective mitigation strategy for rare plant species that may be present within the Project footprint will be avoidance. Additional surveys will be conducted throughout the construction phase in areas with a higher potential for supporting rare plants, such as in borrow source areas that are characterized as the Dry Saxifrage Tundra vegetation type. Should rare plants be identified, they will be avoided where possible. If avoidance is not an option, specimens will be collected, transferred to another suitable location, and/or donated to local herbaria for educational purposes.

Areas in the vicinity of Holmes Creek and Hans Creek that are characterized as the Riparian Black Spruce/Shrub vegetation type will also be avoided to the extent possible. If disturbance to this vegetation type is unavoidable, efforts will be made to maintain as much of this vegetation type intact and minimize potential fragmentation.

Borrow source areas will be recontoured progressively once activities are completed. The principal means of revegetation associated with abandoned borrow sources will be by natural revegetation. Those areas that could support artificial (manmade), accelerated revegetation efforts will be scarified and seeded with appropriate northern, native plant species.

Even with the application of reclamation measures, areas used for borrow material will not necessarily be completely restored to their previous state due in part to the alteration of local surface topography resulting from excavation. Revegetation efforts, combined with slow natural revegetation processes, will lead to the slow re-establishment of vegetation characteristic of naturally granular upland areas.

The primary mitigation measure to control the effect of dust during construction and operation of the Highway will include applying water as needed, as per the GNWT ***Guideline for Dust Suppression*** (GNWT 1998).

Potential strategies for mitigating potential effects on the vegetation types in the vicinity of the Highway and associated borrow operations are provided in Table 4.2.6-2. With the application of the proposed mitigation measures, effects on vegetation are generally expected to be limited to the physical footprint and are considered to be minor in the context of the overall Project area.

There is a potential for contaminant spills to occur during the construction phase of the Highway. In the event of a spill, clean-up measures will be implemented immediately in accordance with the applicable spill contingency plan. All spills greater than 5 litres will be reported to the GNWT Spill Line and other appropriate agencies.

TABLE 4.2.6-2: POTENTIAL EFFECTS AND MITIGATION STRATEGIES FOR VEGETATION ALONG THE HIGHWAY

Potential Effect	Potential Consequence	Mitigation Measures
Vegetation – Removal and Burial	Removal of vegetation; reduction of vegetation types with restricted distribution	Minimize footprint; Minimize development on vegetation types with restricted distribution; Avoid sensitive or rare plant vegetation types; Restrict off-site activities (e.g., ATV use) to footprint area; Reclaim to viable and self-sustaining vegetation types.
Dust	Potential reduction in vegetation health and productivity	Application of dust suppressants, as per the GNWT ***Guideline for Dust Suppression*** (GNWT 1998).
Potential Introduction and Spread of Invasive Plants	Displacement of native species and alteration of plant species composition of adjacent vegetation types	Minimize footprint; Ensure machinery and equipment is clean prior to use on site; Periodic monitoring of roadsides for invasive species establishment

TABLE 4.2.6-2: POTENTIAL EFFECTS AND MITIGATION STRATEGIES FOR VEGETATION ALONG THE HIGHWAY		
Potential Effect	**Potential Consequence**	**Mitigation Measures**
Alteration of Surface Hydrology	Change in water flow patterns and quantity; possible nutrient and sedimentation loading in receiving areas	Design and engineering of roadbed and drainage structures tailored appropriately to accommodate unique environmental conditions; Adequate drainage in wet lowland areas through the installation of culverts as necessary.
Contaminant Spills	Reduction in vegetation health and productivity due to spills	Contain and clean-up spills immediately. Contact authorities immediately to determine appropriate course of action. Respond according to site-specific spill contingency plan and the contractor's HSE manual and procedures.

6.2 Residual Effects (Section 4.2.6.7 of the EIS)

Within the LSA, the removal or burial of vegetation types and plant species/groups will occur during construction and the effects will remain for the life of the Highway. The effect is considered a high magnitude and of moderate consequence overall.

The effects of borrow source development on vegetation types and plant species/groups will also occur during construction however the duration is short-term. The effect is still of high magnitude, however, due to the reversibility of the effect over the long-term, the consequence is low. The structure and species composition of reclaimed borrow source areas may be different than what was originally present; however, efforts will be made to establish a self-sustaining vegetative cover that is appropriate for the surrounding environment.

The potential degradation of vegetation types and plant species resulting from dust deposition, the introduction of invasive plant species, and the alteration of local hydrology has been assessed as a low magnitude, local effect that will persist over the long-term. Effects will be periodic throughout the life of the Project and are reversible over the long-term. As such the effect has been rated as being of low consequence.

Residual effects to vegetation types and plant species are anticipated to be negligible in the context of the RSA, and as such have not been assessed further.

6.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
VEGETATION	
The Developer commits to surveying borrow sources prior to construction for the presence of Yukon stitchwort and other rare plant species. Should rare plants be identified, they will be avoided where possible. If avoidance is not an option specimens will be collected, transferred to another suitable location, and/or donated to local herbaria for educational purposes.	Design, Construction
The Developer commits to minimize direct effects to vegetation cover by limiting construction activities, to the extent possible, to the planned footprint of the Highway.	Construction
Surveys prior to construction in the vicinity of Holmes Creek and Hans Creek will be carried out to verify the location of the road alignment and stream crossings with respect to the unique Riparian Black Spruce/Shrub vegetation type.	Construction
Controlling the effects of dust during construction and operation of the Highway will include applying water as needed, as per the GNWT ***Guideline for Dust Suppression*** (GNWT 1998).	Construction
The Developer commits to using appropriate northern, native plant species for any deliberate revegetation efforts of borrow sources.	Construction, Operations
The Developer or contractor(s) will apply strategies for mitigating potential effects to the vegetation types in the vicinity of the Highway and associated borrow operations such as: -Restricting off-site activities (e.g., ATV use) to the footprint area; -Ensuring machinery and equipment is clean prior to use on site; -Periodically monitoring roadsides for invasive species establishment; -Designing and engineering roadbed and drainage structures appropriately to accommodate unique environmental conditions; and -Containing and cleaning-up spills immediately in accordance with the spill contingency plans.	Design, Construction
LAND USE	
The Developer will implement mitigation measures to minimize potential land use effects such as: -Ensuring that construction vehicles stay on access roads or the construction site at all times; and -Prohibiting the recreational use of the Highway by Project staff during construction, including the use of ATVs and snowmachines.	Construction
During the operations phase, the Developer will work with appropriate parties to install signage and/or develop educational materials to encourage users to stay on the Highway and not adjacent areas.	Operations
MANAGEMENT PLANS	
An Environmental Management Plan (EMP) will be prepared prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The EMP will contain the following types of plans: -Environmental management; -Spill contingency; -Erosion and sediment control; -Pit development for borrow sources; -Fish and fish habitat protection; -Wildlife management; -Health and safety; -Waste management; -Hazardous waste management; and -Archaeological site(s) protection. Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.	Construction
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

6.4 Proposed Effects Monitoring

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental (including footprint) and wildlife monitoring (during construction) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Natural Resources Canada
  - Maintains EOSD inventory
- GNWT Environment & Natural Resources - Forest Management
  - Provides wild fire protection services including prevention education
  - Manages forest resources through the following program functions - forest inventory; resource analysis; forest management planning and practices; and forest education
- GNWT Environment & Natural Resources - Wildlife Division
  - Promotes and supports sustainable use and development of natural resources in the NWT
  - Prepares jurisdictional recovery strategies and management plans for federally listed species
  - Maintains wildlife management information system (WMIS) and rare plants information system
  - Participates on Northern Contaminant Program Management Committee and NWT Territorial Contaminants Committee

7.0 Wildlife and Wildlife Habitat (Section 4.2.7 of the EIS)

7.1 Species at Risk (Section 4.2.7.1 of the EIS)

Three wildlife species were identified as at risk within the study area, grizzly bears, wolverines, and Boreal Woodland Caribou. Grizzly bears and wolverines are ranked by COSEWIC as Special Concern and by NWT General Status Ranking as Sensitive. Boreal Woodland Caribou are currently listed under SARA as Threatened (COSEWIC 2009).

Potential effects and mitigation measures for grizzly bears are described in the grizzly bears section (Section 4.2.7.3). Potential effects to wolverines are discussed in the Furbearers section (Section 4.2.7.5). Boreal caribou have been shown to be affected by linear development (GNWT ENR NDg); however, the density of linear development in the RSA is less than the threshold predicted to impact populations (Canadian Boreal Initiative 2007). Potential effects to caribou are discussed in Section 4.2.7.2.

7.1.1 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WILDLIFE AND WILDLIFE HABITAT	
General	
The Developer will develop and implement species specific Wildlife Management Plans (WMP) that will include specific mitigation measures for Species at Risk, caribou, moose, furbearers, and birds.	Design, Construction
The Developer or its contractor(s) will follow established ***Bear Safety Guidelines*** and will educate staff accordingly.	Design, Construction
The Developer's contractor(s) will be responsible for educating and training staff on applicable practices contained within the Wildlife Management Plans and the ***Bear Safety Guidelines***, including the proper use of non-lethal wildlife deterrent materials (e.g., bear spray).	Construction
Camps and associated infrastructure will be designed to incorporate features that ensure safety for both personnel and wildlife, including installing adequate lighting, implementing proper waste management, cleaning and maintaining the kitchen and dining area, and implementing appropriate wildlife detection and deterrent strategies.	Design, Construction
Pre-disturbance surveys for critical habitat features (e.g., dens, nests) will be conducted prior to construction, in cooperation with GNWT ENR, as required.	Design, Construction
All wildlife encounters and mortalities will be reported to the environmental monitor, Safety Advisor, and GNWT ENR	Design, Construction, Operations
The Developer will implement general wildlife protection measures along the proposed Highway as follows: -Minimizing loss of habitat and the reduction of habitat effectiveness through Project design; -Educating users of the Highway that wildlife have the right-of-way at all times; -Posting signage along the Highway, emphasizing areas of high wildlife use; -Implementing a policy whereby Project personnel and contractors will not disturb any wildlife or critical habitat features such as dens or nests; -Implementing a system during the construction phase that serves to notify workers of wildlife presence in or near construction areas; -Hiring environmental monitors to during construction to watch for wildlife; -Adhering to spill contingency plans, as required, in a timely manner; -Conducting follow-up monitoring of spill sites to verify effectiveness; -Utilizing clean equipment, particularly when deployed in or near water; -Implementing appropriate dust control measures to minimize effects to habitat and forage quality; -Adhering to waste management plans and procedures to avoid attracting wildlife; -Timing construction activities to avoid critical periods; -Applying and conforming with pre-determined setback distances from key wildlife habitat features; -Implementing a "no hunting" policy for Highway construction and maintenance workers; and -Working with agencies such as the HTCs, WMAC and GNWT ENR to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.	Design, Construction, Operations

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
Types of Mitigation Measures for Bird Species At Risk	
The Developer will incorporate additional mitigation measures for bird Species at Risk including: -Immediately contacting appropriate federal (CWS) and territorial (GNWT ENR) authorities if a nest of a key bird species is identified within predetermined set-back distances (as determined through consultation with CWS/ENR).	Construction

7.1.2 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Species at Risk and Species of Special Status or Management Concern	• Wildlife monitoring • Environmental monitoring	• Effects predictions • Common indicators used by existing fish and wildlife monitoring programs	• Verify effects predictions and confirm the effectiveness of mitigation measures • Number observations of species at risk or species with special status/ management concern • Common parameters used by existing fish and wildlife monitoring programs
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing fish and wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of fish, wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing fish and wildlife monitoring programs

Furthermore, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans.

Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities (for all wildlife and birds, not just species at risk), is provided as follows:

- Aboriginal Affairs and Northern Development Canada (AANDC) (formerly INAC)
  - Responsible for Cumulative Impact Monitoring Program (CIMP) in the ISR under MOU with IRC
  - Responsible for cumulative effects assessments
  - Administers *Northern Contaminants Program* to address human exposure to contaminants in wildlife, fish and marine mammal species important to the traditional diet of northern Aboriginal peoples. Chairs Northern Contaminants Program Management Committee and allocates funds for research and related activities in four main areas: Human Health Research, Environmental Monitoring and Research, Education and Communications, National/Regional coordination and Aboriginal Partnerships
  - Administers funding for Beaufort Regional Environmental Assessment (BREA)
- Environment Canada
  - Sets waterfowl harvest regulations annually
  - Funds and carries out inventory and monitoring studies for migratory birds
  - Canadian Wildlife Service (CWS) is represented on Wildlife Management Advisory Councils (WMAC)
  - Funds migratory bird wildlife studies
  - Administers *Species at Risk Act (SARA)* and coordinates national recovery strategies and management plans for endangered, threatened and special concern species
  - Co-chairs *Northwest Territories/Nunavut Spills Working Agreement*
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
- GNWT Environment & Natural Resources - Wildlife Division
  - Promotes and supports sustainable use and development of natural resources in the NWT
  - Regulates wildlife harvest in ISR through *Wildlife Act* and Regulations in conjunction with Wildlife Management Advisory Council (WMAC) and other co-management boards
  - Develops wildlife management plans in conjunction with co-management boards
  - Conducts wildlife research and provide wildlife population information through Inuvialuit funding
  - Provides bear response and mitigation advice
  - Administration of sport fishery in the NWT including implementing Sport Fishery Regulations for NWT and enforcing sport fishing regulations
  - Prepares jurisdictional recovery strategies and management plans for federally listed species

- Leads implementation of the *Species at Risk (NWT) Act*, in cooperation with the Conference of Management Authorities
- Establishes status ranks for NWT species in cooperation with federal resource departments and others
- Maintains wildlife management information system (WMIS) and rare plants information system
- Participates on Northern Contaminant Program Management Committee and NWT Territorial Contaminants Committee

- GNWT Industry, Tourism & Investment
  - Funds local wildlife committees, Take a Kid Hunting/Trapping programs, and entrepreneurial pursuits
- Joint Secretariat
  - Funds Inuvialuit Game Council Wildlife Management Advisory Council, Fisheries Joint Management Committee, Environmental Impact Screening Committee and Environmental Impact Review Board
  - Provides administrative and technical support to co-management bodies
- Inuvialuit Game Council
  - Allocates Inuvialuit quotas among the six ISR communities and appoints members for any co-management body dealing with Inuvialuit fish and wildlife harvesting and environment
  - Provides implementation funding for wildlife research to GNWT and Environment Canada
  - Responsible for harvest monitoring
  - Participates in NWT Environmental Contaminants Committee
- Wildlife Management Advisory Council (NWT)
  - Provides wildlife management advice
  - Prepares wildlife conservation and management plans
  - Recommends appropriate wildlife harvest quotas in conjunction with Hunter Trapper Committees
- Hunters and Trappers Committee
  - Represents the collective Inuvialuit interest in wildlife and upholds harvest rights
  - Sub-allocate the subsistence quota for animals referred to in paragraph (6)(a) within its area of responsibility
  - Sub-allocate any Inuvialuit quota set for fish and the animals referred to in paragraphs (6)(a), (b) and (c)
  - Make by-laws, subject to the laws of general application, governing the exercise of the Inuvialuit rights to harvest referred to in paragraphs (6)(a), (b), (c) and (d) which are enforceable under the NWT Wildlife Act
  - Register Sport Fishing Licence holders intending to fish lakes or rivers on Inuvialuit Private Lands

7.2 Caribou and Caribou Habitat (Section 4.2.7.2 of the EIS)

7.2.1 Project Design and Mitigation Measures

The objectives of wildlife protection activities along the proposed Highway will be to mitigate potentially negative effects on caribou in the following general ways:

- Minimize loss of habitat and reductions of habitat effectiveness via Project design;
- A wildlife protection plan will be implemented for the construction phase;
- Minimize disruption of migration patterns due to vehicle traffic; particularly when barren-ground caribou arrive within the study area for the fall rut and their departure to the calving grounds in the spring;
- Minimize direct mortality due to collisions with vehicles;
- Minimize the volume, duration, and frequency of noise producing activities;
- Selective timing of Project activities to avoid critical periods for wildlife;
- Conform with pre-determined setback distances from key wildlife habitat features;
- Ensure proper storage, transportation and disposal of wastes;
- Ensure Project personnel have appropriate levels of wildlife training and awareness; and
- Encourage agencies such as the HTCs, WMAC and GNWT ENR to work together with DOT to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.

Table 4.2.7-1 presents the mitigation measures that will be integrated into the Project design, construction and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on caribou.

TABLE 4.2.7-1: MITIGATION MEASURES FOR CARIBOU AND CARIBOU HABITAT

Project Activity	Potential Effect	Mitigation Measures
All Activities	Habitat Disturbance/ Degradation	• Project footprint will be minimized and previously disturbed areas will be used, wherever. • A wildlife protection plan will be implemented for the construction phase. • Waste will be trucked out, rather than using a sump. • Application of dust suppressants (water) during the summer, as per the GNWT ***Guideline for Dust Suppression*** (GNWT 1998), to limit potential reduction in caribou winter forage quality and productivity.

TABLE 4.2.7-1: MITIGATION MEASURES FOR CARIBOU AND CARIBOU HABITAT		
Project Activity	**Potential Effect**	**Mitigation Measures**
All Activities	Sensory and other Disturbances	• Highway access will be restricted during peak barren-ground caribou migration periods (i.e. arrival during fall rut and departure to calving grounds in the spring). • Wherever possible, technologies to minimize sound disturbance have been incorporated into Project design. • Blasting activities, if required, will be limited to borrow sites and will only occur when caribou are > 500 m from the blast site.
All Activities	Caribou Incidents	• Provide field workers with education and awareness of the wildlife protection plan guidelines and programs. • The Field Supervisor and Safety Advisor will educate all field workers on the applicable practices contained within the wildlife protection plan. • All sightings of caribou will be reported to environmental staff on-site. • Maintain a minimum distance of 500 m between field operations and caribou for the duration of the Project. • Workers must avoid all interactions with caribou unless crew safety is at risk. • Field workers will not feed, harass or approach caribou. • Any caribou encountered will have the right-of-way. • All human/caribou conflicts and incidents will be reported to the Wildlife Monitor, Field Supervisor and Safety Advisor and documented. • Access to the surface facilities will be limited to authorized personnel during construction. • No hunting by Highway construction and maintenance workers. • Caribou sightings will be recorded (including location data, GPS if possible) to be submitted to the GNWT DOT Planning, Policy and Environmental Division and GNWT ENR's Inuvik office upon completion of the Project.
Vehicle/ Equipment Use and Refueling	Spills or leaks may harm caribou.	• Spill contingency plans will be implemented to prevent and address leaks and spills. • In the event of a spill, all efforts will be made to properly contain and manage the spill. • All spills greater than 5 litres will be reported to the GNWT Spill Line and other appropriate agencies. • The spill area will be monitored closely and appropriate deterrents (e.g., warning noises, flagging) employed to discourage caribou from entering the affected area.

TABLE 4.2.7-1: MITIGATION MEASURES FOR CARIBOU AND CARIBOU HABITAT		
Project Activity	**Potential Effect**	**Mitigation Measures**
Mortality	Vehicular impacts and hunting.	• Caribou will have the right-of-way at all times. • During construction, the presence of caribou in the areas of construction and access roads will be communicated to other drivers. • Construction and maintenance vehicles will stop or reduce speeds when caribou are on the road or near the road, respectively. • Vehicle speeds during construction and post construction will be regulated to reduce the potential of caribou mortality due to collisions. • Caribou advisory signs will be placed along the Highway, as needed. • Highway closures will be required during periods of high caribou presence. • No hunting by Highway construction and maintenance workers. • Any caribou mortalities will be reported to ENR.

Source: Adapted from GNWT DOT (2009)

According to a draft document entitled *Taking Care of Caribou: Cape Bathurst, Bluenose-West, and Bluenose-East Barren Ground Caribou Herds Management Plan* prepared by the Advisory Committee for the Cooperation on Wildlife Management (May 2011), "impacts of development can be reduced by working closely with developers and regulatory agencies… to avoid low-level flights and reduce operations when caribou are near project sites" (Advisory Committee for the Cooperation on Wildlife Management 2011, p. 17).

A copy of this report is provided as Attachment 2 to this response document.

7.2.2 Residual Effects

The amount of habitat lost to the Highway is estimated to be 383 ha, approximately 0.002% (217 ha) of the Bluenose-West Herd core winter range, approximately 0.019% (212 ha) of the Cape Bathurst Herd core winter range and approximately 0.0008% (32 ha) of suitable Boreal caribou habitat. In the context of both the LSA and RSA, this amount of habitat loss is considered low in magnitude, local in extent and lasting for the life of the Project resulting in a consequence rating of low.

Effects of habitat degradation, which is primarily related to reduction in food availability, is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low for both the LSA and RSA.

It is expected that caribou will generally avoid the proposed Highway due to sensory disturbance, though some degree of habituation may occur. In the LSA, the effect is considered moderate in magnitude, local in extent and lasting the life of the Project, resulting in a consequence rating of moderate. In the context of the RSA, the magnitude changes to low, resulting in a consequence rating of low.

With the application of mitigation measures, increased mortality as a result of the Highway is expected to be low in magnitude and local in extent, with isolated occurrences over the life of the Project for a consequence rating of low for both the LSA and RSA.

7.2.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WILDLIFE AND WILDLIFE HABITAT	
General	
[previously presented in Section 7.1.1]	
Types of Mitigation for Caribou	
Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on caribou are: -Limiting blasting activities, if required, to borrow sites and will only occur when caribou are >500 m from the blast site; -Working with agencies such as the HTCs, WMAC, and GNWT ENR to develop guidelines for periodic Highway closures, if required, as a way of minimizing the disruption of migration patterns to barren-ground caribou; -All sightings of caribou will be reported to environmental staff on-site; -Maintaining a minimum distance of 500 m between field operations and caribou for the duration of construction; -Caribou sightings will be recorded (including a GPS location if possible) and be submitted to the GNWT DOT Planning, Policy and Environmental Division and GNWT ENR upon completion of construction; and -Caribou crossing signs will be placed along the Highway, as needed.	Design, Construction, Operation

7.2.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Species at Risk and Species of Special Status or Management Concern	• Wildlife monitoring • Environmental monitoring	• Effects predictions • Common indicators used by existing wildlife monitoring programs	• Verify effects predictions and confirm the effectiveness of mitigation measures • Number observations of species at risk or species with special status/ management concern • Common parameters used by existing fish and wildlife monitoring programs

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing fish and wildlife monitoring programs	• Wildlife and berry harvest levels • Frequency, duration and location of wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing wildlife monitoring programs

The draft caribou management plan prepared by the Advisory Committee for the Cooperation on Wildlife Management (ACCWM, May 2011). The Plan states that "certain monitoring will take place regardless of whether the herd status is green [caribou population is high], yellow [caribou population is increasing], orange [caribou population is decreasing] or red [caribou population is low]. However, the frequency and intensity of monitoring will vary in response to herd status" (ACCWM 2011, p. 21).

The Developer looks forward to cooperating with the members of the ACCWM, including the Wildlife Management Advisory Council (NWT) and the local HTCs to ensure that appropriate monitoring for caribou in the area will be conducted to address caribou management issues over the longer term.

In addition, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted primarily during the construction phase.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring is conducted on a part-time basis unless activities are occurring in a sensitive area.

For related agencies and organizations involved in monitoring, see Section 7.1.2.

7.3 Grizzly Bear and Grizzly Bear Habitat (Section 4.2.7.3 of the EIS)

7.3.1 Project Design and Mitigation Measures

The objectives of wildlife protection activities along the proposed Highway will be to mitigate potentially negative effects on grizzly bear in the following general ways:

- Minimize loss of habitat and reductions of habitat effectiveness via Project design;
- A wildlife protection plan will be implemented for the construction phase.
- Identification of active grizzly bear dens in the fall prior to each construction season in order to avoid or minimize possible effects on denning bears;
- Minimize direct mortality due to collisions with vehicles;
- Minimize the volume, duration, and frequency of noise producing activities;
- Selective timing of Project activities to avoid critical periods for wildlife;
- Conform with pre-determined setback distances from key wildlife habitat features;
- Ensure proper storage, transportation and disposal of wastes;
- Ensure Project personnel have appropriate levels of wildlife training and awareness; and
- Encourage agencies such as the HTCs, WMAC and GNWT ENR to work together with DOT to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.

Table 4.2.7-4 presents the types of mitigation measures that will be integrated into the Project design, construction and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on grizzly bears.

TABLE 4.2.7-4 MITIGATION MEASURES FOR GRIZZLY BEAR

Project Activity	Potential Effect	Mitigation Measures
All Activities	Disturbance or injury to bears and their habitat.	• Project personnel will be provided with wildlife awareness training. • Wildlife monitors will be on-site during construction to monitor wildlife and manage risks.

TABLE 4.2.7-4 MITIGATION MEASURES FOR GRIZZLY BEAR		
Project Activity	**Potential Effect**	**Mitigation Measures**
All Activities	Denning bears could be disturbed and could abandon den sites	• Den surveys will be conducted in the fall prior to construction and excavation activities. Freshly dug dens will be mapped such that construction activities will avoid active dens during the hibernation period. • If possible, no activities will occur within 500 m of an active den during the denning period, between October and April. • If active dens or if a grizzly bear are observed within 500 m of the construction site after the pre-construction survey, GNWT ENR will be contacted immediately to determine a course of action. • No blasting will occur if active bear dens are confirmed within 500 m of proposed blasting areas. • Wildlife monitors will be on-site during construction to monitor wildlife and manage risks.
All Activities	Disturbance of denning bears by workers walking off-site during the winter months.	• Workers will not walk off-site onto land at any time of year, unless there is a specific requirement (i.e., waste recovery), and these activities will be scheduled to avoid sensitive wildlife periods. • All workers will receive, at minimum, a basic wildlife orientation and GNWT bear safety training, and will be instructed not to disturb any wildlife. • Personnel are to maintain a minimum distance of 500 m between sighted and/or known bear den sites for the duration of the Project.
All Activities	Grizzly bears may approach construction sites, potentially resulting in an incident or mortality.	• Grizzly bears have the right-of-way at all times. • ENR will be contacted if an active grizzly bear den is identified within 500 m of Project activities to determine appropriate course of action. • The wildlife monitor and designated, trained staff will have access to bear deterrent materials including bear spray, cracker shells, and a 12 gauge shotgun with plastic slugs and slugs. The use of any deterrent method will be reported to ENR.
All Activities	Grizzly bear may approach camp, potentially resulting in an incident or mortality.	• Snow will be removed around buildings and work areas as necessary to increase visibility. • Adequate lighting will be installed in areas where it is essential to detect bears that may be in the vicinity. • Camps and associated infrastructure will be designed to incorporate bear safety, including installing adequate lighting, incorporating proper waste management, cleaning and maintaining the kitchen and dining area, and wildlife detection.

TABLE 4.2.7-4 MITIGATION MEASURES FOR GRIZZLY BEAR		
Project Activity	**Potential Effect**	**Mitigation Measures**
Waste Storage	Wildlife Attraction to Site and Waste Management	• Waste Management that minimizes and disposes of attractants to wildlife such as garbage, food wastes and other edible and aromatic substances will include the following measures: - Minimize and dispose of attractants to wildlife such as garbage, food wastes and other edible and aromatic substances. - Store all food and garbage in either: airtight sealed container, bear proof containers or in an enclosed bear proof area. - Store on-site grease, oils, fuels in bear-proof areas or containers. - No waste will be incinerated on- or off-site. Waste will be transported and disposed of at the Tuktoyaktuk and/or Inuvik municipal solid waste facilities in accordance with the municipalities' terms and conditions for usage of the facilities. The following will be identified: • List of hazardous, non-hazardous waste and any wastes of special concern, if any. • Waste types and volumes expected to be produced • List of storage and transport methods and disposal locations for these wastes. • List of odorous wastes that may attract wildlife, and the identification of its storage and method of transport to prevent wildlife attraction. • Indicate whether odorous waste is stored for the purpose of on- or off-site disposal (i.e. road or air transport).
Waste Storage	Poorly secured waste can blow off site and pose risk of injury or mortality to bears.	• All waste products will be properly secured, stored and transported. This includes the use of bear-proof storage containers that reduce odours at all times. • Waste removal crews will be sent out to areas surrounding each construction site to collect and properly dispose of any waste material that have blown off site.
Vehicle/ Equipment Use and Refueling	Spills or leaks may harm grizzly bears.	• Spill contingency plans will be implemented to prevent and address leaks and spills. • In the event of a spill, all efforts will be made to properly contain and manage the spill. • All spills greater than 5 litres will be reported to the GNWT Spill Line and other appropriate agencies. • The spill area will be monitored closely and appropriate deterrents (e.g., warning sounds, flagging) employed to discourage grizzly bears from entering the affected area.

TABLE 4.2.7-4 MITIGATION MEASURES FOR GRIZZLY BEAR		
Project Activity	**Potential Effect**	**Mitigation Measures**
Vehicle/ Equipment Use	Vehicular impacts may cause mortality.	• Grizzly bears will have the right-of-way at all times. • During construction, the presence of grizzly bears in the areas of construction and access roads will be communicated to other drivers. • Construction and maintenance vehicles will stop or reduce speeds when grizzly bears are on the road or near the road, respectively. • Vehicle speeds during construction and post construction will be regulated to reduce the potential of grizzly bear mortality due to collisions. • Grizzly bear advisory signs will be placed along the Highway, as needed. • Any grizzly bear mortalities will be reported to ENR.
Hunting	Hunting may cause grizzly bear mortalities.	• No hunting by Highway construction and maintenance workers. • Any grizzly bear mortalities will be reported to ENR.

Source: Adapted from GNWT DOT (2009).

7.3.2 Residual Effects

The loss of habitat due to the development of the proposed Highway will be approximately 236.6 ha of high rated bear feeding habitat. This will result in a loss of 0.20% of available high-rated bear feeding habitat within the RSA.

In the context of both the LSA and the RSA, this amount of habitat loss is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low. At this time the amount of suitable grizzly denning habitat (south-facing slopes $\geq$ 25% grade; McLoughlin et al. 2002) cannot be calculated as digital elevation model (DEM) data at the resolution required are not available. It is anticipated that these data (LiDAR) will be available prior to the detailed design phase of the Project.

Effects of habitat degradation, which is primarily related to reduction in food availability, is considered low in magnitude, local in extent and lasting the life of the Project, resulting in a consequence rating of low for both the LSA and RSA.

It is expected that grizzly bear will avoid the proposed Highway due to sensory disturbance, though some degree of habituation may occur. In the LSA, the effect is considered moderate in magnitude, local in extent and lasting the life of the Project, resulting in a consequence rating of moderate. In the context of the RSA, the magnitude changes to low, resulting in a consequence rating of low. Since den surveys will be completed in fall prior to each winter construction season, no effects on denning bears are anticipated.

With the application of mitigation measures, increased mortality as a result of the Highway is expected to be low in magnitude and local in extent, with isolated occurrences over the life of the Project, for a consequence rating of low for both the LSA and RSA.

7.3.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WILDLIFE AND WILDLIFE HABITAT	
General	
[previously presented in Section 7.1.1]	
Types of Mitigation Measures for Grizzly Bears and Furbearers	
Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on grizzly bears and furbearers include: -Freshly dug dens will be mapped such that construction activities will avoid active dens during the hibernation period; -If possible, no activities will occur within 500 m of an active den during the denning period (October to April); and -No blasting will occur if active bear dens are confirmed within 500 m of a proposed blasting area.	Construction
-Maintaining a minimum distance of 500 m between identified grizzly bear/wolverine den sites and personnel during construction; -Dens (grizzly bear, wolverine) discovered within 500 m of the Highway after the pre-construction survey will be reported immediately to GNWT ENR to determine the appropriate course of action; -Providing the wildlife monitor and designated, trained staff access to non-lethal deterrent materials (e.g., bear spray). The use of any deterrent method on wildlife will be reported to GNWT ENR;	Construction
-Minimizing and properly disposing of wildlife attractants such as garbage, food wastes, and other edible and aromatic substances; -Storing all food, grease, oils, fuels, and garbage in bear/wolverine-proof containers and/or areas; -No waste will be incinerated on- or off-site; and -Transporting waste to Tuktoyaktuk and/or Inuvik municipal solid waste facilities for disposal. Disposal of wastes at these facilities will follow the specified terms and conditions for use.	Construction

7.3.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Species at Risk and Species of Special Status or Management Concern	• Wildlife monitoring • Environmental monitoring	• Effects predictions • Common indicators used by existing wildlife monitoring programs	• Verify effects predictions and confirm the effectiveness of mitigation measures • Number observations of species at risk or species with special status/ management concern • Common parameters used by existing wildlife monitoring programs
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing wildlife monitoring programs

In addition, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

For related agencies and organizations involved in monitoring, see Section 7.1.2.

7.4 Moose and Moose Habitat (Section 4.2.7.4 of the EIS)

7.4.1 Project Design and Mitigation Measures

The objectives of wildlife protection activities along the proposed Highway will be to mitigate potentially negative effects on moose in the following general ways:

- Minimize loss of habitat and reductions of habitat effectiveness via Project design;
- A wildlife protection plan will be implemented for the construction phase;
- Minimize direct mortality due to collisions with vehicles;
- Minimize the volume, duration, and frequency of noise producing activities;
- Selective timing of Project activities to avoid critical periods for wildlife;
- Conform with pre-determined setback distances from key wildlife habitat features;
- Ensure proper storage, transportation and disposal of wastes;
- Ensure Project personnel have appropriate levels of wildlife training and awareness; and
- Encourage agencies such as the HTCs, WMAC and GNWT Department of Environment and Natural Resources to work together with DOT to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.

Table 4.2.7-7 presents the mitigation measures that will be integrated into the Project design, construction and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on moose.

In addition to Project mitigation measures, ENR in consultation with the HTAs and communities should consider the establishment of a no-hunting zone along the proposed Highway. A no-hunting corridor would not only protect moose, as well as other wildlife, but also for human safety concerns that arise from hunting from roadways.

TABLE 4.2.7-7: MITIGATION MEASURES FOR MOOSE

Project Activity	Potential Effect	Mitigation Measures
Off-site Activities	Workers walking off-site may disturb moose.	• Workers will not walk off-site onto the land at any time of year, unless there is a specific need (e.g., waste clean-up, emergency). • All workers will be instructed not to disturb any moose observed. • Wildlife monitors will be on-site during construction to monitor potential wildlife issues and manage risks.

TABLE 4.2.7-7: MITIGATION MEASURES FOR MOOSE		
Project Activity	**Potential Effect**	**Mitigation Measures**
Waste Storage	Poorly secured waste can attract predators, which may increase predation pressure on moose in the area.	• All waste products will be properly secured, stored and transported. • Waste removal crews will be sent to areas surrounding each construction site to collect and properly dispose of any waste material that has blown off site.
Vehicle/ Equipment Use and Refueling	Spills or leaks may harm moose.	• Spill contingency plans will be implemented to prevent and address leaks and spills. • In the event of a spill, all efforts will be made to properly contain and manage the spill. • All spills greater than 5 litres will be reported to the GNWT Spill Line and other appropriate agencies. • The spill area will be monitored closely and appropriate deterrents (e.g., warning noises, flagging) employed to discourage moose from entering the affected area.
Vehicle/ Equipment Use	Vehicular impacts may cause mortality.	• Moose will have the right-of-way at all times. • During construction, the presence of moose in the areas of construction and access roads will be communicated to other drivers. • Construction and maintenance vehicles will stop or reduce speeds when moose are on the road or near the road, respectively. • Vehicle speeds during construction and post construction will be regulated to reduce the potential of moose mortality due to collisions. • Moose advisory signs will be placed along the Highway, as needed. • Any moose mortalities will be reported to ENR.
Hunting	Hunting may cause moose mortalities	• No hunting by Highway construction and maintenance workers. • Any moose mortalities will be reported to ENR.

Source: Adapted from GNWT DOT (2009).

7.4.2 Residual Effects

The amount of lost moose habitat from the proposed Highway and the proposed gravel borrow sources is small. In the context of both the LSA and RSA, this amount of habitat loss is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low.

Effects of habitat degradation, which is primarily related to reduction in food availability, is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low for both the LSA and RSA.

7.4.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WILDLIFE AND WILDLIFE HABITAT	
General	
[previously presented in Section 7.1.1]	

7.4.4 Proposed Effects Monitoring

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be done carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring is will be conducted on a part-time basis unless activities are occurring in a sensitive area. Monitoring frequency will be determined once the EMP is finalized.

For related agencies and organizations involved in monitoring, see Section 7.1.2.

7.5 Furbearers (including wolverine) and Furbearer Habitat (Section 4.2.7.5 of the EIS)

7.5.1 Project Design and Mitigation Measures

The objectives of furbearer protection activities along the proposed Highway will be to mitigate potentially negative effects on furbearers (including wolverine) in the following general ways:

- Minimize loss of habitat and reductions of habitat effectiveness via Project design;
- A wildlife protection plan will be implemented for the construction phase.
- Identification of active dens in the fall prior to each construction season in order to avoid active areas;
- Minimize direct mortality due to collisions with vehicles;
- Minimize the volume, duration, and frequency of noise producing activities;
- Selective timing of Project activities to avoid critical periods for wildlife;
- Conform with pre-determined setback distances from key wildlife habitat features;
- Ensure proper storage, transportation and disposal of wastes;

- Ensure Project personnel have appropriate levels of wildlife training and awareness; and,
- Encourage agencies such as the HTCs, WMAC and GNWT ENR to work together with DOT to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.

Table 4.2.7-10 presents the types of mitigation measures that will be integrated into the Project design, construction and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on furbearers and furbearer habitat.

TABLE 4.2.7-10: MITIGATION MEASURES FOR FURBEARERS AND FURBEARER HABITAT

Project Activity	Potential Effect	Mitigation Measures
All Activities	Disturbance or injury to furbearers and their habitat.	• Project personnel will be provided with wildlife awareness training.
All Activities	Disturbance of denning furbearers:	• If active wolverine dens are discovered within 500 m of Project sites, ENR will be contacted immediately to determine the appropriate course of action. Activities may be temporarily suspended pending consultation with ENR. • Wildlife monitors will be on-site during construction to monitor wildlife and manage risks. • Personnel are to maintain a minimum distance of 500 m between sighted and/or known wolverine den sites for the duration of the Project and to contact ENR to determine an appropriate course of action. • Workers will not walk off-site onto land at any time of year, unless there is a specific requirement (i.e., waste recovery), and these activities will be scheduled to avoid sensitive furbearer periods. • All workers will receive, at minimum, orientation to the wildlife management plan, and will be instructed not to disturb any furbearers.
All Activities	Wildlife incident or mortality: furbearers may approach sites while workers are present potentially resulting in an incident or mortality.	• Furbearers will have the right-of-way at all times. • The wildlife monitor and designated, trained staff will have access to wildlife deterrent materials including bear spray, cracker shells, and a 12 gauge shotgun with plastic slugs. The use of any deterrent method will be reported to ENR. • Snow will be removed around buildings and work areas as necessary to increase visibility. • Adequate lighting will be installed in areas where it is essential to detect a wolverine and other wildlife that may be in the vicinity. • Camps and associated infrastructure will be designed to incorporate proper wildlife safety, including installing adequate lighting, incorporating proper waste management, cleaning and maintaining the kitchen and dining area, and wildlife detection. • No hunting by Highway construction and maintenance workers

TABLE 4.2.7-10: MITIGATION MEASURES FOR FURBEARERS AND FURBEARER HABITAT		
Project Activity	**Potential Effect**	**Mitigation Measures**
Waste Storage	Wildlife Attraction to Site and Waste Management	• Waste Management that minimizes and disposes of attractants to wildlife such as garbage, food wastes and other edible and aromatic substances will include the following measures: - Minimize and dispose of attractants to wildlife such as garbage, food wastes and other edible and aromatic substances. - Store all food and garbage in either: airtight sealed container, bear proof containers or in an enclosed bear proof area. - Store on-site grease, oils, fuels in bear-proof areas or containers. - No waste will be incinerated on- or off-site. Waste will be transported and disposed of at the Tuktoyaktuk and/or Inuvik municipal solid waste facilities in accordance with the municipalities' terms and conditions for usage of the facilities. The following will be identified: • List of hazardous, non-hazardous waste and any wastes of special concern, if any. • Waste types and volumes expected to be produced • List of storage and transport methods and disposal locations for these wastes. • List of odorous wastes that may attract wildlife, and the identification of its storage and method of transport to prevent wildlife attraction. • Indicate whether odorous waste is stored for the purpose of on- or off-site disposal (i.e. road or air transport).
Waste Storage	Wildlife incident or mortality: poorly secured waste can blow off site and pose risk of mortality to furbearers.	• All waste products will be properly secured, stored and transported. This includes the use of wildlife-proof storage containers that reduce odours at all times. • Waste removal crews will be sent out to areas surrounding each construction site to collect and properly dispose of any waste material that have blown off site.
Vehicle/ Equipment Use and Refueling	Spills or leaks may harm furbearers.	• Spill contingency plans will be implemented to prevent and address leaks and spills. • All vehicles and equipment will be refueled at least 100 m from waterbodies. • Equipment used in or near water will be clean and free of oil, grease or other deleterious substances. • In the event of a spill, all efforts will be made to properly contain and manage the spill. • All spills greater than 5 litres will be reported to the GNWT Spill Line and other appropriate agencies. • The spill area will be monitored closely and appropriate deterrents (e.g., warning noises, flagging) employed to discourage furbearers from entering the affected area.

TABLE 4.2.7-10: MITIGATION MEASURES FOR FURBEARERS AND FURBEARER HABITAT		
Project Activity	**Potential Effect**	**Mitigation Measures**
Mortality	Vehicular impacts and hunting.	• Furbearers will have the right-of-way at all times. • During construction, the presence of furbearers in the areas of construction and access roads will be communicated to other drivers. • Construction and maintenance vehicles will stop or reduce speeds when furbearers are on the road or near the road, respectively. • Vehicle speeds during construction and post construction will be regulated to reduce the potential of furbearer mortality due to collisions. • Furbearer advisory signs will be placed along the Highway, as needed. • No hunting by Highway construction and maintenance workers. • Any furbearer mortalities will be reported to ENR.

Source: Adapted from GNWT DOT (2009).

7.5.2 Residual Effects

The EIS provides a summary of residual effects for furbearers, including wolverines, and furbearer habitat in the LSA and RSA respectively. The loss of habitat due to the development of the proposed Highway is small (less than 0.1% of the RSA). In the context of both the LSA and the RSA, this amount of habitat loss is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low. At this time the amount of suitable wolverine and fox denning habitat (slopes with well drained soils) cannot be calculated as digital elevation model (DEM) data at the resolution required are not available. It is anticipated that these data (LiDAR) will be available prior to the detailed design phase of the Project.

Effects of habitat degradation, which is primarily related to reduction in food availability, is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low for both the LSA and RSA.

Disturbance from operational activities will be variable depending upon time of year but may influence individual furbearers in proximity to the proposed Highway. Disturbance will reduce habitat effectiveness adjacent to the proposed Highway. This is expected to affect wolverines more than foxes; regardless, the magnitude of habitat disruption is unknown. Disturbance will be limited only to those furbearers with territories adjacent to the construction activity and, to a lesser degree, the proposed Highway during operation.

With the application of mitigation measures, increased mortality as a result of the Highway is expected to be low in magnitude and local in extent, with isolated occurrences over the life of the Project for a consequence rating of low for both the LSA and RSA.

7.5.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WILDLIFE AND WILDLIFE HABITAT	
General	
[previously presented in Section 7.1.1]	

7.5.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Species at Risk and Species of Special Status or Management Concern	• Wildlife monitoring • Environmental monitoring	• Effects predictions • Common indicators used by existing wildlife monitoring programs	• Verify effects predictions and confirm the effectiveness of mitigation measures • Number observations of species at risk or species with special status/ management concern • Common parameters used by existing wildlife monitoring programs
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing wildlife monitoring programs

In addition, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted.

Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

For related agencies and organizations involved in monitoring, see Section 7.1.2.

7.6 Birds and Bird Habitat (Section 4.2.7.6 of the EIS)

7.6.1 Project Design and Mitigation Measures

The objectives of bird protection activities along the proposed Highway will be to mitigate potentially negative effects on birds in the following general ways:

- Minimize loss of habitat and reductions of habitat effectiveness via Project design;
- Survey material deposits in the summer (June-July) to document use by nesting birds, if any, occurring within the LSA and protect any active nest sites from excavation during periods of construction.
- Minimize direct mortality due to collisions with vehicles;
- Minimize attractants at camps through responsible waste management and effective environmental awareness programs;
- Minimize the volume, duration, and frequency of noise producing activities;
- Selective timing of Project activities to avoid critical periods for nesting birds;
- Conform with pre-determined setback distances from key wildlife habitat features;
- Ensure proper storage, transportation and disposal of wastes;
- Ensure Project personnel have appropriate levels of wildlife training and awareness; and
- Encourage agencies such as the HTCs, WMAC and GNWT ENR to work together to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities.

Table 4.2.7-13 presents the types of mitigation measures that will be integrated into the Project design, construction and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on birds.

In addition to Project mitigation measures, the WMAC, IGC and HTCs, could consider the establishment of a no-hunting zone along the proposed Highway as a public safety consideration to address human safety concerns that arise from hunting from roadways.

TABLE 4.2.7-13: MITIGATION MEASURES FOR BIRDS AND BIRD HABITAT		
Project Activity	**Potential Effect**	**Mitigation Measures**
Off-site Activities	Workers walking off-site may disturb nesting songbirds, shorebirds and waterfowl during the breeding season and cause nest abandonment and chick/egg mortality.	• Workers will not walk off-site onto the land at any time of year, unless there is a specific need (e.g., waste clean-up, emergency). • Planned activities will be scheduled to occur outside of peak breeding times. • All workers will be instructed not to disturb any birds or nests observed. • Workers will avoid conducting Project activities within 500 m of an active raptor nest during nesting season. • • Wildlife monitors will be on-site during construction to monitor bird and manage risks. • If a key nesting feature of a Species at Risk is discovered, both ENR and CWS will be contacted. Activities will be temporarily suspended pending consultation with these agencies.
Waste Storage	Poorly secured waste can blow off site and pose risk of mortality to nearby nesting or foraging songbirds, shorebirds and waterfowl.	• All waste products will be properly secured, stored and transported. • Waste removal crews will be sent to areas surrounding each construction site before the arrival of breeding birds in the spring to collect and properly dispose of any waste material that has blown off site.
Workers/ Vehicle/ Equipment Use	Interactions between birds and workers/equipment may cause incidents or mortality.	• During construction, the presence of birds on the proposed Highway is to be communicated to other drivers. • Construction and maintenance vehicles will stop or reduce speeds when birds are on the road or near the road, respectively. • Vehicle speeds during construction and post construction in strategic areas will be regulated to reduce the potential of bird mortality due to collisions. • Bird advisory signs will be placed along the Highway, as needed. • No hunting by Highway construction and maintenance workers.
Vehicle/ Equipment Use and Refueling	Spills or leaks may harm birds.	• Spill contingency plans will be implemented to prevent and address leaks and spills. • All vehicles and equipment will be refueled at least 100 m from waterbodies. • Equipment used in or near water will be clean and free of oil, grease or other deleterious substances. • In the event of a spill, all efforts will be made to properly contain and manage the spill. • All spills greater than 5 litres will be reported to the GNWT Spill Line and other appropriate agencies. • The spill area will be monitored closely and appropriate deterrents (e.g., warning noises, flagging) employed to discourage birds from entering the affected area.

TABLE 4.2.7-13: MITIGATION MEASURES FOR BIRDS AND BIRD HABITAT		
Project Activity	**Potential Effect**	**Mitigation Measures**
Construction	Structures erected during the nesting period could become potential habitat.	• Structures will be designed to minimize or prevent potential to be utilized as nesting structures. If nesting occurs they would not be disturbed until after the birds have left the area.
Construction	Active birds nests may be destroyed during borrow pit excavation in summer.	• Conduct pre-disturbance bird nest surveys June-July to document use by nesting birds in areas proposed for summer construction work.

Source: Adapted from GNWT DOT (2009).

Table 4.2.7-14 outlines mitigation measures for bird Species at Risk. Species that may occur within the Project corridor that are protected by SARA include the Eskimo curlew (listed as Endangered November 2009) (Government of Canada 2009). The Rusty Blackbird is listed by SARA as Special Concern (Schedule 1) (Government of Canada 2009). Species listed as Special Concern under Schedule 1 do not benefit from full legal protection under the Act. However a management plan for the conservation of the species of Special Concern and its habitat must be prepared within three years. The Short-eared Owl and Peregrine Falcon (*Falco peregrinus tundrius*) are listed by SARA as Special Concern (Schedule 3) and are not afforded protection under SARA (Government of Canada 2009).

Project activities have the potential to adversely affect these species through direct habitat loss, sensory disturbance and accidental mortality. The contractors will be required to employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of Highway construction and borrow source work. The mitigation measures outlined in Table 4.2.7-14 will be implemented in addition to Table 4.2.7-13 (Mitigation Measures for Birds) to mitigate potential effects on bird Species at Risk.

TABLE 4.2.7-14: SUMMARY OF MITIGATION MEASURES FOR BIRD SPECIES AT RISK		
Bird Species	**Activity/Potential Effect**	**Mitigation Measure**
Eskimo Curlew **Rusty Blackbird** **Short-eared Owl**	Birds may be at risk of mortality from leaks and spills.	• In the event of a spill, all efforts will be made to properly contain and manage the spill, including bird recovery and treatment if necessary.
	Nests may be abandoned due to disturbance from Project activities.	• Appropriate federal (CWS) and territorial (ENR) authorities will be contacted immediately before continuing work if a nest is identified within predetermined set-back distances (as determined through consultation with CWS/ENR).

TABLE 4.2.7-14: SUMMARY OF MITIGATION MEASURES FOR BIRD SPECIES AT RISK		
Bird Species	**Activity/Potential Effect**	**Mitigation Measure**
Peregrine Falcon	Birds can collide with wires, especially during the migration period.	• Guy wires will not be used.
	Lights can attract birds at night, especially during the migration period, resulting in injury or mortality.	• Lights will be positioned to shine down or fixed with shielding to direct light downward on buildings and other infrastructure sites, wherever possible. Lights will be turned off, whenever possible (e.g., when personnel are not at camps or other facilities).
	Disturbance to Peregrine Falcon nesting during construction or borrow source activities.	• An aerial survey will be conducted along the final route and proposed borrow sources to determine if nests are present. • Appropriate federal (CWS) and territorial (ENR) authorities will be contacted immediately before continuing work if a Peregrine Falcon nest is identified within predetermined set-back distances (as determined through consultation with CWS/ENR).

7.6.2 Residual Effects

The loss of bird habitat due to the development of the proposed Highway is small (less than 0.10% of the RSA). In the context of both the LSA and the RSA, this amount of habitat loss is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low. Careful planning and design of the Highway corridor to avoid habitats such as wetlands where waterfowl and other wildlife are known to congregate will mitigate impacts on waterfowl populations.

Effects of habitat degradation, which is primarily related to reduction in food and nest site availability, is considered low in magnitude, local in extent and lasting the life of the Project resulting in a consequence rating of low for both the LSA and RSA.

Disturbance from operational activities will be variable depending upon species and time of year but will, regardless, influence bird behaviour and energy budgets. Disturbance will be limited to only those birds immediately adjacent to the proposed Highway and thus a very small fraction of the surrounding population. The net habitat and disturbance effects from the proposed development are expected to apply only to the local individuals and are therefore low in consequence at the local population level with no residual effects.

The majority of construction for the proposed Highway and excavation of the associated borrow sources will occur during the winter period, a time when few birds, are present. Consequently, impacts from construction activities will be mainly temporary and limited.

With the application of mitigation measures, increased mortality as a result of the Highway is expected to be low in magnitude and local in extent, with isolated occurrences over the life of the Project for a consequence rating of low for both the LSA and RSA.

7.6.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
WILDLIFE AND WILDLIFE HABITAT	
General	
[previously presented in Section 7.1.1]	
Types of Mitigation Measures for Birds	
Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on birds include: -Conducting pre-disturbance bird nest surveys in June-July to document use by nesting birds; -Avoiding conducting Project activities within 500 m of an active raptor nest during nesting season; -Designing structures in a way that limits or prevents their potential use as nesting structures; and -Allowing nesting birds who have utilized structures to remain in place.	Design, Construction
Types of Mitigation Measures for Peregrine Falcons	
The Developer will incorporate the following mitigation measures for Peregrine Falcons including: -Lights will be positioned to shine down or will be fixed with shielding to direct light downward on buildings and other infrastructure sites, wherever possible; -Lighting will be switched off, whenever possible (i.e., when camps and facilities are not in use); -Conducting an aerial survey of the final alignment and borrow sources to identify areas where Peregrine Falcons could be nesting that may require mitigation; and -Appropriate federal (CWS) and territorial (GNWT ENR) authorities will be contacted immediately before continuing work if a Peregrine Falcon nest is identified within predetermined set-back distances (as determined through consultation with CWS/ENR).	Design, Construction
Types of Mitigation Measures for Bird Species At Risk	
The Developer will incorporate additional mitigation measures for bird Species at Risk including: -Immediately contacting appropriate federal (CWS) and territorial (GNWT ENR) authorities if a nest of a key bird species is identified within predetermined set-back distances (as determined through consultation with CWS/ENR).	Construction

7.6.4 Proposed Effects Monitoring

Monitoring related to harvesting of wildlife (including birds) is identified in Table 4 of the Addendum, reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing wildlife monitoring programs

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring and compliance monitoring that will be conducted. Environmental and wildlife monitoring (during the construction phase) will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Compliance monitoring will be carried out to the extent, frequency and duration required by regulators and according to the results of baseline surveys and specific management plans. Generally, compliance monitoring will be conducted on a part-time basis unless activities are occurring in a sensitive area.

For related agencies and organizations involved in monitoring, see Section 7.1.2.

HUMAN ENVIRONMENT

8.0 Demographics (Section 4.3.1 of the EIS)

8.1 Project Design and Mitigation Measures

The community populations in the Project area are not anticipated to increase to any great extent as a result of the Highway construction and operation. The Developer is committed to hiring local, regional, and NWT residents, where possible, to fill construction and operations positions, and anticipates that the majority of the labour supply will come from the communities of Tuktoyaktuk and Inuvik. In past years, many Inuvialuit have moved away from the ISR to other regions for employment opportunities. During the Tuktoyaktuk to Source 177 Access Road construction, approximately 70% of the workers were from local communities. It is estimated that with additional training, a similar percentage may be achieved for the Inuvik to Tuktoyaktuk Highway.

Government agencies and Inuvialuit organizations responsible for education, housing and other infrastructure regularly assess and document demographic trends in ISR communities, and are discussed further in Section 8.4 (Proposed Effects Monitoring) of this document.

The Developer and/or its contractors will publicize employment opportunities and hiring procedures through the Inuvialuit Regional Corporation and the local community corporations.

8.2 Residual Effects

Negligible changes regarding in/out migration are anticipated. During construction, the Developer is committed to hiring local and regional residents and businesses, which should alleviate the potential for in-migration into the communities.

During the operations phase, the completed Highway will increase accessibility to the Hamlet of Tuktoyaktuk. Although the population of Tuktoyaktuk has been slowly decreasing since 1996, it is possible that once the Highway is established, Tuktoyaktuk could maintain or increase its population (GNWT Bureau of Statistics 2009a).

In Inuvik, the population has steadily increased since 1996, and is projected to continue to increase in the future (GNWT Bureau of Statistics 2009b). The Highway is not likely to significantly affect Inuvik's projected growth rate. A minimal increase may occur as a result of in-migration of Tuktoyaktuk residents seeking employment, or from a potential increase in attendance at Aurora College by Tuktoyaktuk residents taking advantage of the improved accessibility.

8.3 Relevant Developer Commitments

The Developer is committed to hiring local, regional, and NWT residents, where possible, to fill construction and operations positions, and anticipates that the majority of the labour supply will come from the communities of Tuktoyaktuk or Inuvik.

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
SOCIO-ECONOMIC	
The Developer is committed to conforming to the relevant economic measures of the Inuvialuit Final Agreement (IFA).	Design, Construction, Operations
The Developer is committed to preferential employment opportunities for qualified local residents and contractors.	Construction, Operations
The IRC's ***Inuvialuit Business List Policy*** will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List.	Construction, Operations
The Developer and Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.	Construction
MONITORING	
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

8.4 Proposed Effects Monitoring

The following monitoring program was proposed by the Developer in Section 7.2.1 (Socio-economic Monitoring) of the EIS for the construction phase. The relevant components of Section 7.2.1 are restated as follows.

The Developer will require the contractor(s) to report on various parameters related to their activities. Parameters include:

- ISR hiring/contract preferences;
- Employment:
  - Number of workers employed;
  - Employee gender;
  - Location of employee residence; and
  - Wages paid.
- Training:
  - Types of training provided;
  - Number of employees trained;
  - Employee gender; and
  - Location of employee residence.

The Developer is willing to provide this information to related monitoring programs, upon request.

Demographics are monitored at the federal level by Statistics Canada, the territorial level by the GNWT Bureau of Statistics, and the regional level by the Inuvialuit Regional Corporation:

- Statistics Canada
  - Legislated to provide statistics for the whole of Canada and each of the provinces and territories
  - Conducts a census every five years
- NWT Bureau of Statistics
  - Develops, interprets and disseminates those economic, social and demographic statistics required by the territorial government
  - Implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies
  - Coordinates statistical activities within the government
  - Provides for the continuing and effective representation of territorial statistical interests within the national statistical system
  - Provides a limited statistical service to the general public, to the private sector, and to other governments
- Inuvialuit Regional Corporation
  - Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics

9.0 Regional and Local Economies (Section 4.3.2 of the EIS)

9.1 Contribution to Gross Domestic Product and Direct Taxes (Section 4.3.2.1 of the EIS)

9.1.1 Project Design and Mitigation Measures

It is anticipated that local and regional suppliers, contractors and residents will be able to provide the majority of construction related services. However, as necessary, some of the services may be sourced from outside the region. The Developer is committed to preferential employment opportunities for qualified local residents and contractors. The implementation of focused socio-economic measures will be the responsibility of the Developer and on-site contractors.

The Developer and/or its contractors will publicize employment opportunities and hiring procedures through the Inuvialuit Regional Corporation and the local community corporations.

9.1.2 Residual Effects

The effects of the Highway are anticipated to occur during both the construction and operations phases and to have both direct and indirect significant beneficial effects. *Direct effects* include the employment created and the goods and services required by the Highway's construction. These effects are associated with supplying major Project components and direct capital outlays by construction contractors. *Indirect effects* are the "ripple effect" of secondary employment and purchases. These effects are associated with the companies that supply goods and services to construction contractors. *Induced effects* are tertiary in nature (e.g., the Developer/contractors will pay construction employees' salaries, which are re-spent in the economy generating further economic activity in sectors such as retail, restaurants etc.).

The construction and operation of the Highway is expected to have a net positive economic impact in the region. Residual effects of the Project are anticipated throughout the construction phase when labour demand, capital expenditure and economic stimulus will be greatest. The increased positive economic effects during construction will be significant over the short term (i.e., primarily limited to the estimated four-year construction period and greatest during the winter construction months).

During the operations phase there will be more limited continued employment opportunities and labour benefits as well as maintenance expenditures. Residual effects of increased tourism and increased standard of living are also likely. These effects will be long term but of lesser magnitude than those of the construction phase.

Although the initial construction of the Highway is expected to cost the Federal and Territorial government about $230 million, after subtracting the increase in government revenues (approximately $47 million) resulting from the existence of the Highway, the net cost to the Federal and Territorial government will be in the order of $183 million ($230 million minus total tax revenues of $47 million). When all of the economic spin-offs (direct, indirect and induced impacts) are accounted for over the 45-year life of the Highway, this capital investment is expected to create about $248 million in net purchases of goods and

services (e.g., material inputs) in the NWT and an additional $97 million in the rest of Canada (GNWT DOT 2010a).

The revenues generated from Highway construction will translate into a net increase in gross domestic product (GDP) in the NWT of about $186 million and an increase in GDP in the rest of Canada of about $84 million. Highway construction is projected to create 1,086 one-time jobs in the NWT and another 860 one-time jobs in the rest of Canada. In addition, Highway construction is expected to create 42 long-term jobs in the NWT and another nine in the rest of Canada. Building the Highway is predicted to earn the Federal and Territorial governments almost $36 million from activities in the NWT and an additional $11 million accruing to governments in the rest of Canada (GNWT DOT 2010a).

Furthermore, GNWT DOT (2010) estimates that the total number of tourists to visit the Inuvik-Beaufort-Delta region would increase by about 10% to 5,500 tourists per year with the completion of the Highway. These additional visitors are anticipated to spend an additional $1,467,500 in the region.

The Highway is expected to contribute to a reduction in the cost of shipping goods to Tuktoyaktuk. Lower prices mean residents will be able to buy more goods with the same amount of income, thereby effectively increasing their standard of living. GNWT DOT (2010a) calculated an overall savings of $1.0 million to local residents as a result of the Highway being constructed (excluding extra vehicle costs), including savings from the Food Mail Program.

When the GNWT DOT (2010a) conducted an analysis of the proposed Mackenzie Gas Project, they concluded that constructing the Highway would not significantly affect the overall cost of the pipeline but that some savings could be realized in future exploration and development.

Building the Highway will eliminate the need to construct the winter road to Tuktoyaktuk each year. There will be cost savings and a reduction in economic activity associated with the purchase of goods, services, and the hiring of labour for the annual construction and maintenance of the winter road. Furthermore, the air transport industry may see a loss of revenue since goods would be increasingly transported by truck once the Highway is constructed.

Overall, no significant net adverse economic effects are anticipated because of this Project. Economic effects will generally increase to the benefit of the region with large magnitude and short duration during construction and with smaller magnitude and longer duration benefits continuing to occur during the long term operation of the Highway.

9.1.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
SOCIO-ECONOMIC	
The Developer is committed to conforming to the relevant economic measures of the Inuvialuit Final Agreement (IFA).	Design, Construction, Operations
The Developer is committed to preferential employment opportunities for qualified local residents and contractors.	Construction, Operations
The IRC's ***Inuvialuit Business List Policy*** will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List.	Construction, Operations
The Developer and Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.	Construction
MONITORING	
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

9.1.4 Proposed Effects Monitoring

Contribution to GDP and Direct Taxes is related to aspects of the Tourism, Commercial and Public Recreational Use Valued Component. The following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Tourism, Commercial and Public Recreational Use	• Socio-economic monitoring	• Change in tourism, commercial and recreational businesses and revenues	• Number of tourists • Amount spent by tourists • Number and types of businesses operating in Inuvik and Tuktoyaktuk • Household consumption expenditure for commercial and recreational use • Land used for recreation • Highway traffic trends • Number of complaints from local co-management agencies

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Canadian Northern Economic Development Agency (CanNor)
  - Administers funding for northern development (e.g., funded early feasibility studies related to the Inuvik to Tuktoyaktuk Highway)
  - Funds capacity building, planning, and business development in the communities
- GNWT Transportation
  - Plans, designs, constructs or reconstructs, acquires, operates and maintains public transportation infrastructure in the Northwest Territories, including community airports, docks and the highway system
  - Regulates and licenses individuals and vehicles operating in the Northwest Territories
  - Responsible for setting contracts related to maintenance of the public roads
- GNWT Industry, Tourism & Investment
  - Partners with local government and the IRC to provide programs and services that promote and support NWT economic prosperity and community self-reliance
  - Funds entrepreneurial pursuits
- GNWT Public Works & Services
  - Meets economic measures provisions in IFA to issue preferential contracting policies and procedures intended to maximize, local, regional and northern employment and business opportunities in the ISR
- NWT Bureau of Statistics
  - Develops, interprets and disseminates those economic, social and demographic statistics required by the territorial government
  - Implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies
  - Coordinates statistical activities within the government
  - Provides for the continuing and effective representation of territorial statistical interests within the national statistical system
- Municipal Governments - Town of Inuvik & Hamlet of Tuktoyaktuk
  - Responsible for the delivery and operation of public services
- Inuvialuit Regional Corporation
  - Receives and manages IFA benefits and revenues
  - Funds Inuvialuit programs delivered through the various corporations
  - Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics
- Inuvialuit Development Corporation
  - Invests in over 20 Inuvialuit companies with complementary industries and visions
  - For business purposes, each Community Corporation [including Inuvik and Tuktoyaktuk] owns a Development Corporation

9.2 Available Labour Supply, Participation, and Income Assistance (Section 4.3.2.2 of the EIS)

9.2.1 Project Design and Mitigation Measures

The Developer is committed to ensuring that the people of Tuktoyaktuk and Inuvik have preferential employment opportunities to provide employment benefits to the region. The IRC's ***Inuvialuit Business List Policy*** will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List. This will help to provide economic stimulus to the Inuvialuit community. Furthermore, employment opportunities will be available to all residents, male or female, and will result in increased seasonal employment during construction.

The Developer will work with local academic institutions in the design of short-duration, skill-based training courses for Inuvialuit beneficiaries and other northern residents to improve job readiness, expand the available labour pool and enhance local skill capacity.

The Developer and/or its contractors will publicize employment opportunities and hiring procedures through the Inuvialuit Regional Corporation and the local community corporations.

9.2.2 Residual Effects

During the Tuktoyaktuk to Source 177 Access Road construction, approximately 70% of the workers were from local communities. With additional training, a similar hiring percentage may be achieved for the Inuvik to Tuktoyaktuk Highway based on the available labour pool. According to GNWT DOT (2010a), approximately 670 direct NWT jobs will be created during the construction phase and a further 33 direct NWT jobs will be needed during the operations phase. The indirect and induced jobs created in NWT and the rest of Canada are approximately 1,300 during construction and approximately 19 during operations.

The construction-related effects of direct and indirect employment for the Highway Project include reduced unemployment in the region, increased participation, decreased number of people on income assistance and decreased available labour supply.

The outlook for the development of the proposed Mackenzie Gas Project is yet unknown, and since there are no other potential projects in the region, a decreased available labour supply is not anticipated to affect any other developments or create competition during the proposed construction timeframe (2012-2016).

Employment opportunities associated with Highway construction and operation will provide greater social stability in the region, new skills, and more construction-related experience, likely resulting in increased incomes and less reliance on income assistance.

9.2.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
SOCIO-ECONOMIC	
The Developer is committed to conforming to the relevant economic measures of the Inuvialuit Final Agreement (IFA).	Design, Construction, Operations
The Developer is committed to preferential employment opportunities for qualified local residents and contractors.	Construction, Operations
The IRC's ***Inuvialuit Business List Policy*** will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List.	Construction, Operations
The Developer and its Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.	Construction
MONITORING	
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

9.2.4 Proposed Effects Monitoring

The following monitoring program was proposed in Section 7.2.1 (Socio-economic Monitoring) of the EIS for the construction phase. The relevant components of Section 7.2.1 are restated as follows.

The Developer will require the contractor(s) to report on various parameters related to their activities. Parameters include:

- ISR hiring/contract preferences;
- Employment:
  - Number of workers employed;
  - Employee gender;
  - Location of employee residence; and
  - Wages paid.
- Training:
  - Types of training provided;
  - Number of employees trained;
  - Employee gender; and
  - Location of employee residence.

The Developer is willing to provide this information to related monitoring programs, upon request.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Canadian Northern Economic Development Agency (CanNor)
  - Funds capacity building, planning, and business development in the communities
- Human Resources and Skills Development Canada (Service Canada)
  - Supports Aboriginal career training and human resource capacity building under the Aboriginal Human Resources Development Agreement (AHRDA)
- GNWT Education, Culture & Employment
  - Provides income security programs including Child Care User Subsidy (CCUS), Income Assistance (IA), NWT Child Benefit/ Territorial Workers' Supplement (NCB/TWS), NWT Senior Citizen Supplementary Benefit (SCSB), Senior Home Heating Subsidy (SHHS), and Student Financial Assistance (SFA)
  - Provides career development services that enhance employability of the local workforce
  - Partners with local organizations and the IRC to deliver programs and services that meet identified labour market needs
- GNWT Industry, Tourism & Investment
  - Partners with local government and the IRC to provide programs and services that promote and support NWT economic prosperity and community self-reliance
  - Funds local wildlife committees, Take a Kid Hunting/Trapping programs, and entrepreneurial pursuits
- GNWT Public Works & Services
  - Meets economic measures provisions in IFA to issue preferential contracting policies and procedures intended to maximize, local, regional and northern employment and business opportunities in the ISR
- NWT Bureau of Statistics
  - Develops, interprets and disseminates those economic, social and demographic statistics required by the territorial government
  - Implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies
  - Coordinates statistical activities within the government
  - Provides for the continuing and effective representation of territorial statistical interests within the national statistical system
- Inuvialuit Regional Corporation
  - Receives and manages Inuvialuit Final Agreement (IFA) benefits and revenues
  - Funds Inuvialuit programs delivered through the various corporations
  - Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics
- Inuvialuit Development Corporation
  - Invests in over 20 Inuvialuit companies with complementary industries and visions
  - For business purposes, each Community Corporation [including Inuvik and Tuktoyaktuk] owns a Development Corporation

10.0 Education, Training and Skills (Section 4.3.3 of the EIS)

10.1 Education and Training Participation Levels (Section 4.3.3.1 of the EIS)

10.1.1 Project Design and Mitigation Measures

The Developer is committed to hiring workers from Tuktoyaktuk and Inuvik, where possible, which may provide an incentive for local residents to participate in training programs.

In anticipation of upcoming construction work, residents seeking employment may enrol in applicable training programs at Aurora College. As well, several training programs were set up specifically for the construction of the Tuktoyaktuk to Source 177 Access Road and similar training programs will be made available in association with this Project. For example, the contractor conducted a successful heavy equipment operator course while the ILA sponsored an environmental monitor training program. Training local residents will benefit the region since it will contribute to an overall improvement in the skills and capabilities of the local workforce. Enrolment in training and employment programs would depend on the level of interest generated from community members.

The Developer and its contractors will work with local academic institutions in the design of short-duration, skill-based courses for Inuvialuit beneficiaries and other northern residents to improve job readiness, expand the available labour pool and enhance local skill capacity.

10.1.2 Residual Effects

Project-related training programs will benefit local residents and the region since they will contribute to an overall improvement in the skills and capabilities of the local workforce.

Furthermore, the proposed Highway will create year-round access for Tuktoyaktuk residents to access and attend Aurora College and other institutions offering training and educational opportunities, which may contribute to a future increase in the level of education for some Tuktoyaktuk residents.

10.1.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
SOCIO-ECONOMIC	
The Developer and its Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.	Construction
The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions).	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will require that its contractor(s) educate their staff on the prevention of accidents and malfunctions. The training received will be outlined for the Developer, including emergency spill response.	Construction
MONITORING	
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

10.1.4 Proposed Effects Monitoring

The following monitoring program was proposed in Section 7.2.1 (Socio-economic Monitoring) of the EIS for the construction phase. The relevant components of Section 7.2.1 are restated as follows.

The Developer will require the contractor(s) to report on various parameters related to their activities. Parameters include:

- Training:
  - Types of training provided;
  - Number of employees trained;
  - Employee gender; and
  - Location of employee residence.

The Developer is willing to provide this information to related monitoring programs, upon request.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Canadian Northern Economic Development Agency (CanNor)
  - Funds capacity building, planning, and business development in the communities
- Human Resources and Skills Development Canada (Service Canada)
  - Supports Aboriginal career training and human resource capacity building under the Aboriginal Human Resources Development Agreement (AHRDA)
- GNWT Education, Culture & Employment
  - Develops programs for cultural, heritage and language education, early childhood through to post-secondary education, and career development
  - Supports the territorial literacy strategy, including community-based literacy projects
  - Aboriginal Languages Plan with the goal to increase the number of Aboriginal language speakers by 20 per cent
  - Funds educational, cultural, language, career development and industry training programs

- Provides transfer of federal funds to IRC for programs, such as Brighter Futures
- Provides career development services that enhance employability of the local workforce
- Partners with local organizations and the IRC to deliver programs and services that meet identified labour market needs

- GNWT Education, Culture & Employment – Prince of Wales Northern Heritage Centre
  - Provides programs that promote the protection and management of archaeological sites in the Northwest Territories, including participating in regulatory processes that control land use activities that threaten archaeological sites, and regulating archaeological investigations
- Beaufort-Delta Divisional Education Council
  - Responsible for the operation and administration of schools within the division, implementing curriculum, managing personnel, enrolling students, and initiating proposals for new construction or other major capital expenditures
- Aurora College
  - Offers literacy outreach, college-level education and upgrading services in the ISR, such as Adult Literacy and Basic Education, Aboriginal language instructor training, business administration and other certificate, diploma and degree programs
  - Provides an Inuvik regional campus and Community Learning Centres in Tuktoyaktuk and other communities in the region
- Aurora Research Institute – Inuvik Research Centre
  - Supports and tracks social and environmental research
  - Provides laboratory including laboratory and logistical support
  - Maintains a library to support research
  - Issues research licences
  - Participates in NWT Environmental Contaminants Committee
- GNWT Industry, Tourism & Investment
  - Partners with local government and the IRC to provide programs and services that promote and support NWT economic prosperity and community self-reliance
  - Funds local wildlife committees, Take a Kid Hunting/Trapping programs, and entrepreneurial pursuits
- NWT Bureau of Statistics
  - Develops, interprets and disseminates those economic, social and demographic statistics required by the territorial government
  - Implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies
  - Coordinates statistical activities within the government
  - Provides for the continuing and effective representation of territorial statistical interests within the national statistical system
- Inuvialuit Regional Corporation
  - Receives and manages Inuvialuit Final Agreement (IFA) benefits and revenues
  - Funds Inuvialuit programs delivered through the various corporations

- Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics

10.2 Language and Literacy Levels (Section 4.3.3.2 of the EIS)

10.2.1 Project Design and Mitigation Measures

The Developer is committed to hiring workers from Tuktoyaktuk and Inuvik, where possible. Therefore, the construction of the Highway is not expected to affect the use of indigenous languages and dialects spoken in the ISR (Inuvialuktun, Siglitun and Uummarmiutun).

Several programs are currently offered in the region to improve literacy. In January 2001, the Government of the Northwest Territories (GNWT) approved Towards Literacy: A Strategy Framework (2001-2005), to fund several literacy initiatives in the NWT. Aurora College, offers Adult Basic Education (ABE) or Adult Literacy and Basic Education (ALBE) programs in Tuktoyaktuk and Inuvik (Aurora College 2009). The Northwest Territories Literacy Council works with individuals and families to promote literacy in all of the official languages of the NWT (NWTLC ND).

The Highway will provide Tuktoyaktuk residents with better access to language and literacy classes, higher levels of education, and cultural events taking place in the region.

10.2.2 Residual Effects

The proposed Highway will make it easier for interested residents of Tuktoyaktuk to access and attend classes at Aurora College and other institutions offering language and literacy skills.

10.2.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
SOCIO-ECONOMIC	
The Developer is committed to preferential employment opportunities for qualified local residents and contractors.	Construction, Operations
The IRC's ***Inuvialuit Business List Policy*** will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List.	Construction, Operations
The Developer and Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.	Construction
MONITORING	
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

10.2.4 Proposed Effects Monitoring

Several agencies and/or organizations have existing responsibilities related to language and literacy, identified as follows:

- GNWT Education, Culture & Employment
  - Develops programs for cultural, heritage and language education, early childhood through to post-secondary education, and career development
  - Supports the territorial literacy strategy, including community-based literacy projects
  - Aboriginal Languages Plan with the goal to increase the number of Aboriginal language speakers by 20 per cent
  - Funds educational, cultural, language, career development and industry training programs
  - Provides career development services that enhance employability of the local workforce
  - Partners with local organizations and the IRC to deliver programs and services that meet identified labour market needs
- Beaufort-Delta Divisional Education Council
  - Responsible for the operation and administration of schools within the division, implementing curriculum, managing personnel, enrolling students, and initiating proposals for new construction or other major capital expenditures
- Aurora College
  - Offers literacy outreach, college-level education and upgrading services in the ISR, such as Adult Literacy and Basic Education, Aboriginal language instructor training, business administration and other certificate, diploma and degree programs
  - Provides an Inuvik regional campus and Community Learning Centres in Tuktoyaktuk and other communities in the region
- NWT Bureau of Statistics
  - Develops, interprets and disseminates those economic, social and demographic statistics required by the territorial government
  - Implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies
  - Coordinates statistical activities within the government
  - Provides for the continuing and effective representation of territorial statistical interests within the national statistical system
- Inuvialuit Regional Corporation
  - Receives and manages Inuvialuit Final Agreement (IFA) benefits and revenues
  - Funds Inuvialuit programs delivered through the various corporations
  - Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics

11.0 Infrastructure and Institutional Capacity (Section 4.3.4 of the EIS)

11.1 Transportation Infrastructure (Section 4.3.4.1 of the EIS)

11.1.1 Project Design and Mitigation Measures

The Project will significantly improve ground transportation infrastructure between Inuvik and Tuktoyaktuk enabling easier year-round transportation of goods, services, and people between communities and throughout the region, and improving access to health and social services. The Highway will also facilitate commercial and recreational access to the region and will link the Dempster Highway to the Beaufort Sea coast, thereby enabling travellers to drive between Canada's west, east and north coasts. Additional positive effects are anticipated related to increased tourism, cheaper goods and services, and less need for inventory storage.

Negative effects are anticipated for the airline and barge service industry once the Highway is operational; however, additional business opportunities will likely be created over the long term in these sectors through increased tourism and/or industry opportunities.

The proposed Highway will not affect navigable waters.

Mitigation measures primarily relate to educating and training workers to transfer skills into new industries, if needed. Government agencies and Inuvialuit organizations responsible for education and training are discussed in Section 10.1.4 (Proposed Effects Monitoring) of this document.

11.1.2 Residual Effects

The proposed Highway is anticipated to positively affect the communities of Tuktoyaktuk and Inuvik by creating year-round access between these communities, which ultimately provides long-term cost-savings and other benefits.

11.1.3 Relevant Developer Commitments

The Developer has not made specific commitments for this component, other than conducting annual traffic counts of the Highway's use.

11.1.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing fish and wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of fish, wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing fish and wildlife monitoring programs

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Infrastructure Canada
  - Manages infrastructure programs including funding of the federal capital expenditures for the project
- Canadian Northern Economic Development Agency (CanNor)
  - Administers funding for northern development (e.g., funded early feasibility studies related to the Inuvik to Tuktoyaktuk Highway)
  - Funds capacity building, planning, and business development in the communities
- Transport Canada
  - The Navigable Waters Protection Program (NWPP) ensures the public's right to navigate Canada's waters without obstruction through the administration of the *Navigable Waters Protection Act* (NWPA), a federal law designed to protect the public right of navigation.
  - In order to minimize impacts to navigation, the NWPP ensures that works constructed in navigable waterways are reviewed and regulated for works built in, on, over, under, through or across navigable water in Canada prior to construction of work(s).
- GNWT Transportation
  - Plans, designs, constructs or reconstructs, acquires, operates and maintains public transportation infrastructure in the Northwest Territories, Regulates and licenses individuals and vehicles operating in the Northwest Territories
  - Commercial vehicle inspections including enforcement of *Transportation of Dangerous Goods Act*
  - Responsible for setting contracts related to maintenance of the public roads
- GNWT Public Works & Services

- Meets economic measures provisions in IFA to issue preferential contracting policies and procedures intended to maximize, local, regional and northern employment and business opportunities in the ISR
- Responsible for community re-supply (fuel, social housing packages, community infrastructure)

11.2 Emergency Response and Local Law Enforcement Services (Section 4.3.4.2 of the EIS)

11.2.1 Project Design and Mitigation Measures

During construction, seasonal camps and associated camp infrastructure will be designed to incorporate bear safety considerations, including installing adequate lighting, incorporating proper waste management, cleaning and maintaining the kitchen and dining area, and wildlife detection. The Developer is committed to ensuring that appropriate health and safety measures are in place to minimize the need for emergency response.

During the operations phase, the Highway will be a public, all-weather highway under the management and operation of the Government of Northwest Territories Department of Transportation. This will allow year-round use by haul trucks and passenger vehicles according to the size and weight limitations as defined in the Northwest Territories Public Highways Act. The posted speed limit on the Highway will be 80 km/hr. The Highway will be a two lane gravel roadway (8 to 9 m wide with 3:1 sideslopes) with short-span, single-lane bridges at major stream crossings.

The potential adverse effects on public safety are specifically defined by the risk of collision. The design incorporates minimum requirements for vertical and horizontal curvature (i.e., how steep the grades can be, how tight the curves can be and how far ahead a driver must be able to see, etc.). All three routes initially considered meet or exceed the minimum design criteria or requirements established based on the future operation of the Highway. However, a designer's job is to balance risk with economics and, where economically practical, the designer will provide a highway that is better than the minimum requirements to reduce the risk of collisions in the future.

No issues were identified with the level of emergency and law enforcement services available during the winter road operation; however, emergency response levels should be monitored and assessed by GNWT Health and Social Services during the operational phase of the Highway. Emergency response is currently offered through the Inuvik and Tuktoyaktuk Fire Departments and the RCMP.

The Inuvik Fire Department is in the process of purchasing a new heavy rescue vehicle specifically for highway response. In Tuktoyaktuk, there is a volunteer Fire Department but no trained emergency technicians or ambulance service.

The RCMP will patrol the Highway, similar to their responsibilities in other jurisdictions in Canada. The effects on RCMP staffing levels are anticipated to be minimal.

11.2.2 Residual Effects

The Highway is not anticipated to materially affect emergency response and local law enforcement capabilities.

11.2.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
SOCIO-ECONOMIC	
The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions).	Construction
The Developer commits to ensuring that its contractor(s) have Health, Safety and Environment (HSE) manuals; work procedures documents; and site-specific health and safety plans.	Design, Construction
OPERATIONS	
The Developer, using local contractors, will be responsible for ongoing operation, maintenance, and safety of the Highway.	Operations
MANAGEMENT PLANS	
An Environmental Management Plan (EMP) will be prepared prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.	Construction
The EMP will contain the following types of plans: -Health and safety; [*items not relevant to medical and health care infrastructure have been removed for brevity*] Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
WILDLIFE AND WILDLIFE HABITAT	
General	
The Developer or its contractor(s) will follow established ***Bear Safety Guidelines*** and will educate staff accordingly.	Design, Construction
The Developer's contractor(s) will be responsible for educating and training staff on applicable practices contained within the Wildlife Management Plans and the ***Bear Safety Guidelines***, including the proper use of non-lethal wildlife deterrent materials (e.g., bear spray).	Construction
Camps and associated infrastructure will be designed to incorporate features that ensure safety for both personnel and wildlife, including installing adequate lighting, implementing proper waste management, cleaning and maintaining the kitchen and dining area, and implementing appropriate wildlife detection and deterrent strategies.	Design, Construction
All wildlife encounters and mortalities will be reported to the environmental monitor, Safety Advisor, and GNWT ENR	Design, Construction, Operations

11.2.4 Proposed Effects Monitoring

Although the emergency response anticipated for the Highway is limited to potential collisions or spills, several agencies and/or organizations have responsibilities related to emergency response, ranging from wildlife management to domestic violence. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Environment Canada
  - Co-chairs *Northwest Territories/Nunavut Spills Working Agreement*
- Public Safety Canada - Royal Canadian Mounted Police (RCMP)
  - Provides a full range of law enforcement and community policing services in communities of Tuktoyaktuk and Inuvik under *Territorial Police Service Agreement* between Canada and GNWT
  - Has the authority to enforce measures under the *Northwest Territories Liquor Act* and the *Criminal Code of Canada*
  - Provides enforcement of *Public Highway Act* and emergency response coordination
  - Work in concert with the Government of the Northwest Territories in the areas of alcohol and drug education, such as, the NWT Drug Strategy Program and the Drug and Alcohol Resistance Education Program
- GNWT Education, Culture & Employment
  - Delivers and/or supports a range of services through the shelter network, including victims' services and family violence services and supports from Health and Social Services and Justice
- GNWT Environment & Natural Resources – Environment Division
  - Co-chairs Northwest Territories/Nunavut Spills Working Agreement
  - Lead agency responsible for ensuring that a spill is investigated, and that adequate follow-up and monitoring takes place by the polluter for Spills on Commissioner's Land, Territorial Highways, GNWT Communities in NWT, with exceptions explained in the Agreement
- GNWT Environment & Natural Resources - Forest Management
  - Provides wild fire protection services including prevention education
- GNWT Health & Social Services
  - Plans and funds the delivery of health and social services under an Integrated Service Delivery Model.
  - Protects children and vulnerable individuals from abuse, neglect, and distress; and
- Justice
  - Overall responsibility for administration of justice and public safety including courts, corrections and community justice
  - Provides policing services through *Territorial Police Service Agreement* between Canada and GNWT. The contract has specific provisions relating to standards of policing services and a process for adjusting resources within detachments
  - Works closely with the RCMP "G" Division to identify appropriate resources and services required
  - Collaborates with other social programming departments on key initiatives such as drug and alcohol use prevention

- Municipal & Community Affairs
  - Services offered include land administration, office of the fire marshal, emergency management, consumer affairs, licensing, legislation, sport, recreation, youth, volunteerism, and community governance support and advice
  - Provides funding to community governments for core municipal services such as water, sewage, garbage, municipal roads and by-law enforcement.
- Municipal Governments - Town of Inuvik & Hamlet of Tuktoyaktuk
  - Responsible for the delivery and operation of public services
  - Create and enforce community by-laws

11.3 Medical and Health Care Infrastructure and Services (Section 4.3.4.3 of the EIS)

11.3.1 Project Design and Mitigation Measures

Similar to Emergency Response and Local Law Enforcement Services, the Developer is committed to implementing several health and safety features during the construction and operations phase to minimize any potential effects on the medical and health care infrastructure.

During construction, camps and associated infrastructure will be designed to incorporate bear safety considerations, including installing adequate lighting, incorporating proper waste management, cleaning and maintaining the kitchen and dining area, and wildlife detection. The Developer is committed to ensuring that several health and safety measures are in place to avoid the need for emergency response.

During the operations phase, the Highway will be a public, all-weather highway under the management and operation of the Government of Northwest Territories Department of Transportation. This will allow year-round use by haul trucks and passenger vehicles according to the size and weight limitations as defined in the Northwest Territories Public Highways Act. The posted speed limit on the Highway will be 80 km/hr. The Highway will be a two lane gravel roadway (8 to 9 m wide with 3:1 sideslopes) with short span single lane bridges at major stream crossings.

The potential adverse effects on public safety are specifically defined by the risk of collision. The design incorporates minimum requirements for vertical and horizontal curvature (i.e., how steep the grades can be, how tight the curves can be and how far ahead a driver must be able to see, etc.). All three routes initially considered meet or exceed the minimum design criteria or requirements established based on the future operation of the Highway. However, a designer's job is to balance risk with economics and, where economically practical, the designer will provide a highway that is better than the minimum requirements to reduce the risk of collisions in the future.

Comprehensive medical and health programs are provided through Beaufort-Delta Health and Social Services programs in cooperation with Medic North and GNWT programs. The opening of the Highway may cause an initial rise in health care demand in Inuvik, with Tuktoyaktuk residents accessing health care services on a regular basis, but since it is already a regional medical care hub, it is unlikely to require a significant increase in permanent staff to meet the demand.

11.3.2 Residual Effects

Long term, the health conditions for Tuktoyaktuk residents are likely to improve with year-round access to medical and health care services in Inuvik.

11.3.3 Relevant Developer Commitments

The Developer has made several commitments regarding the health and safety of the workers during the construction phase and the general safety of the Highway during operations to minimize any potential effects on the medical and health care infrastructure and services.

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
SOCIO-ECONOMIC	
The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions).	Construction
The Developer commits to ensuring that its contractor(s) have Health, Safety and Environment (HSE) manuals; work procedures documents; and site-specific health and safety plans.	Design, Construction
OPERATIONS	
The Developer, using local contractors, will be responsible for ongoing operation, maintenance, and safety of the Highway.	Operations
MANAGEMENT PLANS	
An Environmental Management Plan (EMP) will be prepared prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.	Construction
The EMP will contain the following types of plans: -Health and safety; [*items not relevant to medical and health care infrastructure have been removed for brevity*] Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
WILDLIFE AND WILDLIFE HABITAT	
General	
The Developer or its contractor(s) will follow established ***Bear Safety Guidelines*** and will educate staff accordingly.	Design, Construction
The Developer's contractor(s) will be responsible for educating and training staff on applicable practices contained within the Wildlife Management Plans and the ***Bear Safety Guidelines***, including the proper use of non-lethal wildlife deterrent materials (e.g., bear spray).	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
Camps and associated infrastructure will be designed to incorporate features that ensure safety for both personnel and wildlife, including installing adequate lighting, implementing proper waste management, cleaning and maintaining the kitchen and dining area, and implementing appropriate wildlife detection and deterrent strategies.	Design, Construction
All wildlife encounters and mortalities will be reported to the environmental monitor, Safety Advisor, and GNWT ENR	Design, Construction, Operations

11.3.4 Proposed Effects Monitoring

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Health Canada
  - Administers Canada *Health Act*
  - Develops, implements, and enforces legislation, regulations, policies, programs, services, and initiatives and works with the provinces and territories, and other partners
  - Provides contribution funding to GNWT to support Non-Insured Health Benefits for First Nation and Inuit residents and health promotion/disease prevention programs
  - With Statistics Canada, is responsible for generating, managing, and reporting health information. Statistics Canada is mandated to provide accurate, timely, and relevant information about the health of Canadians and the health care system
- GNWT Health & Social Services
  - Plans and funds the delivery of health and social services under an Integrated Service Delivery Model.
  - Provides integrated, responsive, and effective health services and social programs for those who need them
  - Issues public advisories as determined by the Chief Medical Health Officer and/or recommended by Health Canada
- Beaufort-Delta Health & Social Services Authority
  - Plans, manages and delivers regional health services through a hospital in Inuvik, a health centre in Tuktoyaktuk and other social programs and services through an Integrated Service Delivery Model (ISDM) composed of six core services: Mental Health and Addiction Services, Promotion and Prevention Programs, Protection Services, Diagnostic and Curative Services, Rehabilitation Services and Continuing Care Services

11.4 Social and Community Support Services (Section 4.3.4.4 of the EIS)

Social and community support services are discussed in Section 4.3.5 of the EIS and Section 13.0 of this document (Human Health and Community Wellness).

11.5 Education and Recreational Infrastructure and Services (Section 4.3.4.5 of the EIS)

11.5.1 Project Design and Mitigation Measures

Educational attainment in the region is anticipated to be positively affected by the Project due to improved, year-round access to post-secondary education services in Inuvik, which could result in a minor increase in the demand for educational facilities and services.

Year-round travel between the two communities will provide access to recreational opportunities for all residents, and in particular, for regional school and youth teams to meet for tournaments, access recreational facilities, and reduce travel costs. Improved access may affect the existing recreational facilities by having more people use them, but this can be seen as a positive benefit associated with promoting family and community health and well-being, along with increased employment in the recreational services industry.

Anticipated Project effects include increased access to post-secondary education facilities and recreational facilities. No mitigation measures are anticipated.

11.5.2 Residual Effects

The residual effect on recreation will likely be increased interactions across the ISR which are expected to strengthen communities and increase participation in recreational activities.

11.5.3 Relevant Developer Commitments

The Developer's commitments related to education are specific towards ensuring the construction workers have adequate health and safety training for the job, and/or installing educational signage regarding harvesting and responsible use of the Highway.

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
SOCIO-ECONOMIC	
The Developer and its Project contractors will be responsible for the implementation of focused socio-economic measures, including recruitment and skills training.	Construction
The Developer will install educational signage related to harvesting, fishing, hunting, and responsible use of the Highway at appropriate and highly visible locations.	Operations
The Developer will require that its contractor(s) educate their staff on the prevention of accidents and malfunctions. The training received will be outlined for the Developer, including emergency spill response.	Construction

11.5.4 Proposed Effects Monitoring

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- GNWT Education, Culture & Employment
  - Funds educational, cultural, language, career development and industry training programs
  - Provides transfer of federal funds to IRC for programs, such as Brighter Futures
  - Partners with local organizations and the IRC to deliver programs and services that meet identified labour market needs
- Beaufort-Delta Divisional Education Council
  - Responsible for the operation and administration of schools within the division, implementing curriculum, managing personnel, enrolling students, and initiating proposals for new construction or other major capital expenditures
- Aurora College
  - Provides an Inuvik regional campus and Community Learning Centres in Tuktoyaktuk and other communities in the region
- GNWT Public Works & Services
  - Responsible for community re-supply (fuel, social housing packages, community infrastructure)
- GNWT Municipal & Community Affairs
  - Services offered include land administration, office of the fire marshal, emergency management, consumer affairs, licensing, legislation, sport, recreation, youth, volunteerism, and community governance support and advice
  - Provides funding to community governments for core municipal services such as water, sewage, garbage, municipal roads and by-law enforcement
- Municipal Governments - Town of Inuvik & Hamlet of Tuktoyaktuk
  - Responsible for the delivery and operation of public services

11.6 Water, Sewage and Waste Disposal Infrastructure (Section 4.3.4.6 of the EIS)

11.6.1 Project Design and Mitigation Measures

Water withdrawal will conform to the applicable regulatory guidelines and water licence conditions. During the construction phase of the Project, water from local lakes will be used to construct the ice roads during winter months. A minimal amount of potable water may be trucked from Inuvik and/or Tuktoyaktuk for the construction camps during the winter construction stages. Water for dust management will be drawn from local lakes and streams during the construction and operations phases during summer months.

Sewage generated at the construction camps will be trucked to the community sewage lagoons in Tuktoyaktuk or Inuvik. All other camp-related wastes (i.e., garbage, construction debris, etc.) will be transported and disposed of at the Tuktoyaktuk and/or Inuvik municipal solid waste facilities in accordance with the municipalities' terms and conditions.

For wastewater and solid waste, the Developer will:

- Prior to disposal of waste, provide an estimate of the amount and type of domestic waste to the Town of Inuvik and Hamlet of Tuktoyaktuk; and
- Seek approval from the Town of Inuvik and Hamlet of Tuktoyaktuk to use their sewage lagoons and solid waste disposal facilities.

11.6.2 Residual Effects

No residual effects are anticipated as water withdrawal will conform to the applicable regulatory guidelines and water licence conditions and Inuvik and Tuktoyaktuk wastewater facilities and solid waste facilities currently have capacity for additional wastewater and solid waste during the construction phase.

11.6.3 Relevant Developer Commitments

The Developer's commitments generally pertain to avoiding effects on waste disposal and water infrastructure.

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
MANAGEMENT PLANS	
The EMP will contain the following types of plans: -Waste management; and -Hazardous waste management. [*items not relevant to water, sewage and waste disposal infrastructure have been removed for brevity*] Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
WASTE MANAGEMENT	
The Developer will develop a waste management plan for all wastes associated with pre-construction and construction activities. The waste management plan will apply to the Developer and all associated Project contractors involved in the generation, treatment, transferring, receiving, and disposal of waste materials for the Project.	Design, Construction
The Developer commits to the following steps prior to disposal of waste: -Obtaining approval from the Town of Inuvik and Hamlet of Tuktoyaktuk to use their sewage lagoons and solid waste disposal facilities; -Providing an estimate of the amount and type of domestic waste generated by the Project compared to the facility's available capacity; -Following all applicable Licence, Permits, and/or municipal bylaws regarding the use of the facilities in Inuvik and Tuktoyaktuk; and -Recording the amount of domestic waste shipped to the landfills.	Construction
The Developer will develop and implement a hazardous waste management plan (HWMP). The HWMP will encompass all pre-construction and construction phases of the Project and will apply to the Developer and all Project contractors involved in receiving, transferring, and transporting hazardous waste for the Developer's activities on land, water, and air.	Construction
WATER QUALITY AND QUANTITY	
The Developer will ensure that the DFO water withdrawal protocol criteria are followed.	Construction

11.6.4 Proposed Effects Monitoring

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- GNWT Health & Social Services
  - Plans and funds the delivery of health and social services under an Integrated Service Delivery Model.
  - Protects public health and prevents illness and disease;
  - Enforces Camp Sanitation Regulations
  - Issues public advisories as determined by the Chief Medical Health Officer and/or recommended by Health Canada
  - Participates in NWT Environmental Contaminants Committee
- GNWT Public Works & Services
  - Responsible for community re-supply (fuel, social housing packages, community infrastructure)
- GNWT Municipal & Community Affairs
  - Provides funding to community governments for core municipal services such as water, sewage, garbage, municipal roads and by-law enforcement

11.7 Quarries and Quarry Materials (Section 4.3.4.7 of the EIS)

11.7.1 Project Design and Mitigation Measures

As discussed in Section 2.6 of the EIS, construction of the proposed Highway requires granular materials from select borrow sources in the region. Once operational, the Highway will facilitate future access to these material resources for community use and future development, while not conflicting with future community or development demands.

The ISR Granular Management Plan (2010), prepared by the ILA and INAC, includes a discussion on supply and demand of granular resources, which are based on several demand forecast reports (EBA Engineering Consultants Ltd. 1987; Hardy BBT Limited 1991; North of 60 Engineering Ltd. 1995 and 2001). Gravel demands for each community in the ISR are based on community maintenance and development, including operation and maintenance, road resurfacing and protection, Community Capital Plan Projects, housing construction and maintenance, and runway expansion and maintenance projects, on both Crown and Inuvialuit Lands. Demands for individual, private use are also calculated.

The *Inuvialuit Final Agreement* has stipulated priorities for access to granular resources within the ISR on private lands. First priority is given to public community needs, second priority for private and corporate needs of the Inuvialuit, and third priority for any project approved by an appropriate government agency.

Additional materials have been identified for potential use by the Mackenzie Gas Project. The borrow source at Parsons Lake (2.028P) is identified for use by the Mackenzie Gas Project and the Highway.

Based on the supply of granular materials, as identified in previous studies, and the demand forecasted for community and individual use, as identified in the ISR Granular Management Plan, the amount of materials required for the Highway and the borrow sources selected for use will not conflict with the forecasted demand. (Note: A detailed discussion, including figures, is provided in the Response to Aboriginal Affairs and Northern Development Canada, submitted to the EIRB in August 2011).

Section 2.6.8.6 (Pit Development Plans) of the EIS states that pit development plans, also referred to as pit management plans, will be developed and will conform to the approving authority's regulations and permitting requirements. For borrow sources on Inuvialuit-owned land, the pit development plan will conform to the ILA's *Granular Management Plan* and requirements for a Quarry Permit. For borrow sources on Crown-lands, the pit development plan will conform to INAC's (2010d) *Northern Land Use Guidelines Access: Pits and Quarries,* TAC's (2010) guide for *Development and Management of Transportation Infrastructure in Permafrost Regions,* and the pit/quarry development plan requirements.

Each of these guidelines provide direction on the expectations of reclamation planning, which will need to be outlined in each of the pit development plans produced for construction of the Highway.

Borrow pits will be closed as soon as they are no longer required and reclaimed according to regulatory standards. Specifically:

- Borrow pits will be closed as soon as they are no longer required and reclaimed in a progressive manner, as described in the Pit Development Plan;
- Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans; and
- Minimizing vegetation removal and conducting progressive reclamation at the clear-span abutments, culvert installations and borrow sources.

11.7.2 Residual Effects

Once operational, the Highway will facilitate future access to these material resources for community use and future development.

Biophysical residual effects related to quarries are discussed in Section 1.2 of this document.

11.7.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
PLANNING AND DESIGN	
The Developer commits to using, as a guideline, the design parameters and construction techniques in the Transportation Association of Canada (TAC 2010) *Development and Management of Transportation Infrastructure in Permafrost Regions*. This will include mitigation strategies such as: -Accessing and hauling from borrow sources during the winter months; -Reclaiming borrow sources when construction is complete by grading slopes to blend with the natural topography and drainage of the surrounding area. [*items not relevant to quarries and quarry material have been removed for brevity*]	Design, Construction
CONSTRUCTION	
The Developer is committed to constructing the proposed Inuvik to Tuktoyaktuk Highway, borrow sources, and associated winter access roads in a safe and environmentally responsible manner.	Design, Construction
Blasting, if required, will occur only during winter borrow source development.	Construction
The Developer will use winter roads to access borrow sources; permanent all-weather access roads will not be required.	Construction
BORROW SOURCES	
The Developer is committed to limiting the footprint of each borrow source and minimizing the number of borrow sources developed.	Construction.
Borrow pits will be closed as soon as they are no longer required and reclaimed in a progressive manner, as described in the Pit Development Plan.	Construction, Operations, Reclamation
Pit Development Plans will conform to the approving authority's regulations and permitting requirements.	Design, Construction, Operations
Pit Development Plans will include mitigation measures to address potential environmental concerns, and operational and reclamation plans. Mitigation measures include: -Developing borrow sources only during winter periods; -Maintaining an appropriate amount of undisturbed land between borrow source locations and any waterbody; and -Applying appropriate erosion and sediment control BMPs for the construction of ditches and cross drainage channels.	Construction
The Developer commits to ensuring that borrow source development is monitored by environmental monitors.	Construction
MANAGEMENT PLANS	
The EMP will contain the following types of plans: -Pit development for borrow sources; [*items not relevant to quarries and quarry material have been removed for brevity*] Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction

11.7.4 Proposed Effects Monitoring

Compliance monitoring will be conducted during the permitting process and royalty payment process. The monitoring program will be determined in the Pit Development Plan and ILA and AANDC permitting processes.

Furthermore, AANDC and ILA have responsibilities related to permitting and monitoring quarries and quarry material, as follows:

- Aboriginal Affairs and Northern Development Canada (AANDC) (formerly INAC)
  - Administers legislation concerning use of Crown lands and non-renewable resources within the ISR
  - Responsible for administering the Inuvialuit Final Agreement
  - Responsible for Granular Management Planning and pit and quarry management strategy processes in cooperation with the Inuvialuit Regional Corporation (IRC)
  - Administers *Territorial Lands Act* and regulations including Territorial Land Use Regulations and Territorial Quarry Regulations and ensures compliance with authorizations
  - Responsible for Cumulative Impact Monitoring Program (CIMP) in the ISR under MOU with IRC
  - Responsible for cumulative effects assessments
  - Administers funding for Beaufort Regional Environmental Assessment (BREA)
- Inuvialuit Land Administration
  - Responsible for managing and administering Inuvialuit-owned lands in the ISR, including reviewing applications for land and water permits
  - Granular Management Planning and pit and quarry management strategy processes in cooperation with AANDC
  - Responsible for monitoring gravel use and collecting royalty payments

11.8 Management of Renewable Resources (Section 4.3.4.8 of the EIS)

Renewable resources, such as wildlife, fish, plants and land, are very important for Tuktoyaktuk and Inuvik residents. Sections 4.3.7 (Harvesting) and 4.3.8 (Land Use) of the EIS (or Sections 15.0 and 16.0 of this document, respectively) discuss potential effects and mitigation measures related to the management of these resources.

11.9 Service Industry Capacity (Section 4.3.4.9 of the EIS)

11.9.1 Project Design and Mitigation Measures

GNWT DOT (2010) estimates that the total number of tourists to visit the Inuvik-Beaufort-Delta region could increase by about 10% to 5,500 tourists per year with the construction of the Highway. Direct employment related to tourism is anticipated to increase by 18 people in the NWT, and an additional indirect and induced employment across NWT and the rest of Canada will increase by approximately 10 positions.

The proposed Highway will create year-round access from Tuktoyaktuk to Inuvik. In anticipation of upcoming tourism and service industry employment, residents may seek employment or training opportunities at existing hotels or restaurant facilities.

New business opportunities may arise in the private sector, from trucking and fuel service stations to tourism and bus transportation services. New businesses could be expected to create employment opportunities, which are recognized as critical for young people in the ISR (ICC et al. 2006).

Furthermore, the Highway will permit Inuvik, Tuktoyaktuk and other regionally-based businesses to compete more effectively for resource-related and government business opportunities. Contract work in Tuktoyaktuk may become more competitive, since more companies in the region will have access to Project work (B. Buckle, Senior Administrative Officer, Hamlet of Tuktoyaktuk, pers. comm., February 2, 2011).

11.9.2 Residual Effects

The residual effects are enhanced availability of goods and services, particularly in Tuktoyaktuk, and potential increases in service industry positions as a result of the Highway.

11.9.3 Relevant Developer Commitments

The Developer has not made commitments for this component.

12.0 Proposed Effects Monitoring

The following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Tourism, Commercial and Public Recreational Use	• Socio-economic monitoring	• Change in tourism, commercial and recreational businesses and revenues	• Number of tourists • Amount spent by tourists • Number and types of businesses operating in Inuvik and Tuktoyaktuk • Household consumption expenditure for commercial and recreational use • Land used for recreation • Highway traffic trends • Number of complaints from local co-management agencies

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Canadian Northern Economic Development Agency (CanNor)
  - Funds capacity building, planning, and business development in the communities
- Human Resources and Skills Development Canada (Service Canada)
  - Supports Aboriginal career training and human resource capacity building under the Aboriginal Human Resources Development Agreement (AHRDA)
- GNWT Education, Culture & Employment
  - Develops programs for cultural, heritage and language education, early childhood through to post-secondary education, and career development
  - Supports the territorial literacy strategy, including community-based literacy projects
  - Funds educational, cultural, language, career development and industry training programs
  - Provides transfer of federal funds to IRC for programs, such as Brighter Futures
  - Provides career development services that enhance employability of the local workforce
  - Partners with local organizations and the IRC to deliver programs and services that meet identified labour market needs
- Aurora College
  - Offers literacy outreach, college-level education and upgrading services in the ISR, such as Adult Literacy and Basic Education, Aboriginal language instructor training, business administration and other certificate, diploma and degree programs
  - Provides an Inuvik regional campus and Community Learning Centres in Tuktoyaktuk and other communities in the region
- GNWT Industry, Tourism & Investment
  - Partners with local government and the IRC to provide programs and services that promote and support NWT economic prosperity and community self-reliance
  - Funds entrepreneurial pursuits
- NWT Bureau of Statistics
  - Develops, interprets and disseminates those economic, social and demographic statistics required by the territorial government
  - Implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies
  - Coordinates statistical activities within the government
  - Provides for the continuing and effective representation of territorial statistical interests within the national statistical system
- Inuvialuit Development Corporation
  - Invests in over 20 Inuvialuit companies with complementary industries and visions
  - For business purposes, each Community Corporation [including Inuvik and Tuktoyaktuk] owns a Development Corporation

12.1 Housing (Section 4.3.4.10 of the EIS)

12.1.1 Project Design and Mitigation Measures

During the Highway construction period, local workers from Tuktoyaktuk and Inuvik will continue to live in their own houses and will be accommodated at the construction camps during their work schedules. By hiring local workers, the Developer will reduce the potential housing pressures that could otherwise be caused by hiring workers from outside the region.

Furthermore, the development of the Highway will facilitate the year-round delivery of house construction materials to the community of Tuktoyaktuk.

12.1.2 Residual Effects

The development of the Highway will facilitate the year-round delivery of house construction materials to the community of Tuktoyaktuk.

12.1.3 Relevant Developer Commitments

The Developer has not made commitments for this component.

12.1.4 Proposed Effects Monitoring

The following agencies have responsibilities related to administering and monitoring housing, as follows:

- GNWT Public Works & Services
  - Responsible for community re-supply (fuel, social housing packages, community infrastructure)
- NWT Housing Corporation
  - Provides financial, administrative, maintenance, construction and repair support to Local Housing Organizations (LHOs) located in communities delivering public housing on behalf of the NWTHC
  - Operates 'Providing Assistance for Territorial Homeownership' program (PATH) to qualified northern residents

13.0 Human Health and Community Wellness (Section 4.3.5 of the EIS)

13.1 Project Design and Mitigation Measures

In general, it is predicted that the Highway will improve the Tuktoyaktuk residents' access to medical and dental health care facilities in Inuvik.

During the construction phase, when economic activity is higher, violence and criminal behaviour is expected to decrease. Over the long term, the primary concern of stakeholders is that the Highway may increase Tuktoyaktuk residents' access to alcohol. Effects related to alcohol and substance abuse may cause spin-off effects such as increased crime and

abuse issues, which in turn may affect social workers and RCMP services in the community. The Hamlet of Tuktoyaktuk, with support from community members, is aware of the issues related to alcohol and substance abuse and has taken steps to reduce this.

In Tuktoyaktuk, the community wellness worker and community support workers provide programs for the prevention of alcohol addiction and abuse (M. Heffel, Head Nurse, Rosie Ovayouk Health Centre, pers. comm., January 18, 2011).

The GNWT HSS has existing programs and strategies (i.e., the NWT Sexually Transmitted Infections Strategic Directions) to prevent and control sexually transmitted infections in the NWT.

13.2 Residual Effects

The Highway will create long-term, year-round access between Inuvik and Tuktoyaktuk. The benefits include increased access to medical and dental facilities; while the potential risk is increased access to alcohol. Several programs are currently in place to prevent or treat substance abuse issues. Increased interaction between residents of the two communities, youth groups and schools is expected to positively benefit the communities.

Over time, the decrease in the cost of living may positively affect those most vulnerable to poverty and poverty-influenced illness.

According to a document submitted to the EIRB October 22, 2010 by the GNWT in response to the draft Terms of Reference, the "GNWT's Department of Health and Social Services does not have specific concerns about the Project given that a road currently exists during the winter months between Inuvik and Tuktoyaktuk, furthermore it is not expected that the Project will have a significant impact on the communities" (GNWT 2010, p. 10).

13.3 Relevant Developer Commitments

The Developer has not made community-wide commitments for this component. However, the Developer has made several commitments regarding the health and safety of the workers during the construction phase and the general safety of the Highway during operations to minimize any potential effects on human and community wellness.

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
SOCIO-ECONOMIC	
The Developer will require that its Project contractor(s) ensure that all heavy equipment operators are suitably trained in proper machinery maintenance and operation; that equipment is regularly inspected and serviced; and that contractor staff obey posted Highway rules (e.g., speed limits, hunting/fishing restrictions).	Construction
The Developer commits to ensuring that its contractor(s) have Health, Safety and Environment (HSE) manuals; work procedures documents; and site-specific health and safety plans.	Design, Construction
OPERATIONS	
The Developer, using local contractors, will be responsible for ongoing operation, maintenance, and safety of the Highway.	Operations
MANAGEMENT PLANS	
An Environmental Management Plan (EMP) will be prepared prior to construction, and will be submitted for regulatory approval prior to use. The EMP will clearly define expectations for compliance monitoring, responsibilities, requirements for training, and reporting.	Construction
The EMP will contain the following types of plans: -Health and safety; [*items not relevant to medical and health care infrastructure have been removed for brevity*] Where necessary, the Developer and its contractor(s) will seek approval for the plans prior to use.	Design, Construction
WILDLIFE AND WILDLIFE HABITAT	
General	
The Developer or its contractor(s) will follow established ***Bear Safety Guidelines*** and will educate staff accordingly.	Design, Construction
The Developer's contractor(s) will be responsible for educating and training staff on applicable practices contained within the Wildlife Management Plans and the ***Bear Safety Guidelines***, including the proper use of non-lethal wildlife deterrent materials (e.g., bear spray).	Construction
Camps and associated infrastructure will be designed to incorporate features that ensure safety for both personnel and wildlife, including installing adequate lighting, implementing proper waste management, cleaning and maintaining the kitchen and dining area, and implementing appropriate wildlife detection and deterrent strategies.	Design, Construction
All wildlife encounters and mortalities will be reported to the environmental monitor, Safety Advisor, and GNWT ENR	Design, Construction, Operations

13.4 Proposed Effects Monitoring

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Health Canada
  - Administers Canada *Health Act*
  - Develops, implements, and enforces legislation, regulations, policies, programs, services, and initiatives and works with the provinces and territories, and other partners
  - With Statistics Canada, is responsible for generating, managing, and reporting health information. Statistics Canada is mandated to provide accurate, timely, and relevant information about the health of Canadians and the health care system
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
  - Conducts health risk assessments and provides human health warning on contaminants in country foods to GNWT
- Environment Canada
  - Co-chairs *Northwest Territories/Nunavut Spills Working Agreement*
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
- Public Safety Canada - Royal Canadian Mounted Police (RCMP)
  - Provides a full range of law enforcement and community policing services in communities of Tuktoyaktuk and Inuvik under *Territorial Police Service Agreement* between Canada and GNWT
  - Has the authority to enforce measures under the *Northwest Territories Liquor Act* and the *Criminal Code of Canada*
  - Provides enforcement of *Public Highway Act* and emergency response coordination
  - Work in concert with the Government of the Northwest Territories in the areas of alcohol and drug education, such as, the NWT Drug Strategy Program and the Drug and Alcohol Resistance Education Program
- GNWT Health & Social Services
  - Plans and funds the delivery of health and social services under an Integrated Service Delivery Model. More specifically, the Department
    - promotes healthy choices and responsible self-care;
    - protects public health and prevent illness and disease;
    - protects children and vulnerable individuals from abuse, neglect, and distress; and
    - provides integrated, responsive, and effective health services and social programs for those who need them
  - Enforces Camp Sanitation Regulations
  - Issues public advisories as determined by the Chief Medical Health Officer and/or recommended by Health Canada
  - Participates in NWT Environmental Contaminants Committee
- Beaufort-Delta Health & Social Services Authority
  - Plans, manages and delivers regional health services through a hospital in Inuvik, a health centre in Tuktoyaktuk and other social programs and services through an Integrated Service Delivery Model (ISDM) composed of six core services: Mental Health and Addiction Services, Promotion and Prevention Programs, Protection

Services, Diagnostic and Curative Services, Rehabilitation Services and Continuing Care Services

- GNWT Justice
  - Overall responsibility for administration of justice and public safety including courts, corrections and community justice
  - Provides policing services through *Territorial Police Service Agreement* between Canada and GNWT. The contract has specific provisions relating to standards of policing services and a process for adjusting resources within detachments
  - Works closely with the RCMP "G" Division to identify appropriate resources and services required
  - Collaborates with other social programming departments on key initiatives such as drug and alcohol use prevention
- GNWT Finance
  - Provides resources to enforce the *Northwest Territories Liquor Act*
- Inuvialuit Regional Corporation
  - Receives and manages Inuvialuit Final Agreement (IFA) benefits and revenues
  - Funds Inuvialuit programs delivered through the various corporations
  - Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics
- Inuvialuit Trust
  - Manages financial distribution of benefits to Inuvialuit beneficiaries

14.0 Socio-cultural Patterns (Section 4.3.6 of the EIS)

14.1 Project Design and Mitigation Measures

The Project will significantly improve ground transportation infrastructure between Inuvik and Tuktoyaktuk enabling easier year-round transportation of goods, services, and people between communities and throughout the region, and improving access to health and social services. The Highway will also facilitate commercial and recreational access to the region and will link the Dempster Highway to the Beaufort Sea coast, thereby enabling travellers to drive between Canada's west, east and north coasts. Additional positive effects are anticipated related to increased tourism, cheaper goods and services, and less need for inventory storage.

The Developer is committed to ensuring that the people of Tuktoyaktuk and Inuvik have preferential employment opportunities to provide employment benefits to the region. The IRC's Inuvialuit Business List Policy will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List. This will help to provide economic stimulus to the Inuvialuit community. Furthermore, employment opportunities will be available to all residents, male or female, and will result in increased seasonal employment during construction.

14.2 Residual Effects

Residents are anticipated to have better year-round access to cultural and family activities once the Highway is constructed, as well as cultural support systems and programs. The Highway will allow the residents of Tuktoyaktuk to have more contact with residents in other ISR communities and, by extension, from the rest of Canada. There will be more opportunities to participate in cultural events and celebrations, and more opportunities to facilitate sharing and mutual aid among family and community members. The proposed Highway is expected to strengthen family ties by providing year-round access between the communities.

The Highway will serve to increase tourism, which in turn could promote cultural awareness of the Inuvialuit and Gwich'in peoples among tourists from other regions, provinces and territories.

According to a document submitted to the EIRB October 22, 2010 by the GNWT in response to the draft Terms of Reference, the "GNWT's Department of Health and Social Services does not have specific concerns about the Project given that a road currently exists during the winter months between Inuvik and Tuktoyaktuk, furthermore it is not expected that the Project will have a significant impact on the communities" (GNWT 2010, p. 10).

14.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
SOCIO-ECONOMIC	
The Developer is committed to preferential employment opportunities for qualified local residents and contractors.	Construction, Operations
The IRC's ***Inuvialuit Business List Policy*** will apply to this Project, giving priority hiring to companies included on the Inuvialuit Business List.	Construction, Operations

14.4 Proposed Effects Monitoring

Several agencies and/or organizations have existing responsibilities related to monitoring socio-cultural patterns. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- GNWT Education, Culture & Employment
  - Develops programs for cultural, heritage and language education, early childhood through to post-secondary education, and career development
  - Delivers and/or supports a range of services through the shelter network, including victims' services and family violence services and supports from Health and Social Services and Justice
  - Aboriginal Languages Plan with the goal to increase the number of Aboriginal language speakers by 20 per cent
  - Funds educational, cultural, language, career development and industry training programs

- Provides transfer of federal funds to IRC for programs, such as Brighter Futures

- Aurora Research Institute – Inuvik Research Centre
  - Supports and tracks social and environmental research
  - Maintains a library to support research
  - Issues research licences

- Inuvialuit Regional Corporation
  - Receives and manages Inuvialuit Final Agreement (IFA) benefits and revenues
  - Funds Inuvialuit programs delivered through the various corporations
  - Maintains socio-economic indicators reporting [http://inuvialuitindicators.com/] in conjunction with NWT Bureau of Statistics

15.0 Harvesting (Section 4.3.7 of the EIS)

15.1 Project Design and Mitigation Measures

To protect the environmentally and culturally sensitive Husky Lakes area, the Developer, with input from Inuvialuit interests has identified a preferred route option that maintains a 1 km setback between the Highway and the Husky Lakes.

The objectives of wildlife protection activities along the proposed Highway will be to mitigate potentially negative effects on caribou and other wildlife in the following general ways:

- Minimize loss of habitat and reductions of habitat effectiveness via Project design;
- A wildlife protection plan will be implemented for the construction phase;
- Minimize disruption of migration patterns due to vehicle traffic; particularly when barren-ground caribou arrive within the study area for the fall rut and their departure to the calving grounds in the spring;
- Minimize direct mortality due to collisions with vehicles;
- Minimize the volume, duration, and frequency of noise producing activities;
- Selective timing of Project activities to avoid critical periods for wildlife;
- Conform with pre-determined setback distances from key wildlife habitat features;
- Ensure proper storage, transportation and disposal of wastes;
- Ensure Project personnel have appropriate levels of wildlife training and awareness; and
- Prohibit GNWT employees and contractors from hunting while working on the Highway.

HTC wildlife monitors will be hired by the Developer/ construction contractor during the construction phase, to monitor potential wildlife issues, including harvesting.

Section 7.0 of this document presents the various, wildlife-specific mitigation measures that will be integrated into the Project design, construction and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on wildlife.

Residents of Tuktoyaktuk have expressed concern that hunting pressure on caribou and other wildlife may increase as a direct result of the Highway. Responsible management organizations and government agencies will continue to work together to develop strategies for sustainable harvesting in the region, after the Highway is constructed. The success of this approach will require a high level of voluntary compliance from the users of the proposed Highway.

A public education program and signage related to harvesting, fishing, hunting, and responsible use of the Highway will be installed at appropriate and highly visible locations. Educational material is currently provided for the Dempster Highway and includes information on:

- Harvesting rights for Aboriginal harvesters, and resident and non-resident hunters and fishers;
- Potential restrictions, including areas with restrictions or seasonal closures;
- Hunter responsibilities;
- Minimum safety distance from the highway before shooting may occur; and
- Snowmachine use near the highway.

Under the *IFA*, harvested resources are managed through a variety of organizations including:

- Wildlife Management Advisory Council (WMAC) - Northwest Territories (NWT) and North Slope (NS) are responsible for advising government ministers and Inuvialuit agencies on all matters relating to wildlife.
- Fisheries Joint Management Committee (FJMC) is responsible for managing marine mammals and marine and freshwater fisheries in the ISR.
- Inuvialuit Game Council (IGC) is responsible for representing the collective Inuvialuit interest in wildlife and also advising the government.
- Hunters and Trappers Committees (HTC) is responsible for resource allocation and promotion of Inuvialuit involvement in conservation, research, management, enforcement and utilization.
- Inuvialuit Land Administration (ILA) is responsible for the management and administration of access to Inuvialuit private lands. The ILA is also responsible for screening the development proposals on private lands.

Harvesting licenses and restrictions are management tools implemented by co-management boards and the GNWT ENR. Harvesting restrictions are currently in place for certain wildlife species in the NWT including barren-ground caribou and grizzly bears.

During the construction and operation of the Highway, wildlife and fish populations will continue to be managed by GNWT ENR and the regional organizations previously mentioned.

15.2 Residual Effects

The Highway will create year-round access to Tuktoyaktuk, and will increase access to harvesting areas. Harvesting activities are managed by the Wildlife Management Advisory Council and Fisheries Joint Management Committee, with input from the Inuvialuit Game Council and the HTCs.

Although harvesting patterns may be temporarily disturbed due to Highway construction, harvesting patterns should return to normal upon Project completion, except in the vicinity of the Highway, where hunting may be discouraged. With effective Highway user practices, residual indirect effects related to harvesting wildlife and fish populations are expected to be minimal.

15.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
WILDLIFE AND WILDLIFE HABITAT	
General	
[previously presented in Section 7.1.1]	
The Developer will implement general wildlife protection measures along the proposed Highway as follows: -Implementing a policy whereby Project personnel and contractors will not disturb any wildlife or critical habitat features such as dens or nests; -Implementing a "no hunting" policy for Highway construction and maintenance workers; and -Working with agencies such as the HTCs, WMAC and GNWT ENR to develop guidelines and conditions for Highway usage and follow-up with monitoring of harvesting activities. [*items not relevant to harvesting have been removed for brevity*]	Design, Construction, Operations
Types of Mitigation Measures for Grizzly Bears and Furbearers	
Types of mitigation measures that the Developer will integrate into the Project design, construction, and anticipated future operational practices to reduce or minimize potential impacts of the proposed Highway on grizzly bears and furbearers include: -Freshly dug dens will be mapped such that construction activities will avoid active dens during the hibernation period; -If possible, no activities will occur within 500 m of an active den during the denning period (October to April); and -No blasting will occur if active bear dens are confirmed within 500 m of a proposed blasting area.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
-Maintaining a minimum distance of 500 m between identified grizzly bear/wolverine den sites and personnel during construction; -Dens (grizzly bear, wolverine) discovered within 500 m of the Highway after the pre-construction survey will be reported immediately to GNWT ENR to determine the appropriate course of action; -Providing the wildlife monitor and designated, trained staff access to non-lethal deterrent materials (e.g., bear spray). The use of any deterrent method on wildlife will be reported to GNWT ENR;	Construction
-Minimizing and properly disposing of wildlife attractants such as garbage, food wastes, and other edible and aromatic substances; -Storing all food, grease, oils, fuels, and garbage in bear/wolverine-proof containers and/or areas; -No waste will be incinerated on- or off-site; and -Transporting waste to Tuktoyaktuk and/or Inuvik municipal solid waste facilities for disposal. Disposal of wastes at these facilities will follow the specified terms and conditions for use.	Construction
SOCIO-ECONOMIC	
The Developer will install educational signage related to harvesting, fishing, hunting, and responsible use of the Highway at appropriate and highly visible locations.	Operations
LAND USE	
During the operations phase, the Developer will work with appropriate parties to install signage and/or develop educational materials to encourage users to stay on the Highway and not adjacent areas.	Operations
MONITORING	
The Developer requires that Project contractors employ an adaptive management approach to ensuring sensitive species/ species at risk are adequately protected during all phases of construction.	Construction
The Developer is committed to hiring environmental monitors to ensure the application of prescribed mitigation, identify unforeseen and potential erosion sites that could lead to the discharge of sediment to surface or groundwater, and prevent erosion and subsequent sedimentation.	Construction
Environmental and wildlife monitoring will be carried out by third party monitors supplied by the ILA (environmental monitors) and the HTC (wildlife monitors), and will be funded by the Developer and/or Developer's contractor(s).	Construction
The Developer will conduct post-construction monitoring according to the extent, frequency and duration required by regulators to evaluate the success of mitigation measures and to identify required modifications, repairs, or maintenance.	Operations
The Developer will require that Project contractors work closely with the environmental and wildlife monitors during construction.	Construction
The Developer is committed to participating with other parties in a cumulative effects monitoring program.	Construction, Operations

15.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS

Valued Component	Monitoring Program	Indicators	Measurement Parameters
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing fish and wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of fish, wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing fish and wildlife monitoring programs
Areas of Special Ecological and Cultural Importance	• Socio-economic monitoring	• Effects predictions • Intensity of use of Husky Lakes area • Change in land use	• Verify effects predictions and confirm the effectiveness of mitigation measures • Frequency and duration of Husky Lake use • Land use patterns and/or conversions • Number of complaints from local co-management agencies

Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring that will be conducted. Environmental and wildlife monitoring will be done by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Under the IFA, harvested resources are managed through a variety of organizations including:

- Wildlife Management Advisory Council (WMAC) - Northwest Territories (NWT) and North Slope (NS) are responsible for advising government ministers and Inuvialuit agencies on all matters relating to wildlife.
- Fisheries Joint Management Committee (FJMC) is responsible for managing marine mammals and marine and freshwater fisheries in the ISR.
- Inuvialuit Game Council (IGC) is responsible for representing the collective Inuvialuit interest in wildlife and also advising the government.
- Hunters and Trappers Committees (HTC) is responsible for resource allocation and promotion of Inuvialuit involvement in conservation, research, management, enforcement and utilization.

- Inuvialuit Land Administration (ILA) is responsible for the management and administration of access to Inuvialuit private lands. The ILA is also responsible for screening the development proposals on private lands.
- GNWT ENR regulates wildlife harvest in ISR through *Wildlife Act* and Regulations in conjunction with Wildlife Management Advisory Council (WMAC) and other co-management boards

During the construction and operation of the Highway, the above mentioned parties will continue to manage resources within the ISR.

Taking Care of Caribou: Cape Bathurst, Bluenose-West, and Bluenose-East Barren Ground Caribou Herds Management Plan is a draft caribou management plan (see Attachment 2) prepared by the Advisory Committee for the Cooperation on Wildlife Management (ACCWM 2011). The Plan states that "certain monitoring will take place regardless of whether the herd status is green [caribou population is high], yellow [caribou population is increasing], orange [caribou population is decreasing] or red [caribou population is low]. However, the frequency and intensity of monitoring will vary in response to herd status" (ACCWM 2011, p. 21).

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Health Canada
  - Administers Canada *Health Act*
  - Develops, implements, and enforces legislation, regulations, policies, programs, services, and initiatives and works with the provinces and territories, and other partners
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
  - Conducts health risk assessments and provides human health warning on contaminants in country foods to GNWT
- Department of Fisheries and Oceans (DFO)
  - Responsible for implementing the *Fisheries Act* including annually establishing *Northwest Territories Fishery Regulations*
  - Promotes cooperative management of ISR fisheries resources including support to the Fisheries Joint Management Committee (FJMC)
  - Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee
- Environment Canada
  - Sets waterfowl harvest regulations annually
  - Funds and carries out inventory and monitoring studies for migratory birds
  - Canadian Wildlife Service (CWS) is represented on Wildlife Management Advisory Councils (WMAC)

- Administers *Species at Risk Act (SARA)* and coordinates national recovery strategies and management plans for endangered, threatened and special concern species
- Co-chairs *Northwest Territories/Nunavut Spills Working Agreement*
- Participates on Northern Contaminant Program Management Committee and NWT Environmental Contaminants Committee

- GNWT Environment & Natural Resources - Wildlife Division
  - Promotes and supports sustainable use and development of natural resources in the NWT
  - Regulates wildlife harvest in ISR through *Wildlife Act* and Regulations in conjunction with Wildlife Management Advisory Council (WMAC) and other co-management boards
  - Develops wildlife management plans in conjunction with co-management boards
  - Conducts wildlife research and provides wildlife population information through Inuvialuit funding
  - Administration of sport fishery in the NWT (delegated by DFO in 1976) including implementing Sport Fishery Regulations for NWT and enforcing sport fishing regulations
  - Prepares jurisdictional recovery strategies and management plans for federally listed species
  - Leads implementation of the *Species at Risk (NWT) Act*, in cooperation with the Conference of Management Authorities
  - Establishes status ranks for NWT species in cooperation with federal resource departments and others
  - Maintains wildlife management information system (WMIS) and rare plants information system
  - Participates on Northern Contaminant Program Management Committee and NWT Territorial Contaminants Committee

- GNWT Industry, Tourism & Investment
  - Partners with local government and the IRC to provide programs and services that promote and support NWT economic prosperity and community self-reliance
  - Funds local wildlife committees and Take a Kid Hunting/Trapping programs

- Joint Secretariat
  - Funds Inuvialuit Game Council Wildlife Management Advisory Council, Fisheries Joint Management Committee, Environmental Impact Screening Committee and Environmental Impact Review Board
  - Provides administrative and technical support to co-management bodies

- Inuvialuit Game Council
  - Allocates Inuvialuit quotas among the six ISR communities and appoints members for any co-management body dealing with Inuvialuit fish and wildlife harvesting and environment
  - Provides implementation funding for wildlife research to GNWT and Environment Canada
  - Responsible for harvest monitoring
  - Participates in NWT Environmental Contaminants Committee

- Wildlife Management Advisory Council (NWT)
  - Provides wildlife management advice
  - Prepares wildlife conservation and management plans
  - Recommends appropriate wildlife harvest quotas in conjunction with Hunter Trapper Committees.

- Fisheries Joint Management Committee
  - Makes recommendations to the Minister of Fisheries and Oceans on subsistence quotas for fish, Inuvialuit commercial fishing, allocation of the preferential fishing licences to be granted under subsections (29) to 932), regulations regarding sport and commercial fishing in waters on 7(1)(a) and (b) lands and the identification of waters where such fishing may be prohibited
  - Restricts and regulates the public fishing on 7(1)(b) lands where a management is required to: conserve a stock, prevent serious conflict or interference with Inuvialuit activities or enjoyment of the land
  - Register Sport Fishing Licence holders intending to fish lakes or rivers on Inuvialuit Private Lands

- Hunters and Trappers Committee
  - Represents the collective Inuvialuit interest in wildlife and upholds harvest rights
  - Sub-allocate the subsistence quota for animals referred to in paragraph (6)(a) within its area of responsibility
  - Sub-allocate any Inuvialuit quota set for fish and the animals referred to in paragraphs (6)(a), (b) and (c)
  - Make by-laws, subject to the laws of general application, governing the exercise of the Inuvialuit rights to harvest referred to in paragraphs (6)(a), (b), (c) and (d) which are enforceable under the NWT Wildlife Act
  - Register Sport Fishing Licence holders intending to fish lakes or rivers on Inuvialuit Private Lands

16.0 Land Use (Section 4.3.8 of the EIS)

16.1 Project Design and Mitigation Measures (Section 4.3.8.2 of the EIS)

The construction timing, Highway design, and mitigation measures are intended to minimize potential land use effects. For example, one of the reasons that Alternative 3 (2010 Minor Realignment) was selected as the preferred route was that it minimized potential effects to the Husky Lakes, an area known for its wildlife and cultural values

Other mitigation measures that will be implemented include:

- Ensuring that construction vehicles stay on access roads or the construction site at all times;

- Prohibiting the recreational use of all-terrain vehicles and snowmachines by construction personnel while working on the Highway; and

- Prohibiting the recreational use of the Highway by Project staff during construction.

The Northwest Territories Protected Area Strategy has been reviewed and considered in the assessment of potential Project effects. The proposed Highway avoids all protected areas identified in the Protected Areas Strategy.

16.2 Residual Effects (Section 4.3.8.3 of the EIS)

The residual effect on land use that will remain after implementation of mitigation measures is the footprint of the all-weather Highway across the landscape. The Highway routing has been designed to avoid or minimize affecting particularly special cultural areas. Access to traditional or special locations will not be restricted by the Highway. The proposed Highway is a linear development that potentially influences land use at a regional level.

16.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
LAND USE	
The Developer will implement mitigation measures to minimize potential land use effects such as: -Ensuring that construction vehicles stay on access roads or the construction site at all times; and -Prohibiting the recreational use of the Highway by Project staff during construction, including the use of ATVs and snowmachines.	Construction
During the operations phase, the Developer will work with appropriate parties to install signage and/or develop educational materials to encourage users to stay on the Highway and not adjacent areas.	Operations
PLANNING AND DESIGN	
The Developer will conform to the IFA and the Tuktoyaktuk and Inuvik Inuvialuit Community Conservation Plans (CCPs) and will integrate the goals of these documents into the Project's environmental management.	Design, Construction
The Developer is committed to addressing the performance criteria and management goals identified in the ILA's draft Husky Lakes Special Cultural Area Criteria, pending approval.	Design
CONSTRUCTION	
The Developer commits to working towards achieving the Environmental Impact Review Board's goal statements for all phases of the proposed development.	Design, Construction, Operations
The Developer will use winter roads to access borrow sources; permanent all-weather access roads will not be required.	Construction
The Developer and its contractors will adhere to all applicable legislation, regulations, guidelines, and terms and conditions.	Construction

16.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Land and Resource Use by Inuvialuit	• Wildlife monitoring • Socio-economic monitoring	• Intensity of land and resource use by Inuvialuit • Change in land use by transport infrastructure • Common indicators used by existing fish and wildlife monitoring programs	• Fish, wildlife and berry harvest levels • Frequency, duration and location of fish, wildlife and berry harvest • Highway traffic trends • Number of complaints from local co-management agencies • Common parameters used by existing fish and wildlife monitoring programs
Areas of Special Ecological and Cultural Importance	• Socio-economic monitoring	• Effects predictions • Intensity of use of Husky Lakes area • Change in land use	• Verify effects predictions and confirm the effectiveness of mitigation measures • Frequency and duration of Husky Lake use • Land use patterns and/or conversions • Number of complaints from local co-management agencies
Land Designation Areas (per IFA/ CCPs)	• Socio-economic monitoring	• Effects predictions • Intensity of use of special management areas, as identified in the CCPs	• Verify effects predictions and confirm the effectiveness of mitigation measures • Frequency, duration and location of use by residents and non-residents • Land use patterns and conversions in sensitive areas
Tourism, Commercial and Public Recreational Use	• Socio-economic monitoring	• Change in tourism, commercial and recreational businesses and revenues	• Number of tourists • Amount spent by tourists • Number and types of businesses operating in Inuvik and Tuktoyaktuk • Household consumption expenditure for commercial and recreational use • Land used for recreation • Highway traffic trends • Number of complaints from local co-management agencies

Furthermore, Section 7.1 (Biophysical Monitoring) of the EIS, reproduced as follows, describes the third-party monitoring that will be conducted. Environmental and wildlife monitoring will be done by third party monitors supplied by the ILA (environmental monitors) and the HTCs (wildlife monitors). The cost of supplying these monitors will be paid by the Developer/ construction contractor, as was done for the Tuktoyaktuk to Source 177 Access Road.

Several agencies and/or organizations have existing responsibilities related to administering related legislation, providing funds or public services, and/or conducting monitoring. A list of relevant agencies and organizations, and their related responsibilities, is provided as follows:

- Aboriginal Affairs and Northern Development Canada (AANDC) (formerly INAC)
  - Administers legislation concerning use of Crown lands and non-renewable resources within the ISR
  - Responsible for administering the Inuvialuit Final Agreement
  - Responsible for Granular Management Planning and pit and quarry management strategy processes in cooperation with the Inuvialuit Regional Corporation (IRC)
  - Administers *Territorial Lands Act* and regulations including Territorial Land Use Regulations and Territorial Quarry Regulations and ensures compliance with authorizations
  - Administers *NWT Waters Act* and regulations and ensures compliance with authorizations
  - Responsible for Cumulative Impact Monitoring Program (CIMP) in the ISR under MOU with IRC
  - Responsible for cumulative effects assessments
  - Administers funding for Beaufort Regional Environmental Assessment (BREA)
- GNWT Transportation
  - Plans, designs, constructs or reconstructs, acquires, operates and maintains public transportation infrastructure in the Northwest Territories
- GNWT Education, Culture & Employment – Prince of Wales Northern Heritage Centre
  - Provides programs that promote the protection and management of archaeological sites in the Northwest Territories, including participating in regulatory processes that control land use activities that threaten archaeological sites, and regulating archaeological investigations
- GNWT Environment & Natural Resources - Forest Management
  - Manages forest resources through the following program functions - forest inventory; resource analysis; forest management planning and practices; and forest education
- Joint Secretariat
  - Funds Inuvialuit Game Council Wildlife Management Advisory Council, Fisheries Joint Management Committee, Environmental Impact Screening Committee and Environmental Impact Review Board
  - Provides administrative and technical support to co-management bodies
- Inuvialuit Land Administration
  - Responsible for managing and administering Inuvialuit-owned lands in the ISR, including reviewing applications for land and water permits
  - Granular Management Planning and pit and quarry management strategy processes in cooperation with INAC

17.0 Archaeological Resources (Section 4.3.9 of the EIS)

17.1 Project Design and Mitigation Measures (Section 4.3.9.2 of the EIS)

Further archaeological impact assessments are required prior to Highway construction, once the Highway centre-line has been finalized. To adequately complete intensive archaeological inventory survey, the Highway route must be finalized within a 100 m wide corridor and boundaries of all associated components such as borrow sources, work staging areas, construction camps must be identified prior to field work.

Initial archaeological reconnaissance identified that no known archaeological sites occur along the proposed Highway alignments. Of the known sites within 5 km of the proposed alignment, only two are located in areas that may be proposed as borrow sources. In assessing these potential borrow sites, mitigation measures would be implemented to resolve any potential effects to these sites. Furthermore, since much of the proposed alignment is located within areas with potential archaeological resources, appropriate mitigation measures will be implemented throughout the duration of the construction process to ensure compliance with heritage resource protection legislation and regulations.

The combination of background documentary data and overview terrain assessment has resulted in the identification of specific areas with sufficient potential for archaeological resources that ground reconnaissance is recommended.

In 2011, IMG-Golder Corp. (IMG-Golder) conducted an Archaeological Impact Assessment (AIA) of the proposed Inuvik to Tuktoyaktuk Highway including two potential realignments (Alternative 1 and Alternative 3) and several proposed borrow source locations.

The objectives of the AIA were to identify, record and assess heritage resources that might be impacted by the proposed Highway project and to devise appropriate mitigation strategies should any be found in conflict with the proposed Highway. Heritage resources typically identified in the area include: lithic scatters and quarry / workshops; stone features such as tent rings, caches and cairns; hearths and fire cracked rock concentrations; cabin remains and semi-subterranean house remains; cache pits; middens; graves; various types of wood features; and cut/ worked wood remains (Kiggiak-EBA 2011).

The field investigation focused on areas that were previously identified as having moderate to high potential for heritage resources that may be impacted by proposed Highway construction activities (Kiggiak-EBA 2011). Several potential borrow sources for granular material resources (e.g., gravel and sand; referred to hereafter as borrow sources) that are within close proximity to the proposed Highway right-of-way (ROW) were also included in the investigation.

No new archaeological sites were recorded as a result of the investigations and no sites will be directly impacted by the proposed Highway ROW and alternate routes.

Previously recorded archaeological sites in the area of the Highway ROW, borrow sources work staging areas, and construction camp locations will be avoided or additional studies be conducted, as necessary. On the recommendation of the contract archaeologist in the field the Developer shall implement avoidance or mitigation measures to protect archaeological

sites or to salvage the information they contain through excavation, analysis, and report writing, subject to the approval by the PNWHC.

An archaeological site(s) protection plan will be prepared that will facilitate the continued protection and management of archaeological resources during the construction phase of the Project. A typical plan includes detailed procedures for information flow between relevant agencies, how minor route realignments during construction will be assessed for archaeological impacts, and how this information will be communicated in a timely manner.

Mitigation measures will be designed on an individual basis, and require prior approval by the Prince of Wales Northern Heritage Centre. Mitigation measures may include avoidance (the preferred mitigation), temporary site protection, or systematic data recovery. It is expected that most archaeological sites found will be small and could be readily avoided with a minor Project realignment or footprint adjustment. GNWT Department of Transportation and the Hamlet of Tuktoyaktuk, along with the selected contractor, will make every effort to avoid and protect recorded and unrecorded archaeological and heritage resources during the conduct of this Project.

In the unlikely event that Project relocation is not feasible and a site will be impacted, recommended site mitigation will likely comprise detailed mapping, recording and excavation of a sufficient number of units to ensure a representative sample of the site contents is obtained. This ensures that knowledge of that site is available for future generations.

17.2 Residual Effects (Section 4.3.9.3 of the EIS)

No new archaeological sites were recorded as a result of the investigations and no sites will be directly impacted by the proposed Highway ROW and alternate routes. Several previously recorded sites are associated with potential borrow sources that were not investigated as part of the current study. If present, mitigation measures will be designed in collaboration with the Prince of Wales Northern Heritage Centre, to avoid Project effects on archaeological resources.

17.3 Relevant Developer Commitments

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS

COMMITMENTS	PROJECT PHASE
ARCHAEOLOGY	
The Developer will hire a qualified archaeologist to perform a final Archaeological Impact Assessment within a 100 m wide corridor along the alignment and all associated components such as borrow sources, work staging areas, and construction camps. All types of terrain will be sampled, including those with limited archaeological potential.	Design, Construction
Mitigation measures will be designed on an individual basis, and require prior approval by the Prince of Wales Northern Heritage Centre.	Construction
The Developer will, on recommendation from the contract archaeologist or Prince of Wales Northern Heritage Centre, implement avoidance or mitigation measures to protect archaeological sites or to salvage the information they contain through excavation, analysis, and report writing.	Construction

TABLE F: SUMMARY OF DEVELOPER COMMITMENTS	
COMMITMENTS	**PROJECT PHASE**
The Developer will prepare an archaeological site(s) protection plan to facilitate the continued protection and management of archaeological resources during the construction phase of the Project.	Construction
The Developer and its Project contractors will make every effort to avoid and protect recorded and unrecorded archaeological and heritage resources in accordance with the terms and conditions of the Northwest Territories archaeological regulations during the Project.	Construction
PLANNING AND DESIGN	
The Developer will conform to the IFA and the Tuktoyaktuk and Inuvik Inuvialuit Community Conservation Plans (CCPs) and will integrate the goals of these documents into the Project's environmental management.	Design, Construction
CONSTRUCTION	
The Developer and its contractors will adhere to all applicable legislation, regulations, guidelines, and terms and conditions.	Construction

17.4 Proposed Effects Monitoring

As an identified Valued Component, the following monitoring program was proposed in Table 4 of the Addendum, submitted to the EIRB in August 2011. Relevant sections of Table 4 are reproduced as follows.

TABLE 4: PROPOSED BIOPHYSICAL AND SOCIO-ECONOMIC EFFECTS MONITORING PROGRAMS			
Valued Component	**Monitoring Program**	**Indicators**	**Measurement Parameters**
Heritage and Archaeological Sites	• Environmental monitoring • Socio-economic monitoring	• Heritage and archaeological sites conservation	• Number of heritage and archaeological sites identified, disturbed, and/or relocated.

The Prince of Wales Northern Heritage Centre (PNWHC) is responsible for administering legislation and monitoring heritage resource protection. PNWHC provides programs that promote the protection and management of archaeological sites in the Northwest Territories, including participating in regulatory processes that control land use activities that threaten archaeological sites, and regulating archaeological investigations

18.0 MITIGATION AND REMEDIATION SUMMARY (Section 6.0 of the EIS)

A goal of the EIRB, as set out in the IFA, is to determine whether potential negative effects to wildlife, wildlife habitat, and wildlife harvesting can be minimized to acceptable levels using mitigative and remedial measures (EIRB 2010). This section of the EIS summarizes mitigative and remedial strategies that will be implemented to avoid or minimize potential effects to the Valued Components (VCs) identified through the environmental assessment process, to ultimately avoid affecting wildlife, wildlife habitat and wildlife harvesting.

Table 6-1 provides a summary description of the proposed mitigation strategies that will be implemented to avoid or minimize potential effects to the Valued Components (VCs) identified for this Project. VCs were selected for this EIS based on a combination of the directions provided in the EIRB Terms of Reference (2010), the Developer's understanding of the biophysical and socio-economic components, traditional knowledge as specified in the CCPs, the *Inuvialuit Final Agreement* and information gathered through consultation. Potential effects have been predicted for each VC, particularly related to the role of the VC in the ecosystem and to the Inuvialuit community. Table 6-1 summarizes the mitigation measures and strategies described in the effects assessment (Sections 4.2 and 4.3) of the EIS. Mitigation strategies for this Project include: Highway design, route location options, construction timing, additional field studies and monitoring, adaptive management, and contingency plans.

TABLE 6-1: SUMMARY OF MITIGATION STRATEGIES FOR IDENTIFIED VALUED COMPONENTS

Valued Component	Project Phase or Component	Potential Effect	Key Mitigation Measures[1]	Implementation Methods	Rationale for Use	Guidelines/ BMPs	Management and/or Contingency Plan(s) Required	Responsible Party
Noise	Construction and Operations: • Blasting • Heavy equipment • Vehicle traffic	Wildlife Effects: • Sensory disturbance • Behaviour alteration / avoidance	• Construction timing to avoid sensitive periods • Follow noise guidelines • Noise reduction planning, and implementation • Equipment will be properly maintained to ensure noise is minimized	• Based on advice from wildlife experts, the proximity of construction activities may be limited during sensitive periods, in accordance with relevant guidelines • Vehicle movements will be managed to minimize construction traffic • Machinery will be maintained to minimize resulting noise • Borrow sources will be selected to minimize haul distance • Operations will be adaptively managed, in consideration of potential noise effects to VCs	• Project location is remote and construction noise effects will be temporary • Potential effects during construction and operation are expected to be minimal	• DFO (1998) *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* • INAC (2010d) *Northern Land Use Guidelines: Pits and Quarries, and Access Roads and Trails*	• Noise monitoring plan if required	Developer / Contractor
Terrain, Geology, Soil and Permafrost	Construction: • Blasting • Heavy equipment • Borrow source activity • Highway construction Operation: • Borrow pit activity • Highway operation	• Change in drainage and surface hydrology • Thaw slumps • Melting of ice-rich ground • Slope and soil instability • Erosion • Subsidence in permafrost • Permafrost thaw and Differential Settlement	• Winter construction, hauling, and stockpiling • Summer access via embankment • Protect permafrost by Highway alignment, embankment, and borrow pit design • Ensure proper drainage • Use appropriate materials for embankment • Borrow pits will be reclaimed upon decommissioning • Adaptive management	• Construct embankment during winter • Access and haul from borrow sources in winter • Conduct summer activities only where accessible by existing embankment • Stockpile materials on existing embankment • Minimize surface area of open cut • Grade slopes to minimize slumping • Grade storage and work areas to promote drainage • Grade slopes and replace overburden during borrow source reclamation • Design and construct embankments based on terrain type • Design Highway alignment to avoid unfavourable terrain • Install sufficient cross-drainage • Conduct spring and fall drainage inspections	• Similar techniques were used successfully on other road construction projects in the ISR • Vegetation and soil remain intact during construction with ground temperatures maintained; avoiding permafrost melting • Maintain drainage and surface hydrology	• INAC (2010d) *Northern Land Use Guidelines: Pits and Quarries, and Access Roads and Trails* • Transportation Association of Canada (2010) *Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions*	• Pit development plans • Environmental monitoring plan	Developer / Contractor
Water Quality and Quantity	Construction: • Borrow source construction • Highway construction Operation: • Borrow pit operation • Highway operation	• Reduced water quality or quantity • Contamination of surface water due to spills, erosion, sedimentation • Reduced water quantity • Changes to surface water flow regimes • Effects to fish and/or fish habitat • Effects on human health	• Construction timing • Highway, and in particular stream crossing, design • Erosion and sediment control strategies • Environmental Management and Spill Contingency Planning • Consultation and direction from DFO regarding fish habitat protection and/or compensation • Environmental monitors during construction • Adaptive management	• Erosion and sediment control measures • Primarily winter construction timing • Dust suppression during construction and operation • Adequate emergency spill planning and personnel training will be implemented • Activities that disturb soil and vegetation will be limited and monitored • Designate areas for refuelling and servicing vehicles and equipment • Environmental monitoring will occur throughout Project construction • Equip all vehicles and equipment with spill kits during construction • Minimize clearing and vegetation removal	• Similar techniques were used successfully on other road construction projects in the ISR	• DFO *Operational Statement for Culvert Maintenance* • DFO *Operations Statement for Temporary Stream Crossings* • DFO (2005) *Protocol for Winter Water Withdrawal in the Northwest Territories* • Conditions of Water License • DFO (1993) *Land Development Guidelines for the Protection of Aquatic Habitat* • CCME (2007) *Canadian Water Quality Guidelines for the Protection of Aquatic Life: Summary Table* • GNWT (1993) *Guideline for Dust Suppression*	• Erosion and sediment control plan • Environmental management plan • Spill contingency plan	Developer / Contractor

TABLE 6-1: SUMMARY OF MITIGATION STRATEGIES FOR IDENTIFIED VALUED COMPONENTS

Valued Component	Project Phase or Component	Potential Effect	Key Mitigation Measures[1]	Implementation Methods	Rationale for Use	Guidelines/ BMPs	Management and/or Contingency Plan(s) Required	Responsible Party
Changes to Hydrological Regime	Construction: • Culvert installation • Temporary and permanent stream crossings	• Effects on fish and fish habitat • Effects to downstream users • Flooding of habitat • Disrupted, reduced or eliminated flow • Wetland backfilling	• Construction timing • Highway routing and design • Infrastructure design and effectiveness • Monitoring for effects during and after construction • Consultation and direction from DFO regarding fish habitat protection and/or compensation • Environmental monitors during construction • Adaptive management • Regular culvert maintenance during operations, as required	• Design Project to accommodate site hydrology • Avoid sensitive areas during construction • Install and maintain crossing structures • Manage site drainage properly • Select culvert sizes appropriate to conditions, including maximum flow conditions • Monitor culverts after installation, to ensure flow • Select infrastructure to allow fish passage where necessary	• Similar techniques were used successfully on other road construction projects in the ISR	• DFO (1993) *Land Development Guidelines for the Protection of Aquatic Habitat* • DFO *Operational Statement for Culvert Maintenance* • INAC *Northern Land Use Guidelines for Roads and Trails* (2010c)	• Construction environmental management plan • Post-construction monitoring plan • Habitat monitoring program for fish • Erosion and sediment control plan	Developer / Contractor
Species at Risk and Species of Special Status or Management Concern	Construction: • Highway • Borrow pit • Blasting • Heavy equipment Operation: • Highway • Borrow pit	• Mortality or injury • Sensory disturbance • Displacement • Habituation and attraction • Interference with migration • Population effects • Increased harvest pressure • Habitat loss or degradation	• Project design and planning • Construction timing • Wildlife management plan • Construction environmental management plan • Spill Contingency Plan • Waste management plan • Progressive reclamation of borrow sources • Consultation and direction from regulatory agencies • Adaptive management • Public education • Wildlife monitors during construction	• Conduct field studies prior to construction, as necessary • Monitor for wildlife and birds during construction • Project routing will avoid sensitive locations and periods, where possible • Construction personnel will receive wildlife training • Encourage public education through signage for wildlife crossings and regarding hunting restrictions during operations • Regulation, monitoring and enforcement of harvest will be implemented • Wildlife deterrent mechanisms • Document, report and avoid wildlife and wildlife dens and bird nests during construction • Setbacks will be used to protect sensitive wildlife features • Lighting will be installed and managed, to reduce harm	• Current harvesting restrictions in place • No-hunting corridors have been successfully established along the Liard and Mackenzie Highways and the Ingraham Trail (Highway 4).	• *Species At Risk Act*	• Spill contingency plan • Wildlife management plan • Construction environmental management plan	• Developer/ Contractor • Stakeholders • ILA, HTC, ITC, WMAC, and GNWT ENR

TABLE 6-1: SUMMARY OF MITIGATION STRATEGIES FOR IDENTIFIED VALUED COMPONENTS

Valued Component	Project Phase or Component	Potential Effect	Key Mitigation Measures[1]	Implementation Methods	Rationale for Use	Guidelines/ BMPs	Management and/or Contingency Plan(s) Required	Responsible Party
Land and Resource Use by Inuvialuit	Construction: • Highway • Borrow source Operation: • Highway • Borrow source	• Improved access to areas used for hunting and fishing • Potential increased hunting pressure on wildlife • Potential alteration to wildlife distribution patterns	• Cooperation with regulatory agencies • Public education	• Construction crews will be required to stay on authorized access roads and within the construction area at all times • During the operations phase, install signage and educational materials to encourage Highway users to stay on the designated Highway • Minimum 1 km setback from Husky Lakes area	• Results of community consultations • Land and resource use is a valued part of the Inuvialuit identity • Special management areas must be managed according to various Inuvialuit legislation, plans, and guidelines. • Similar adaptive management techniques were used successfully on other road construction projects in the ISR	• Draft *Husky Lakes Special Cultural Area Criteria: ILM Special Area Plan* (ILA 2010) • EIRB (2002) *Husky Lakes Criteria* • *Husky Lakes Integrated Management Planning Study* (2001) • Tuktoyaktuk CCP • Inuvik Inuvialuit CCP • *Inuvialuit Final Agreement*	• Wildlife monitoring during construction	• Developer/ Contractor • GNWT ENR, FJMC, IGC, HTC, ILA • Highway Users
Areas of Special Ecological and Cultural Importance	Construction: • Highway • Borrow source Operation: • Highway • Borrow source	• Improved access to or near areas of ecological and cultural importance • Potential construction-related effects • Potential effects from Highway users	• Project planning and route selection to avoid areas of importance • Setbacks from areas of importance • Public education • Consultation and guidance from ILA	• Highway is located a minimum of 1 km from the Husky Lakes • Construction vehicles will stay on access roads or the construction site at all times • Recreational use of all-terrain vehicles and snowmachines by construction personnel while working on the Highway will not be permitted • Recreational use of the Highway by Project staff during construction will not be permitted • Signage will be installed encouraging Highway users to stay on the Highway	• Results of community consultations • Special management areas must be managed according to various Inuvialuit legislation, plans, and guidelines. • Similar adaptive management techniques were used successfully on other road construction projects in the ISR	• Draft *Husky Lakes Special Cultural Area Criteria: ILM Special Area Plan* (ILA 2010) • EIRB's *Husky Lakes Criteria* (EIRB 2002) • *Husky Lakes Integrated Management Planning Study* (2001) • Tuktoyaktuk CCP • Inuvik Inuvialuit CCP • *Inuvialuit Final Agreement*	• Environmental management plan	• Developer/ contractor • ILA • Highway Users

TABLE 6-1: SUMMARY OF MITIGATION STRATEGIES FOR IDENTIFIED VALUED COMPONENTS

Valued Component	Project Phase or Component	Potential Effect	Key Mitigation Measures[1]	Implementation Methods	Rationale for Use	Guidelines/ BMPs	Management and/or Contingency Plan(s) Required	Responsible Party
Land Designation Areas (as per IFA and CCPs)	Construction: • Highway • Borrow source Operation: • Highway • Borrow source	• Improved access to special management areas • Potential construction-related effects • Potential effects from Highway users	• Project planning and route selection to avoid areas of importance • Setbacks from areas of importance • Public education • Consultation and guidance from ILA	• Construction vehicles will stay on access roads or the construction site at all times • Recreational use of all-terrain vehicles and snowmachines by construction personnel while working on the Highway will not be permitted • Recreational use of the Highway by Project staff during construction will not be permitted • Signage will be installed encouraging Highway users to stay on the Highway	• Results of community consultations • Special management areas must be managed according to various Inuvialuit legislation, plans, and guidelines. • Similar adaptive management techniques were used successfully on other road construction projects in the ISR	• Tuktoyaktuk CCP • Inuvik Inuvialuit CCP • *Inuvialuit Final Agreement*	• Environmental management plan	• Developer/ contractor • Highway Users
Tourism, Commercial and Public Recreational Use	Construction: • Highway • Borrow source Operation: • Highway • Borrow source	• Improved tourism and recreational use • Increased opportunities for commercial ventures • Potential effects to tourist attractions during construction	• Project planning and route selection • Setbacks from areas of ecological and cultural importance • Construction timing	• Primarily winter construction • Accommodating winter construction crews in camps and not in tourist accommodations • Hiring northern workers and contractors to support the local economy, without displacing tourists • Develop infrastructure for increased access to Tuktoyaktuk for tourists and other uses • Develop infrastructure between Tuktoyaktuk and Inuvik for personal and recreational use	• Results of community consultations			• Developer/ contractor • Local Communities
Heritage and Archaeological Sites	Construction: • Highway • Borrow source Operation: • Highway • Borrow source	• Increased access to heritage sites • Potential effects to archaeological resources and sites	• Archaeological impact assessment prior to construction • Archaeological sites protection plan • Approved site-specific mitigation measures, as required, by the PNWHC • Route selection and final design • Worker education • Adaptive management plan • Construction environmental management plan	• Identify all known heritage and archaeological sites to be avoided during construction • PNWHC-approved mitigation measures will be implemented throughout the duration of the construction process • Comply with the heritage resource protection legislation and regulations	• Archaeological resources are protected through various federal, territorial and Inuvialuit legislation and regulations.	• The *Northwest Territories Archaeological Sites Regulations*, pursuant to the *Northwest Territories Act* • NWT Archaeologists Permit	• Archaeological site(s) protection plan • Construction environment management plan • Site-specific mitigation plans, as necessary	• Developer/ Contractor • Qualified archaeologist • Prince of Wales Northern Heritage Centre

ATTACHMENT 1

Northwest Territories Environment and Natural Resources

November 18, 2011

Mr. Jim Stevens
Director, Mackenzie Valley Highway
Department of Transportation
Government of the Northwest Territories
Box 1320
Yellowknife, NT
X1A 2L9

Dear Mr. Stevens

Please accept this document as a description of territory-wide programming conducted by the Government of the Northwest Territories (GNWT) Departments of Justice, Education Culture and Employment, Health and Social Services, NWT Housing Corporation, and NWT Bureau of Statistics. It is intended to assist the Inuvik to Tuktoyaktuk Highway Project Partners respond to the recent request from the Environmental Impact Review Board (EIRB) for additional information on this topic. Much of the information is supplementary to the Environmental Impact Statement (EIS) and Conformity Responses provided by the Project Partnership to the EIRB in May and August 2011.

As you are aware, several of these Departments assisted the Project Partnership by providing baseline information, where available, for the EIS as listed in the Project Terms of Reference (TOR) 9.2 and Appendix B). The NWT Bureau of Statistics subsequently contributed to the April 2011 draft Human Environment baseline chapter by providing detailed comments to the Partnership consultants. No attempt was made by social program departments to review the chapters pertaining to socio-economic effects assessment (TOR 10.2) or socio-economic effects monitoring (TOR 13.1).

During conformity discussions with the EIRB consultant advisors, it was clear that information on GNWT Departmental mandates would be useful to clarify or expand the statement "*The Developer has no plans to monitor the possible socio-economic and cultural effects of the project, as these are within the mandate of territorial, Inuvialuit and federal responsibilities and programs*" provided in the Developer's Response to Conformity Request #13. This overview provides clarification of the most significant programs and activities conducted by GNWT Departments. We also provide additional information on a collaborative socio-economic

monitoring activity led by the Inuvialuit Regional Corporation (IRC). However, we recommend that the EIRB seek additional information from other parties responsible for aspects of socio-economic programming or funding to supplement this submission.

Vision, Goals and Priorities of the Legislative Assembly

All GNWT Departments have departmental mandates assigned to them by the Legislative Assembly. Each new Legislative Assembly sets its vision, specific goals and priorities for its four-year term. Each Department then determines its programming requirements to attain the goals and priorities set out in the Government's strategic plan. Each Department develops and implements a departmental strategic plan and plan of action related to its mandate. A new Vision will soon be released by the 17th Legislative Assembly to guide the next four years of departmental planning.

Departmental Business Planning

As mentioned, the provision of public services is planned and organized through departmental business planning. As part of this approach, Departments undertake an environmental scan to determine specific pressures or issues, including resource development, that may require additional services or staff to address future impacts. In addition, Departments undertake strategic planning to develop approaches to make the most effective use of the financial resources of the GNWT. While Departmental strategic plan horizons vary in length of time, each Department develops an annual Business Plan which is reviewed and included in annual budget submissions or Main Estimates to be approved by the Legislative Assembly. Most Departments and agencies collect data for the purpose of "monitoring" their programs for effectiveness and to identify resource requirements or new activities. Some of these statistics are required under coordinated national monitoring (for example, ensuring GNWT accountability under the Canada Health Act). This allows GNWT Departments to modify or change program activities over time in response to impacts or other changes. Some data collected also allows federal departments to modify or change their programs and activities.

The following section briefly highlights key social programming carried out across the NWT.

<u>Department of Justice</u>

The GNWT has overarching responsibility for the administration of justice and public safety. This mandate includes many services such as policing, courts, corrections, and community justice. It is carried out in a manner that respects community and Aboriginal values and encourages communities to assume increasing responsibilities.

To aid in the administration of justice, the GNWT has a '*Territorial Police Service Agreement*' with the Public Safety Canada. Under this agreement, the Royal Canadian Mounted Police (RCMP) provides a full spectrum of law enforcement and community policing services which

must meet, or often exceed, the safety needs and expectations of the people in the NWT. The RCMP enforces territorial and federal laws; assists with unexpected major events such as multiple fatality incidents or natural disasters; and, provides protection for visiting dignitaries.

For the purposes of the NWT Policing Agreement, the Commanding Officer of the RCMP in the NWT implements objectives, priorities and goals as determined by the federal Minister of Justice to reflect territorial priorities, including the deployment of the territorial Police Service personnel and equipment. Key public safety areas include: drug, alcohol and substance abuse and trafficking; family violence; and, safe travel on and off roads.

The Governments, in collaboration with the RCMP, have the authority to enforce measures under the *Northwest Territories Liquor Act* and the *Criminal Code of Canada.* The RCMP work in concert with certain GNWT departments, typically the Departments of Health and Social Services and Education, Culture and Employment, in the areas of alcohol and drug education. This includes the NWT Drug Strategy Program and the Drug and Alcohol Resistance Education Program (D.A.R.E.) which are active in most NWT communities. The D.A.R.E. program is designed to equip school children with the skills to recognize and resist social pressures to experiment with tobacco, alcohol, and other drugs. The program uses uniformed officers to teach a formal curriculum to students in a classroom setting.

The RCMP also enforces federal, territorial and municipal statutes relating to motor vehicles. Although every regular member of the RCMP is trained in traffic enforcement and investigations, the RCMP also has a NWT Traffic Services Unit dedicated to traffic education and enforcement. Local RCMP Detachments and the Department of Transportation communicate on highway safety and enforcement of the *Motor Vehicles Act* and *Public Highways Act*.

Department of Education Culture and Employment

The mandate of the Department of Education, Culture and Employment is to provide residents of the NWT with access to quality programs, services and support to assist them in making informed and productive choices for themselves and their families with regard to education, training, careers, employment and labour, child development, languages, culture and heritage. The Department is also responsible for assisting individuals to meet their basic financial needs. The "*Building on Our Success – Strategic Plan 2005 – 2015*" and companion Progress Report (as of March 31, 2009) provide a very detailed review of the Department's responsibilities. The following material covers some key highlights.

The Department develops programs for cultural, heritage and language education, early childhood through to post-secondary education, and career development. Divisional Education Councils, including the Beaufort-Delta Council, are responsible for the operation and administration of schools within their division, implementing curriculum, managing personnel, enrolling students and initiating proposals for new construction or other major capital expenditures.

Aurora College offers literacy outreach, college-level education and upgrading services in the Beaufort-Delta region, such as Adult Literacy and Basic Education, Aboriginal language instructor training, business administration and other certificate, diploma and degree programs. The College has an Inuvik regional campus and Community Learning Centres in Tuktoyaktuk and other communities in the region. The EIS discusses these institutions in more detail.

The Department provides a variety of career, employment and labour programs and services intended to ensure NWT residents have the skills, knowledge and opportunities to participate fully in the Northern economy. The Department works closely with industry, labour organizations and Aurora College in the areas of apprenticeship training, trades, and occupational certification. The Department also works in partnership with other GNWT departments, Aboriginal organizations, the federal government, private sector trainers and employers to encourage the development of a Northern workforce.

The Department has a number of programs that apply to low income persons across the territory. The Basic level of benefits provides assistance for food, shelter, fuel and utilities. The Enhanced level of benefits provides assistance with clothing, disabled/aged, education, furnishings, security deposits, emergency, and day care subsidies. All benefits have eligibility criteria. The social assistance program is intended as a last resort and provides assistance after recipients have exhausted most other resources such as pension income, Employment Income benefits and cash on hand.

The current income security programs include:

- Child Care User Subsidy - provides financial assistance to help parents pay for child care costs while they work or go to school.

- Income Assistance - provides a set amount for food, shelter, and utilities, and enhanced needs such as incidentals, clothing, allowances for seniors and persons with disabilities, furniture, and educational assistance, depending on household income, size of family and community.

- NWT Child Benefit/ Territorial Workers Supplement - provides low-income families with monthly cash payments under the NWT Child Benefit (NWTCB) program to assist with the costs of raising children. This also includes a benefit called the Territorial Workers Supplement (TWS).

- NWT Senior Citizen Supplementary Benefit - provides financial assistance to help NWT Seniors to pay for living costs.

- Senior Home Heating Subsidy -provides financial assistance to seniors to help them pay for the cost of heating their homes.

These programs, including housing, utilities and food, are intended to assist low income persons regardless of local or regional inflation changes. These programs are based on income and some have a process to adjust the income support factor in response to annual inflation.

NWT Housing Corporation

The Northwest Territories Housing Corporation's (NWTHC) mandate is to provide affordable housing to those in core need. The NWTHC works in partnership with communities and aboriginal organizations throughout the NWT. The NWTHC delivers programs and services through local housing organizations. The goals of the partnership approach are to: assist communities to assume a greater role in providing housing for their residents; identify need; and, stimulate development in communities. The NWTHC maintains 5 district offices, including one located in Inuvik, to support the work of its community-based partners.

The NWTHC conducts its business planning on an annual basis. This exercise includes a capital planning component (i.e. construction/repair). In addition to the annual business plan, the NWTHC also prepares a three-year capital plan and a longer range 10 year capital plan. This allows the NWTHC to monitor community demand and to plan its construction and repair activities. By planning in advance for construction in subsequent construction years, the NWTHC hopes to minimize the impact from inflationary forces that may result from increased economic activity.

The challenge for the GNWT, along with its community partners, is to adapt to changes in individual needs by promoting the availability of adequate, suitable and affordable housing for residents of the NWT. The NWTHC addresses this challenge through a number of programs and initiatives. Programs and initiatives pertinent to low income persons include:

- Public Housing Program provides subsidized rental housing to individuals, families and senior citizens in need based on their household income. This program is available to residents of the NWT who are unable to find adequate or suitable housing without spending more than 30% of their gross household income on housing, therefore providing a measure of protection for community residents seeking subsidized rental units. Public housing programs are subject to availability and residency requirements.
- Providing Assistance for Territorial Homeownership (PATH) allows clients the opportunity to become homeowners by assiting in the construction or purchase of a modest home. Assistance is provided in the form of a forgivable loan. Clients obtain additional funding from an approved financial institution or other verifable sources. Contributing Assitance for Repairs and Enhancements (CARE) assists existing homeowners in making necessary repairs to their home to ensure a safe and healthy residence and to increae the useful economic life of their home. Assistance is provided in the form of a forgivable loan to subsidize the cost of preventative maintenance checks, repairs and renovations for their exsing home.
- Homeownership Entry Level Program (HELP) provides assistance to prospective first-time homebuers. Clients who are not able to secure mortgage financing or are unsure

or their responsibilities as homeowners are provided the opportunity of experiencing homeownership commitments before purchasing a home. Asssitance is provided through a lease on a NWTHC home to the eligible applicant(s). The applicants pay 20% of their gross income toward the lease (rent) payment and hselter costs (power, water delivery, etc).

- Solutions to Educate People (STEP) provides education and counselling assistance consisting of four courses designed to prepare participants for the requirements of homwownership. STEP aims to increase homeownership applicants' financial skills, as well as their knowledge of the home purchase process and basic home maintenance repairs.

In partnership with Canada Mortgage and Housing Corporation (CMHC), the NWTHC also delivers the following programs.

- Homeowner Residential Rehabilitation Assistance Program (RRAP) provides financial assistance to low-income homeowners for manadatory repairs that will preserve the quality of affordable housing.
- Residential Rehabilitation Assistance Program – RRAP for Persons with Disabilities provides financial assistance to allow homeowners and landlords to pay for modifications to make their property more accessible to persons with disabilities.
- Home Adaptations for Seniors' Independence (HASI) provides financial assistance for minor home adaptations that will help low-income seniors to continue to perform daily activities in their home independently and safely.
- Emergency Repair Program (ERP) provides financial assistance to help low-income households in rural areas, for emergency repairs required for the continued safe occupancy of their home.

The NWTHC, the NWT Bureau of Statistics, Local Housing Organizations and communities collaborate to undertake conduct periodic housing needs surveys. The NWTHC uses the results to monitor changes in housing conditions and needs, as well as to assist in the targeting of housing resources to communities. The survey findings provide communities with the information needed to make decisions on where funding should be directed to address specific housing problems and needs identified. The latest survey was conducted in 2008. Information from the 2008 survey will enhance the NWTHC's ability to respond to specific community needs.

Department of Health and Social Services

The Department of Health and Social Services' (DHSS) mandate is to protect, promote and provide for the health and well being of the people of the NWT. The delivery of health and social services is accomplished through the collaborative efforts of the DHSS and eight regional health and social service authorities including the Beaufort – Delta HSS Authority. The Department is primarily responsible for legislation, policy, standards, funding and strategic planning across the Territory while the Authorities plan, manage and deliver programs and

services in the regions and communities. Some services are provided by non-government organizations through contribution agreements with the Department and/or the Authorities.

The health and social services system has the following goals and priorities:

Goals:

- Wellness - Communities, families and individuals make health choices; children are raised in safe environments and are protected from injury and disease.
- Access - The right service at the right time by the right provider
- Sustainability - Living within our means
- Accountability - Reporting to the public and Legislative Assembly

Priorities:

- Enhance services for children and families
- Improve the health status of the population
- Deliver core community health and social services through innovative service delivery
- Ensure one territorial integrated system with local delivery
- Ensure patient/client safety and system quality
- Outcomes of health and social services are measured, assessed and publicly reported

These are achieved through the implementation of the Integrated Service Delivery Model (ISDM) for the NWT Heath and Social Services System. The Department and Authorities developed the ISDM as their framework for the future delivery of health care services in the NWT. The ISDM is a team based, client-centered approach to providing health and social services that focuses on collaboration between caregivers to achieve quality health care service. Within the ISDM, there are three levels of care that may be accessed by all NWT residents. Appendix A provides details for the Inuvik and Tuktoyaktuk communities.

Primary Care is the level of care provided at the first point of contact with the health and social services system. Every community will have access to at least a basic team of primary health and social services care providers and to some diagnostic services. All communities will have access to clinical assessment and treatment, front line counseling, first aid, emergency care, after care, and monitoring of a plan of care. In very small communities, some of these services will have to be offered through visiting staff (a team of providers) with a system of referral/consultation for advanced assessment, care, and treatment.

Primary care is most often provided through a combination of primary community care teams and regional support teams. Primary community care teams operate at the community level and make referrals to regional support services, as required and according to established referral protocols. Regional support teams normally operate in those centres that function as the base for Authorities and may include intra-disciplinary and multi-disciplinary teams of professionals that provide on-site services, along with some itinerant services to the communities in the regions. These teams have some form of “surge” capacity to address

extraordinary situations. Members of these teams also make appropriate referrals to territorial support services and to services available outside the NWT.

Secondary Care are the referred services located within hospital or other facilities in the NWT that respond to advanced and/or specialized needs. Secondary care services include internal medicine and surgery, alcohol and drug treatment (see also Addictions and Mental Health Services), psychiatry, pediatrics, obstetrics, and more advanced diagnostic services such as laboratory or more specialized radiology services.

Secondary care is most often provided by territorial support teams, comprised of professionals located in the larger communities who have a mandate to service the entire NWT. These teams can be multi-disciplinary or members of the same profession. These teams provide specialized on-site and itinerant support services to the regions and communities through appropriate referral protocols and also provide referrals to services available outside the NWT.

Tertiary Care are the more specialized diagnostic and treatment services that normally must be accessed outside the NWT, with some limited tertiary services being provided at Stanton Territorial Health Authority through visiting specialists.

Core Services

Within the ISDM model there are six core services, four of which are typically considered relevant for development activities in the NWT:

i) Mental Health and Addictions Services provide care and support to people who have a mental illness or addiction, and these services work to restore mental well being and help people to receive the care and support they need to live in optimal health.

ii) Promotion and Prevention Services help to improve health status and overall quality of life for persons in the NWT. Health promotion includes life skills, healthy choices, education and other factors that influence health and well being. Prevention efforts focus on human, environmental, social, cultural and other factors to prevent illness or injury.

iii) Protection Services help to protect communities and to take care of vulnerable people. Through regulatory oversight and enforcement of legislation such as the *Public Health Act*, these services manage and control public health issues such as safe food handling practices and the outbreak of diseases.

iv) Diagnostic and Curative Services are directed toward the assessment, diagnosis and treatment of illness, disability and disease. This is the public face of the health care system as seen in hospitals, health centres and clinics across the NWT.

Health and Social Service System Description

The health and social services system in the NWT operates on a budget of $344 million, with a workforce of 1,296 active positions.

The two hospitals in the NWT are located in Yellowknife and Inuvik.

Stanton Territorial Hospital in Yellowknife had 80 beds and 30 ambulatory beds in operation in 2010/11. Stanton's 21 full-time specialists provide services in radiology, general surgery, anesthesiology, internal medicine, orthopedics, ophthalmology, ear, nose and throat, obstetrics and gynecology, and psychiatry. Other medical specialty services may be available on a visiting basis. Diagnostic services include radiography, fluoroscopy and ultrasound. CT scans may be available. Emergency and acute care services are provided by physicians, nurse practitioners and registered nurses. Stanton offers advanced life support and emergency surgical services, with an intensive care unit. Stanton also has inpatient beds for surgical, medical, maternity, pediatric and psychiatric patients.

Inuvik General Hospital has 51 beds in operation and provides emergency, acute care, pharmacy, operating room, long term care, rehabilitation, nutrition and laboratory services. Diagnostic services include basic radiography, fluoroscopy and ultrasound. Inuvik offers advanced life support.

Public health and environmental health programs in the NWT operate under the direction of the Chief Medical Health Officer, who is assisted by two Medical Health Officers, one located in Yellowknife and the other located in Inuvik (part-time). They are responsible for a wide range of health promotion and disease prevention activities, including the enforcement of the *Public Health Act* and the *Disease Registries Act*.

Public health programs include immunization, communicable disease prevention, contact tracing for sexually transmitted infections, maternal and infant health programs and school health programs. These services are provided by registered nurses working in public health units located in Yellowknife, Inuvik, and other communities. Two communicable disease specialists also work in the Office of the Chief Medical Health Officer, located in Yellowknife.

Environmental health programs include dealing with issues around safe water, safe food, air quality, environmental contaminants, waste and sewage disposal, infectious disease outbreak control and emergency preparedness. There are seven environmental health officers located in Yellowknife (4), Hay River (1) and Inuvik (2).

Mental health and addiction services are provided in most communities, delivered either directly by the Health and Social Service Authorities or by way of contribution agreements with non-government organizations. Services include awareness and education programs, assessment and referral services, community-based counseling and aftercare services. There is one alcohol and drug treatment center in the NWT located on the Hay River Reserve. Withdrawal management programs are offered at Stanton Territorial Hospital, Inuvik General Hospital and at the Fort Smith Health Center on an inpatient basis. The Salvation Army in

Yellowknife provides a social withdrawal inpatient unit. Alcohol and drug treatment services are also provided in southern settings, when the needs exceed NWT capacity.

Stanton Territorial Hospital has a psychiatric unit with a consulting psychiatrist, addiction specialist, psychiatric nurses and a psychologist. Placements on this unit are normally made on a voluntary basis. The *NWT Mental Health Act* provides for involuntary treatment in some circumstances but in such situations, placements are usually made in Alberta psychiatric hospitals.

Child and family protection services are provided by community social service workers and social workers under the authority of the *Family and Children's Services Act*. This Act provides for the apprehension and taking into care of child and youth who are at risk of neglect or abuse, and includes the provision of a range of voluntary services to children and their families. Children receiving services under this Act have access to foster homes, group homes and residential treatment centers, both in the NWT (Yellowknife and Fort Smith) and in Alberta.

Family violence shelters, proving a safe environment for women and children at risk of abuse, are located in Tuktoyaktuk, Inuvik, Yellowknife and Hay River.

NWT Bureau of Statistics

The NWT Bureau of Statistics (the Bureau) has overall responsibility for the GNWT's statistical program. To fulfill this role, the Bureau:

- develops, interprets and disseminates those economic, social and demographic statistics required by the government;
- implements statistical programs for territorial government purposes and provides statistical advice and assistance to departments, regional offices and central agencies;
- coordinates statistical activities within the government to minimize the duplication of statistical effort and to help ensure that the statistics used by the government are current, consistent and accurate; and,
- provides for the continuing and effective representation of territorial statistical interests within the national statistical system.

The EIS provides a significant representation of socio-economic data that is housed by the Bureau. This includes periodic survey data conducted collaboratively with other Departments and data generated through social programming Departments and Authorities. Many of the indicators tracked are normally done for evaluating the success of programs or determination of resource allocation needs. Some are monitored at a national level [e.g., standard Health Indicators to measure progress on achieving health care standards across Canada] while others are monitored at a territorial level [e.g., standard student achievement indicators]. While many of these these indicators are useful for describing the human environment and evaluating social programming, few are relevant for monitoring socio-economic effects from a single development due to the complexity of factors affecting individuals, families or communities.

Inuvialuit Regional Corporation – Indicators Project

The Inuvialuit Regional Corporation (IRC) has actively advanced its preparation for the potential impacts of expanded oil and gas activities in the ISR. In 2006, Canada passed the *Mackenzie Gas Project Impacts Act* which established a $500 million mitigation commitment to mitigate the socio-economic effects of the Mackenzie Gas Project. As part of the pre-planning process, Canada provided funds to the IRC to develop a "*Mackenzie Gas Project Impact Fund Investment Plan*". This plan recognized the importance of the development a set of indicators to measure impacts from resource development as a way of monitoring mitigation measures to determine the extent of impacts and to adapt those measures to ensure effectiveness.

The IRC has over the past four years developed a data base and website (http://inuvialuitindicators.com) to monitor social, cultural and economic conditions within ISR. The "Indicators Project" has received funding over this period through IRC's internal resources, and contributions from Aboriginal Affairs and Northern Development Canada (AANDC) for the Beaufort Sea Strategic Regional Plan of Action (BSStRPA), Mackenzie Gas Project Impact Fund planning funds and, currently, the Beaufort Regional Environmental Assessment (BREA). The Department of Fisheries and Oceans (DFO) with the Social Cultural and Economic Working Group of the Beaufort Sea Integrated Ocean Management Plan has also contributed to the identification of indicators and data gathering and design.

The IRC has worked with the Bureau to populate the current website. The Bureau was contracted to prepare an inventory of administrative data including descriptions so that indicators and tabulations can be requested from this administration data to further build base line data. Table 1 provides the current indicators for the primary valued socio-economic components available on the website (http://inuvialuitindicators.com) .

Table 1. Current Indicators for Socio-economics in the Inuvialuit Settlement Region.

Population	Education
• Birthrate Per 100 Persons • Population Mobility (1-Year) • Population Mobility (5-Year) • Teen Births • Total Births • Total Population	• K-12 Enrollment • Population 15 Years Or Older With High School Or More • Population Aged 20-24 Years With High School Or More • Population Aged 20-29 Years With High School Or More
Culture	**Labour Force**
• Households Where Half Or More Of Meat And Fish Consumed Is Country Food • Population 15 Years Or Older Who Hunt And Fish	• Distribution Of Skill Types In Employed Population (2004) • Distribution Of Skill Types In Employed Population (2009)

- Population 15 Years Or Older Who Speak An Aboriginal Language
- Population 15 Years Or Older Who Spent Time Trapping
- Population 15-24 Years Who Speak An Aboriginal Language

- Employment Rate
- Number of persons employed in the service sector per 1,000 employed (excluding government)
- Participation Rate
- Population Working 26 Or More Weeks In Previous Year
- Unemployment Rate

Wellbeing

- Accidental Death Rate Per 1,000 Persons
- Alcohol Sales By Outlet Location In Thousand Litres
- Charges For Violent And Property Crimes (Adults)
- Children Receiving Services
- Hospitalizations Due To Injury
- Hospitalizations Due To Injury And Poisonings
- Live Births With High Birth Weight (More Than 4.5 kg)
- Live Births With Low Birth Weight (Less Than 2.5 kg)
- Number Of Cases Of Sexually Transmitted Infections
- Number Of Injury Deaths Excluding Homicides And Suicides
- Number Of Premature Deaths (Deaths Before The Age Of 50)
- Nurse-Diagnosed Injuries And Poisonings
- Other Crimes Rate Per 1,000 Persons
- Physician-Diagnosed Injuries And Poisonings
- Potential Years Of Life Lost per 1,000 Persons (3 Year Average)
- Property Crime Rates Per 1,000 Persons
- Violent Crime Rate Per 1,000 Persons
- Youths Charged Per 1,000 (Aged 12 To 17)

Income

- Average Employment Income
- Average Family Income
- Average Monthly Income Support Beneficiaries
- Average Monthly Income Support Cases
- Average Personal Income
- Families Earning Less Than $30,000
- Families Earning Less Than $75,000
- Median Family Income
- Number Of Taxfilers
- Number Of Taxfilers Reporting Employment Income
- NWT Community Price Index (Yellowknife = 100)
- Taxfilers Earning More Than $50,000

Government

- Correctional Facilities Expenditures Per Capita
- Early Childhood Services Expenditures Per Capita
- Health Services Expenditures Per Capita
- Physicians Billings Expenditures Per Capita
- Police Services Expenditures Per Capita
- Post Secondary Student Services Expenditures Per Capita
- Public Housing Contribution Expenditures Per Capita
- Schools Expenditures Per Capita
- Service Provided By Hospitals Outside NWT Expenditures Per Capita
- Social Assistance Expenditures Per Capita

Housing

- Percentage Of Households In Core Need
- Percentage Of Households In Need Of Major Repairs
- Percentage of Households Living In Public Housing
- Percentage Of Households Owned
- Percentage Of Households With Adequacy Problem
- Percentage Of Households With Affordability Problem
- Percentage Of Households With Six Or More Persons
- Percentage Of Households With Suitability Problem

• Supplementary Health Benefits Expenditures Per Capita	

Concluding Remarks

On October 22, 2010, the GNWT filed a table with the EIRB which briefly described the availability socio-economic data as part of its review of the draft EIS TOR. The accompanying letter also flagged some concerns regarding the socio-economic requirements of the draft TOR. The intent at the time was to encourage the EIRB to scope the project EIS to be relevant to the type of project, the availability of information, and the limited mandate of the Proponent Partnership developer regarding socio-economic monitoring and follow-up. Some recommendations were not applied by the EIRB [e.g., the recommendation to remove the last bullet in 13.4 requiring information on contractor and sub-contractor requirements for promoting activities and programs related to community stability and wellness].

In retrospect, it is unfortunate that the Final TOR did not clearly separate the linkage between the baseline and socio-economic effects analysis (that is the responsibility of a developer) from the socio-economic follow-up and monitoring which is largely already underway as part of the normal social programming of governments and other parties. In most jurisdictions, including the example of a comparable road in northern Saskatchewan currently undergoing a coordinated Comprehensive Study under the *Canadian Environmental Assessment Act* and a provincial environmental assessment[1], the ongoing responsibilities of governments are accepted as a matter of course and the EA requirements of a developer are limited to matters under their control.

In summary, the GNWT social program departments and related authorities and agencies carry out a substantial array of programs that support many of areas raised in the TOR including infrastructure, education training, social services, policing services, health services, social assistance. As part of its standard business evaluation and planning, these Departments and authorities monitor a large number of indicators to ensure appropriate program implementation across the NWT. The monitoring, including periodic surveys, is designed to response to the continuing changes occurring in NWT communities rather than in response to single project effect predictions. While the GNWT does not term the government's programs as a "project mitigation commitment" or as a "project followup and monitoring commitment", it is clear the end result is similar to the TOR requirements for socio-economic monitoring and followup. Therefore, the GNWT does not recommend the Project Partnership be held responsible for socio-economic effects monitoring beyond the Developer commitments in the EIS.

[1] Provided by the Project Partnership as part of its comments on the draft TOR.

The GNWT, as a registered party to the EA, expects to provide further clarification during the technical analysis phase of the project. In the meantime, we trust that this submission will assist the EIRB in its understanding of the roles and mandates of our key social programming departments.

Sincerely

Gavin More

Gavin More
Manager
Environmental Assessment and Monitoring
Environment and Natural Resources

APPENDIX 'A'

HEALTH AND SOCIAL SERVICES PROGRAMMING IN TUKTOYAKTUK AND INUVIK

The Government of the Northwest Territories (GNWT) collaborates on numerous initiatives aimed at providing addiction prevention and sexual education programs to communities.

GNWT supports a variety of alcohol and drug prevention activities, supports community wellness activities, offers treatment programs and supports aftercare programs.

GNWT anticipates that its current programming will meet the needs of residents of the Northwest Territories (NWT) that request access to health and/or social services.

GNWT plans for the delivery of health and social services based on the provision of appropriate access to safe, quality patient focused care. It takes into consideration projected increases in demand related to emerging issues such as: an aging population, increased prevalence of chronic disease, changes in health status, as well as increases in economic development.

As the NWT health and social services system functions as an integrated territorial system, the development of a specific coordinated health care plan related solely to one project would not be in the best interests of the NWT population as a whole.

However, the Department of Health and Social Services (DHSS) monitors and evaluates the efficacy of our programs and tracks health and social indicators in the region.

The DHSS will continue to provide prevention programming aimed at reducing the impacts of mental health and addictions issues in all regions of the NWT.

Below is a listing of services offered in the affected region.

Health Centres	Community	Treatment Pattern	Community Services
Level B **HSS Centre**	Tuktoyaktuk	Stabilize, hold and transport	• Primary community care services are provided by a multidisciplinary team comprised of locally-based nurses, social workers, and counsellors, along with local community health, wellness and other support workers. • Visiting providers such as physicians, dentists, and therapists see patients on a regularly scheduled basis, and remote consultation and support is available via telehealth. • Services not provided at the local level are provided at the regional or territorial level with health centre staff or service partners facilitating the referral and transfer of individuals to higher levels of care and service as required.
Level D **Regional Hospital**	Inuvik Regional Hospital	Regional Referral Hub	• Advanced life support services provided 24/7 with on-call physicians • Acute care inpatient services • Multipurpose/ community support beds • Low complexity surgical services • Obstetrical care • On site rehabilitation team • General diagnostic and laboratory services • Long term care on-site and/or off-site
PCC **Primary Care Centre**	Inuvik	Primary Care – first point of contact	Primary care services are delivered by a broad range of service providers, including physicians, nurse practitioners, nurses, counsellors, and more. Services include: • Health promotion, including healthy lifestyle promotion, maternal health, reproductive and child care and community development • Health protection and preventative services, including screening, intervention disease control, prevention of injury, prevention of chronic diseases and addictions, hearing and vision, early intervention. • Acute, diagnostic and laboratory services • Continuing care, including palliative care and long-term care • Developmental rehabilitation and support services, including mental health and addictions
Level 3/4 **Long Term Care Centre**	Inuvik Regional Hospital Long Term Care Unit	24-hour care for those who can no longer live independently	Long-term care homes are designed for people who require the availability of 24-hour nursing care and supervision within a secure setting. In general long-term care homes offer higher levels of support than assisted/supported living facilities.

			All long term care homes offer 24-hour supervision including services such as: meals, medical/clinical supplies and devices, medication administration, and assistance with essential activities of daily living.
Social Service Facilities	Community Level (Tuktoyaktuk)	Basic care provided locally with access to regional and territorial services through referrals.	Prevention, awareness, and early intervention services are provided at the community level to the greatest extent possible, with a focus on addiction and mental health, child and family services, and family violence prevention. Aftercare programming and services are also offered, wherever possible, within communities.
	Regional Level (Inuvik)		Mental health counselling, prevention, promotion and addiction counselling services, assessment and referral to psychiatric and psychological services, crisis stabilization and group home services for those with a mental disability.
	Territorial Level		Residential treatment, tertiary care, and psychiatric services offered at the territorial level. In some situations, referrals outside of the NWT are required.

* DHSS is mandated to provide the services above. Services being offered in any community may change due to human resource restrictions, in which case health or social service providers will travel to the community on a scheduled basis, or clients will be referred to the regional or territorial level.

ATTACHMENT 2

Taking Care of Caribou

The

CAPE BATHURST, BLUENOSE-WEST, AND BLUENOSE-EAST BARREN GROUND CARIBOU HERDS MANAGEMENT PLAN

Submitted by The Bluenose Caribou Management Plan Working Group in partnership with Terriplan Consultants to:

Advisory Committee for the Cooperation on Wildlife Management

May 9, 2011

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1.0 Preamble

This Plan is called *Taking Care of Caribou*. For as long as Aboriginal people have harvested caribou, they have felt a responsibility to take care of the caribou as related in many oral histories. Barren-ground caribou and the Aboriginal people of the North have a complex and ancient history – the abundance and health of the caribou has profoundly influenced the distribution and health of the people.

In the past, traditional harvesting practices that showed respect for caribou helped to keep a balance between harvesters and caribou. These traditional practices were a way of "managing" the caribou. However, elders recall times when caribou were scarce and people searched out other species - for some regions it was moose and for others it was fish. Their knowledge indicates that caribou populations have a natural cycle of 30-60 years where herds go from high to low numbers and back again.

The basic ways of showing caribou respect through Aboriginal harvesting practices is:

- Take only what you need
- Always share with others in need
- Use all parts of the caribou

All the communities in the range of these three herds - the Cape Bathurst, the Bluenose-West, and the Bluenose-East - have been engaged for their input and knowledge. During community meetings, many participants expressed concern about how historical events, modern practices, and changing cultures have affected the relationship between Aboriginal people and caribou. In the past, as now, taking care of caribou has been about managing human actions to sustain healthy caribou populations. The challenge is to create a plan that respects Aboriginal rights and finds a balance between the resources we use today and the resources we leave for future generations.

For decades, Aboriginal people have worked hard to settle their comprehensive land claims so they would have greater control over their land and their lives. The treaties and land claim agreements provide for certain rights for both the ability and the responsibility to manage wildlife.

"It's very hard for elders to express their feelings when they are asked about caribou. I have feelings for the caribou. We really take care of the caribou... people from the government... don't understand the Dene way and how we relate to the caribou."
(Délįnę)

"All herds are declining. We are not traditional hunters anymore. There are more hunters than before, and younger hunters. We can't say there are many caribou and we can just hunt what we please. We need to think about our future generations."
(Kugluktuk)

"You know we all settled our land claims so we could make decisions rather than government. We have responsibilities that government had in the past. Now we may need to make some difficult decisions, as part of the management plan."
(Inuvik)

Observations by caribou harvesters and elders, and the results of scientific studies, indicate that barren-ground caribou populations in the western arctic declined in the early 2000s. In some cases the decline was quite drastic. Although there is no consensus on the cause of the decline, all agree that caribou are an essential resource and central to the social, economic, cultural, and spiritual well-being of the local people. Considering what is at stake, it is important to have a plan to sustain these herds so we may have *caribou forever*.

The Advisory Committee for Cooperation on Wildlife Management (ACCWM), comprised of seven co-management boards and agencies, was established in 2008. It decided, as a matter of priority, to form the Bluenose Caribou Management Plan Working Group (BCMPWG or the Working Group) to develop a plan for the three caribou herds. This plan was developed with strong involvement by the 15 communities, in six land claim areas, that harvest these caribou.

2.0 Why Make a Plan Now

2.1 Introducing the Plan

Historically, the 'Bluenose Caribou Herd' occupied what is now the northern portion of mainland Northwest Territories (NWT) and western Nunavut. However, the study of caribou movements using satellite collars and genetic studies revealed that there are three different herds with three distinct calving grounds. The Cape Bathurst, Bluenose-West, and Bluenose-East herds are the names which replace the general term 'Bluenose Caribou Herd'.

The Plan describes:

- Principles and goals for taking care of the three herds;
- The need for a plan now and the importance of working together;
- Current population estimates and trends;
- Roles and responsibilities of the wildlife co-management boards and agencies;
- Information required to effectively manage the herds;
- How to make decisions on managing the herds;
- A framework for determining what management actions should be taken; and
- How to communicate with communities, harvesters, youth, and others.

An ENR-GNWT companion document (Technical Herd Status Report) provides more detail on herd status.

"It hurts to see less caribou because we need them for so much. We here have caribou as food – we just take what we need. We talk among the community and discuss what's needed."
(Délı̨nę)

2.2 Working Together Now and Into the Future

The ACCWM was established to "exchange information, help develop cooperation and consensus and make recommendations regarding wildlife and wildlife habitat issues that cross land claim and treaty boundaries." The ACCWM[1] consists of the Chairpersons (or alternate appointees) of:

- Wildlife Management Advisory Council (NWT) (WMAC_NWT);
- Gwich'in Renewable Resources Board (GRRB);
- Sahtú Renewable Resources Board (SRRB);
- Wek'èezhìi Renewable Resources Board (WRRB);
- Kitikmeot Regional Wildlife Board (KRWB);
- Tuktut Nogait National Park Management Board (TNNPMB); and
- Nunavut Wildlife Management Board (NWMB).

The ACCWM decided to develop a plan for the Cape Bathurst, Bluenose-West, and Bluenose-East barren-ground caribou herds. While the immediate need for the plan was in response to drastic declines in the herds, the intent is for the plan to address caribou management over the long term. The ACCWM identified the need to:

- Develop a cooperative approach to managing the herds;
- Protect the habitat in the herds' range, and
- Make decisions on the shared harvests in an open and fair manner.

As was clearly heard in community engagement meetings, the users expect government and the wildlife co-management boards to work together, and with the communities, to ensure that there are indeed *caribou forever*.

The ACCWM established a Working Group[2] to:

- Prepare a draft plan for the Cape Bathurst, Bluenose-West, and Bluenose-East caribou herds and their habitat for recommendation to the ACCWM;
- Recommend an approach with respect to the shared responsibility for implementing the plan; and
- Promote and strengthen communication and sharing of information among all groups interested in, or responsible for, the management of these herds and their habitat.

"Some people have stopped hunting, hoping that this will help there be more caribou for grandchildren. One harvester has stopped for 6 years now." (Inuvik)

[1] The Dehcho First Nation is part of the Working Group. There is an outstanding invitation for them to join the ACCWM.

[2] See Appendix D for a list of ACCWM and BCMPWG member organizations

3.0 How the Plan Was Put Together

"Use traditional knowledge: it's very important to our way of hunting" (gather knowledge and then use it to develop the management plan). (Fort McPherson)

The Plan was developed in close consultation with the communities that harvest from the three herds. Two rounds of community engagement in 2009-2011 involved 15 communities in five regions - Inuvialuit, Gwich'in, Sahtú, Tlicho and Kitikmeot, NU.

Because these herds are shared across jurisdictions and among many communities, it is very important that everyone works together. It was necessary to seek the experience, input, and advice of all regions and communities. The community engagements were designed to:

- **Share the best available information** on the status of the herds, including both scientific information and harvester observations.
- **Identify the key issues and concerns** for each community, e.g. what do you think is happening to the herds? Why?
- **Discuss possible solutions:** What can we do to address these issues and concerns? How can we include this in a plan?
- **Outline the next steps** in developing a plan.

"Back in the 1950-60s, you did not hear about declines in caribou because Aboriginal people were managing properly. We used community freezers which were filled with bulls from fall community hunts. People were allowed to take meat once a week from the freezer. We need to go back to the old ways of managing things." (Tulıt'a)

Summary reports from the community engagements were prepared by the Working Group and provided to each community. Copies (e.g. *Developing a Caribou Management Plan: Summary of Phase I Consultations in the Inuvialuit Settlement Region; December 2009)* are available from Working Group representatives (see Appendix B).

4.0 What We Are Trying To Do With the Plan

The ultimate goal of this plan is to ensure that there are "caribou forever" - caribou for today and for future generations. The herds will be managed to:

- Conserve vital, healthy caribou herds and habitat; and
- Keep the overall harvest within sustainable limits.

The ACCWM believes that traditional Aboriginal values and practices should be protected and promoted, including values such as respect for wildlife and traditional lands. It also includes the traditional harvesting practices of taking only the amount needed, using all parts of the caribou, sharing, and passing on traditional methods and beliefs to the next generation. This plan supports those values and reflects the following principles:

- Management decisions will respect treaties and land claim agreements and Aboriginal harvesting rights in areas both with and without a land claim agreement.
- Management decisions will reflect the wise use of the herds in a sustainable manner.
- Adequate habitat (quantity and quality) is fundamental to the welfare of the herds.
- Management decisions will be based on the best available information - both science and TEK; and will not be postponed in the absence of complete information.
- Effective management requires participation, openness and cooperation among all users and agencies responsible for the herds and their habitat. Shared use requires shared responsibility.
- Harvests must be allocated in a manner which respects Aboriginal harvesting rights and the sustainable harvesting limit, if any, of each herd.
- We must anticipate and minimize impacts to caribou herds and their habitat.

"Young people are getting wiser now and hunting caribou without calves (because of tags)." (Paulatuk)

5.0 What Caribou Are We Talking About

The Cape Bathurst, Bluenose-West, and Bluenose-East herds occupy a large part of northern mainland NWT and western Nunavut (**Figure 1**). Each herd has a traditional calving area that is used in June. After calving and post-calving, the herds migrate southward. The Bluenose-West and Bluenose-East herds reach the tree line for the rut in October, while the Cape Bathurst herd winters inland on the tundra.

From the 1960s to 1990s the three caribou herds were managed as a single herd – the 'Bluenose Caribou Herd' (**Figure 1**). In the mid 1990s, the information from aerial population surveys and satellite collar data showed three different calving areas and two different rutting areas. Scientists also looked at the genetics of the animals by collecting DNA samples from the calving grounds. Results supported the idea of three separate herds within the 'Bluenose caribou herd' and that each herd occupies a different annual calving area. As biologists define herds of barren-ground caribou by their separate calving grounds, the 'Bluenose caribou herd'

was re-named as the Cape Bathurst, Bluenose-West, and Bluenose-East herds. The population size and distribution of herds change over decades because of environmental changes and human activities. The herd ranges shown in **Figure 2** are based on twelve years of tracking radio collared caribou cows within each herd.

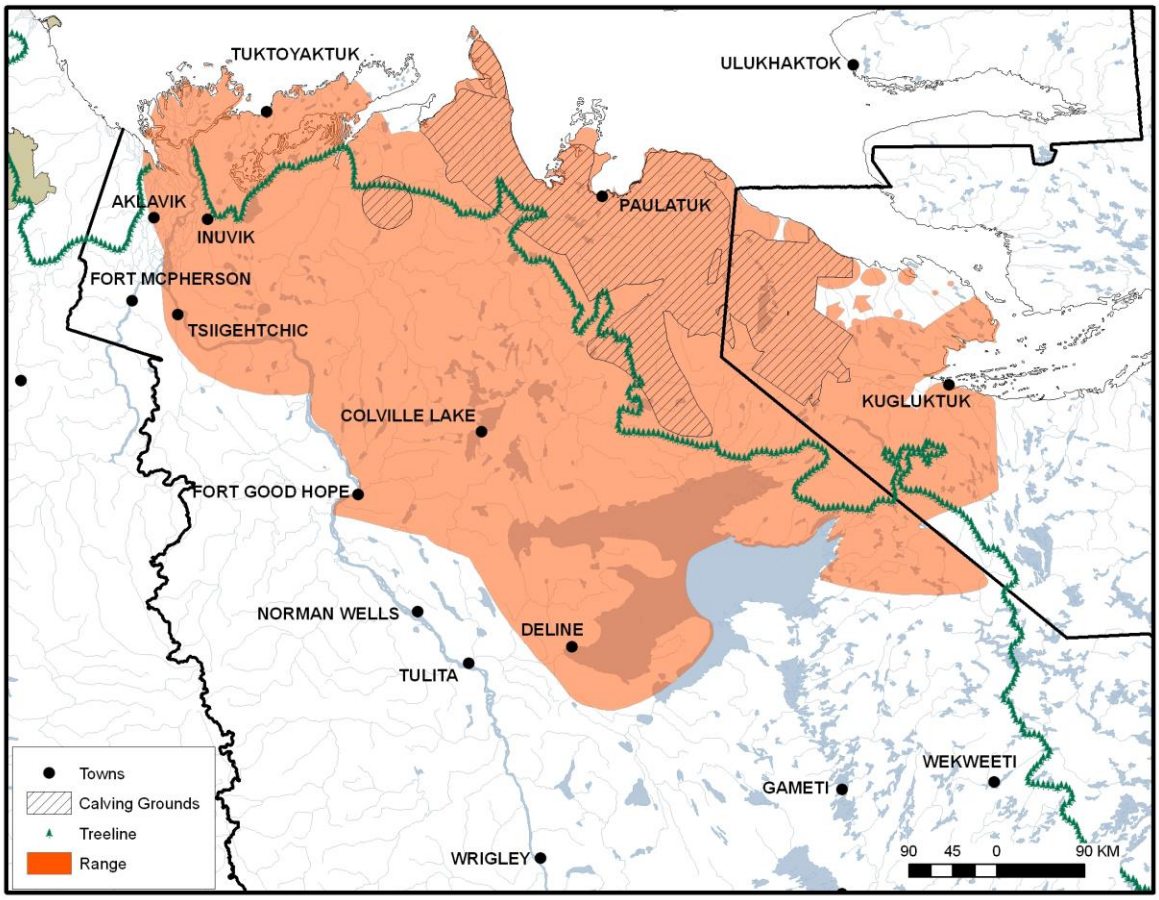

Figure 1 *Historic 'Bluenose Caribou Herd' Range (ENR-GNWT)*

Although the three herds have distinct calving grounds, their ranges sometimes overlap. Cape Bathurst caribou calve on the Cape Bathurst Peninsula, rut east of Husky Lakes, and winter in the Tuktoyaktuk Peninsula-Husky Lakes area (**Figure 2**). Bluenose-West caribou calve west of Bluenose Lake in Tuktut Nogait National Park and adjacent areas to the west, rut in the Anderson River and Colville Lake area and winter on the Tuktoyaktuk Peninsula and south into the Sahtú Settlement Area (**Figure 2**). The Bluenose-East caribou calve east of Bluenose Lake in the headwaters of the Rae and Richardson rivers, rut northeast of Great Bear Lake, and winter north, east, and south of Great Bear Lake (**Figure 2**). Note that there is more detailed information in the companion document – the ENR Technical Herd Status Report.

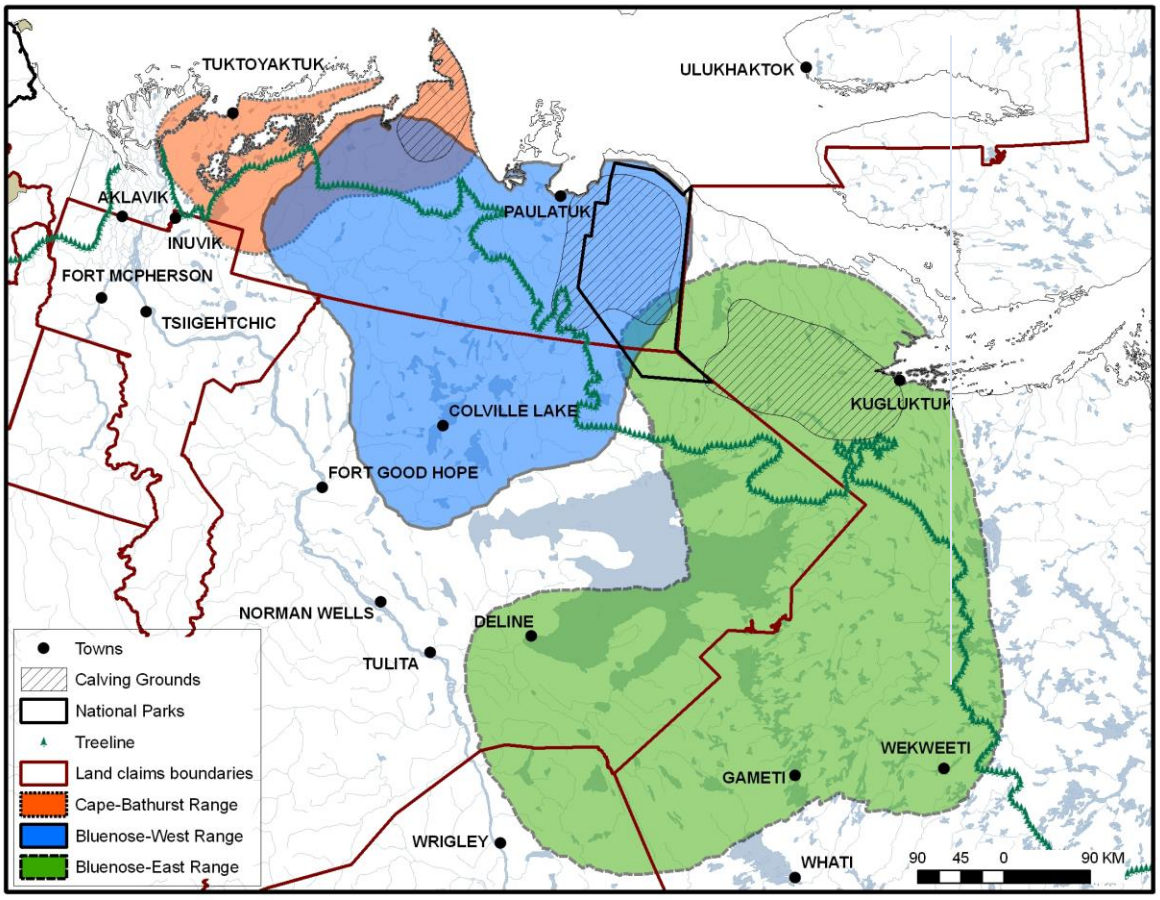

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Figure 2 *Overlapping herd ranges, based on collar data from 1996 to 2008*

Seasonal overlap in herd range creates challenges in allocating appropriate harvest levels for each herd.

The ranges of the Cape Bathurst, Bluenose-West, and Bluenose-East herds may also overlap at times with those of other caribou herds (**Figure 3**). For example, during some winters, the Bluenose-East herd overlaps with the Bathurst herd. As the overlap between herds can change from year to year, several communities harvest from more than one herd. For example, harvesters from Aklavik generally harvest from the Porcupine caribou herd but they sometimes also harvest from the Cape Bathurst herd. Also, herd ranges include different land

"In the past, we had choices on which caribou herds to hunt, because they were close by. But nowadays, we have no choices anymore; the herds are no longer close to the Kugluktuk area. The caribou herds are further away, and the migration routes have changed." (Kugluktuk)

[3] Nagy, John, Deborah Johnson, Nicholas Larter, Mitch Campbell, Andrew Derocher, Allicia Kelly, Mathieu Dumond, Danny Allaire, and Bruno Croft. *In press.* Subpopulation structure of caribou (Rangifer tarandus L.) in Arctic and sub-Arctic Canada. Ecological Applications. [doi:10.1890/10-1410.1]

owners and wildlife management regimes; all of which requires a coordinated approach to habitat and herd management.

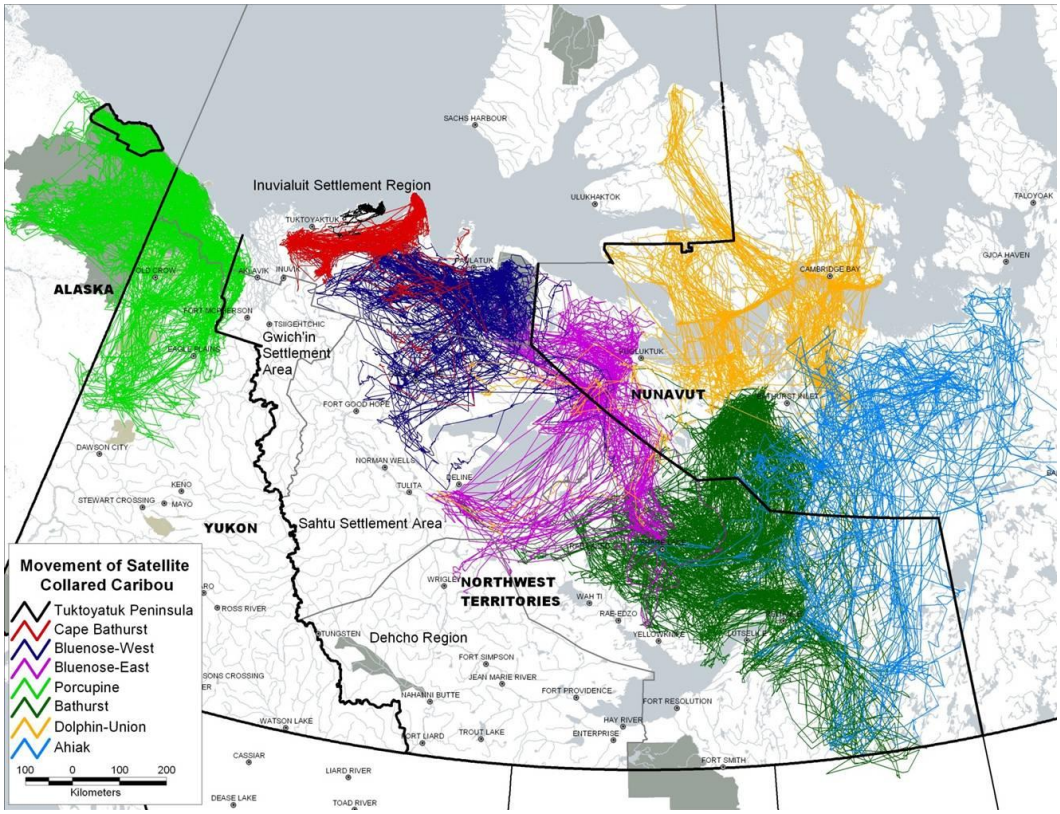

Figure 3 *Range of Barren-Ground Caribou Herds in the Northwest Territories (ENR-GNWT)*

A previous co-management plan for the 'Bluenose caribou herd' was prepared in 2000. It also had extensive community and co-management board involvement; however, the plan was never fully endorsed or implemented. The previous plan grouped all three herds as the Bluenose herd because there was not yet consensus on distinguishing them as three separate herds and because of many common management concerns.

6.0 Who Harvests These Caribou

"Call all groups together…so we can work together. It need not involve a hundred people but we need to start talking." (Inuvik)

Historically, there were subsistence, resident, non-resident (i.e., outfitted), and commercial harvests of the three herds. However, after a series of community meetings in 2005/06, WMAC-NWT, the GRRB, and the SRRB recommended harvest restrictions to the Environment and Natural Resources (ENR) Minister. All resident, non-resident, and commercial harvesting stopped in March 2006 in the Inuvialuit Settlement Region (ISR) and October 2006 in the Gwich'in Settlement Area (GSA) and the Sahtú Settlement Area (SSA).

Resident and non-resident hunting last occurred in the Tłı̨chǫ Settlement Area in 2009. The herds harvested by each community are summarized below.

The **Cape Bathurst herd** typically migrates through two settlement areas/regions and is harvested by three communities in the course of its annual cycle **(Figure 2):** Aklavik, Inuvik, and Tuktoyaktuk.

The **Bluenose-West herd** typically migrates through three settlement areas/regions and is harvested by 13 communities **(Figure 2):** Aklavik, Fort McPherson, Tsıigehtchıc, Inuvik, Tuktoyaktuk, Paulatuk, Colville Lake, Fort Good Hope, Norman Wells, Tulıt'a, Délı̨nę, Ulukhaktok[4], and Sachs Harbour[4].

The **Bluenose-East herd** migrates through four settlement areas/regions in the Northwest Territories and into the eastern portion of the Kitikmeot Region, Nunavut. The herd is harvested by nine communities **(Figure 2)**: Wrigley, Norman Wells, Tulıt'a, Délı̨nę, Whatì, Gamètì, Behchokǫ̀, Paulatuk, and Kugluktuk. This herd may also be harvested by any General Hunting Licence holder from another community who accesses the herd by winter road.

The location and movement of the herds changes over time. Many long term harvesters describe how herds once traditionally available for harvesting now migrate too far from town to access and economically harvest.

7.0 How Well Are the Herds Doing

Aerial surveys from 1992 to 2006 indicated a significant decline in the Cape Bathurst and Bluenose-West herd numbers and the 2009 survey showed the two herds to be stable but still low in relation to historic high numbers. The Bluenose-East herd declined from 2000 to 2006 but the 2010 survey showed the herd appeared to be increasing. Since 2008, recruitment in the three herds has been good (above 30 calves per 100 cows) and health and condition as assessed by harvesters was better in the 2010/2011 season than in the previous three years. For more detailed information on herd status see the companion technical ENR Technical Herd Status Report.

"When you say the herds are in decline – personally I believe it." (Fort Good Hope)

[4] Community harvesters from Ulukhaktok and Sachs Harbour are provided tags and their harvesting occurs on the mainland.

Cape Bathurst Herd

The **Cape Bathurst herd** population declined from an estimated high of approximately 20,000 animals in 1992 to about 2,000 animals in 2005 and 2006 (**Figure 4**). The 2009 population estimate showed the herd to be stable since 2006 but still low in relation to historic high numbers.

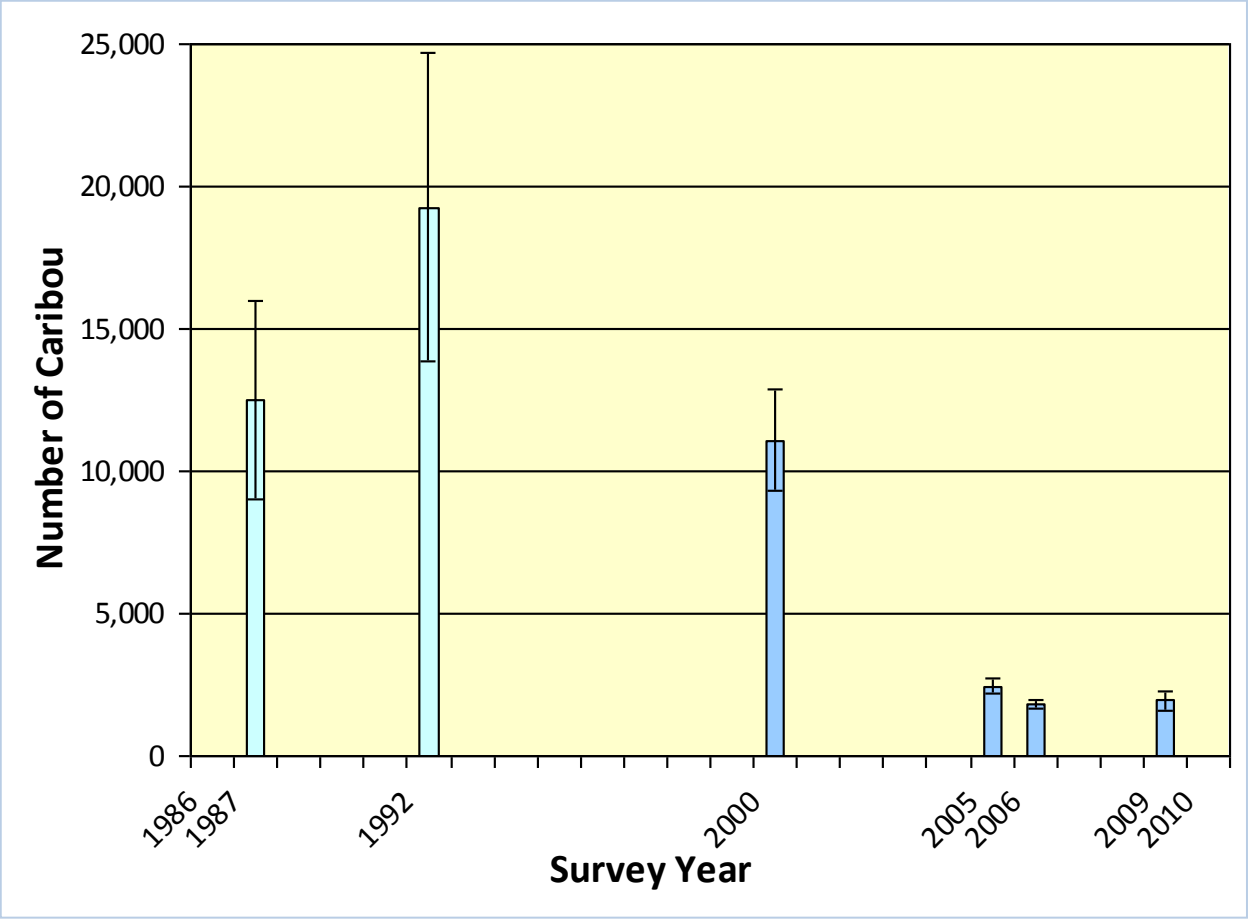

Figure 4 *Cape Bathurst Herd Population Estimates*

Note: There are two shades of colours used for the bars: From 2000 onward herd specific counts have been done; whereas prior to 2000 the 3 herds were surveyed as part of a single "Bluenose Herd"; and that data was later reanalysed and separated into three specific herds.

Bluenose-West Herd

The **Bluenose-West herd** population declined from an estimated high of over 110,000 animals in 1992 to about 18,000 animals in 2005 and 2006 (Figure 7-2). The 2009 population estimate showed the herd to be stable since 2006 but still low in relation to historic high numbers.

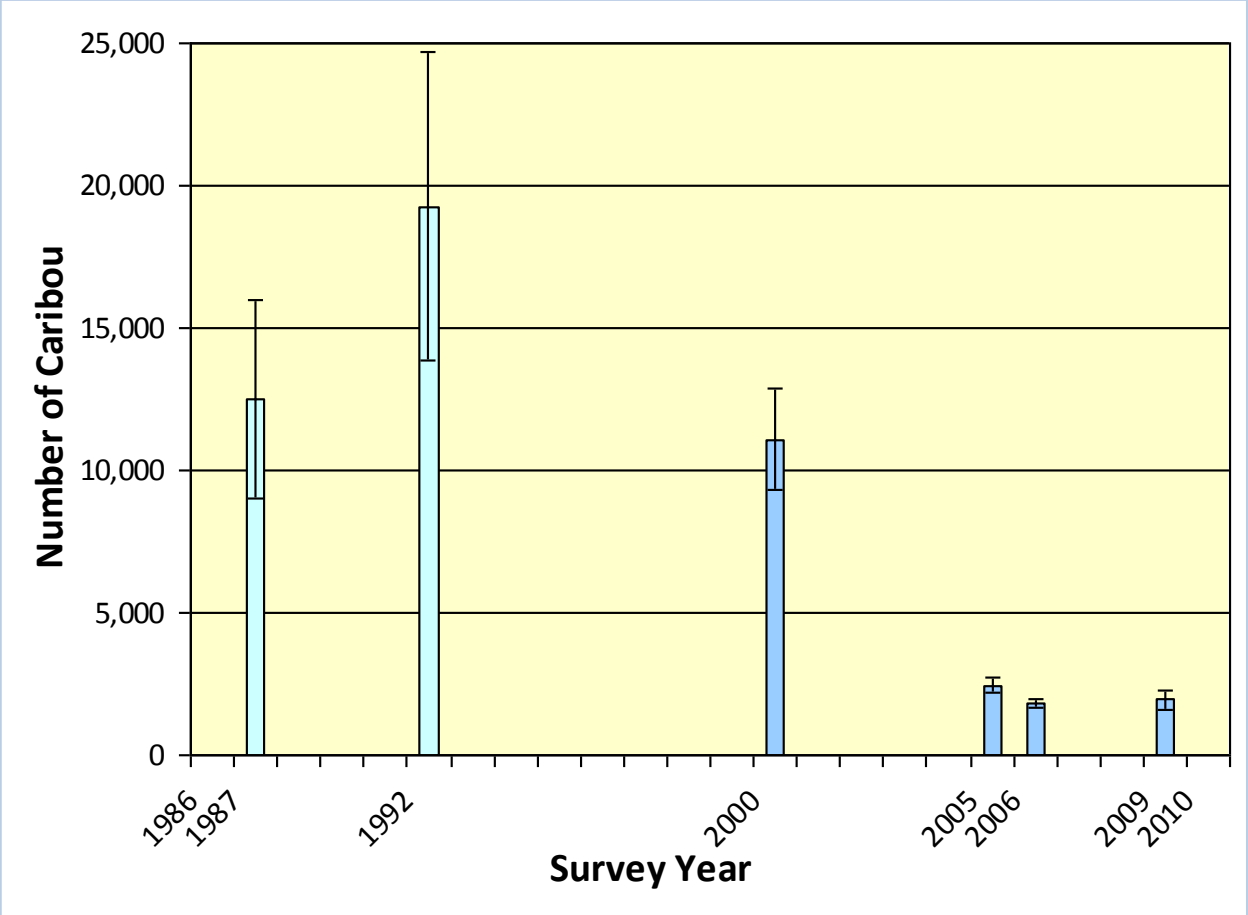

Figure 5 *Cape Bathurst Herd Population Estimates*

Note: There are two shades of colours used for the bars: From 2000 onward herd specific counts have been done; whereas prior to 2000 the 3 herds were surveyed as part of a single "Bluenose Herd"; and that data was later reanalysed and separated into three specific herds.

Bluenose-East Herd

The estimated **Bluenose-East Herd** population varied from over 120,000 animals in 2000 to about 67,000 animals in 2006 and increased to 98,600 animals in 2010 (Figure 7-3).

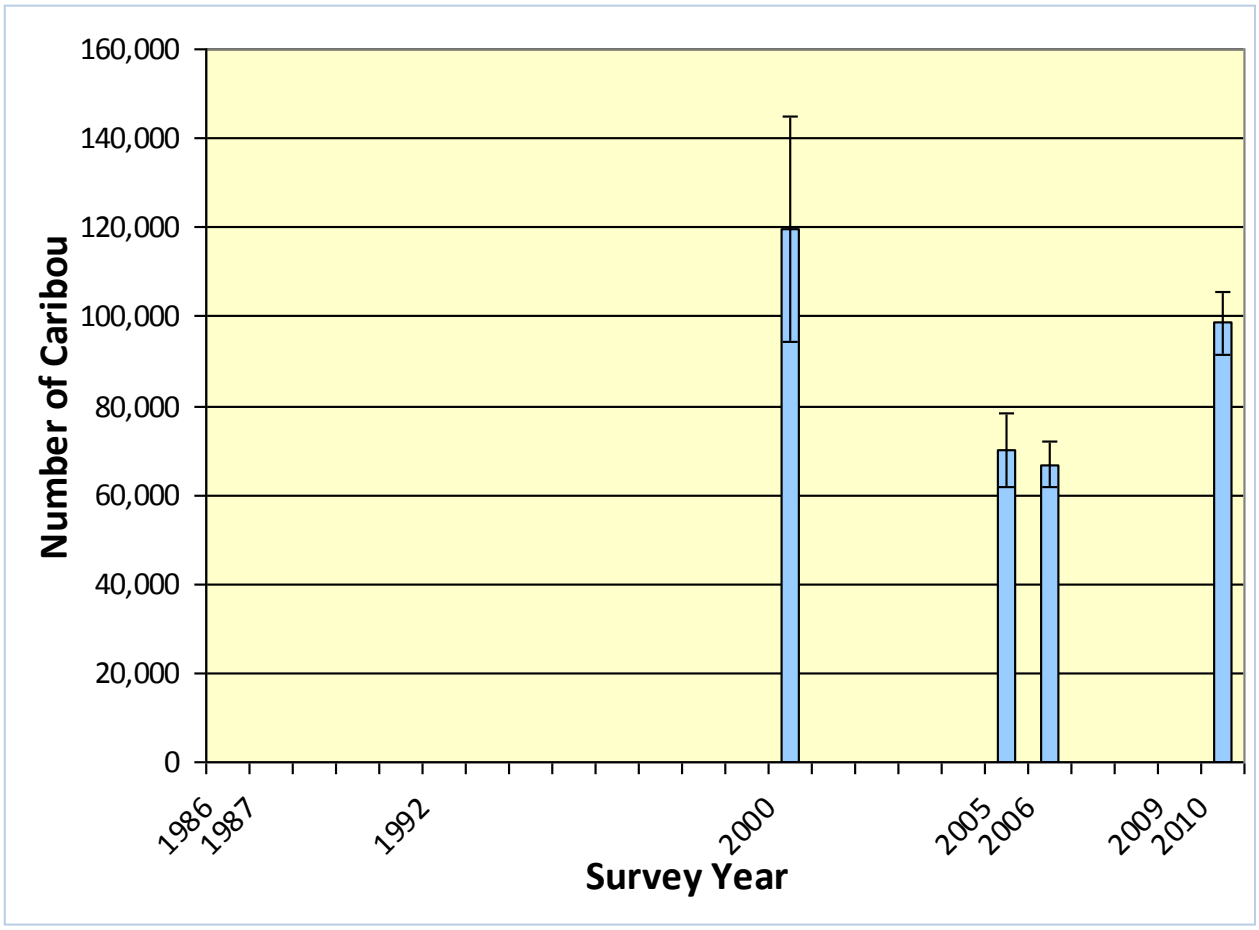

Figure 6 *Bluenose-East Herd Population Estimates*

The large changes in population levels observed in these herds are generally consistent with the trends of other barren-ground caribou populations across North America.

"Caribou have cycles like rabbit and foxes." (Norman Wells)

There are also some factors which make precise estimates of herd population levels more difficult. For example, communities have suggested that large numbers of animals may be moving from one caribou herd to another. There is little scientific evidence of such "inter-herd movement." Moreover, when considering the overall number of caribou in the three herds combined, there were very large changes in population levels, with historic lows in 2005 and 2006.

8.0 What and How We Monitor

The size of caribou herds vary over several decades, with periods of abundance and periods of scarcity. Monitoring programs collect information about changes in the herd size, and changes in ecological factors that affect caribou numbers and health. It is important to involve both scientists and community harvesters; to include the perspectives of both science and traditional knowledge in monitoring.

The size of a herd and the health of its animals are influenced by factors that can work in combination, such that the total or cumulative impact may be different than that which occurs from each factor on its own. These impacts may be either positive or negative.

"Count caribou when they are migrating at traditional water crossing sites. We need a specific management plan for each area and within these plans we need accurate harvest reporting."
(Tuktoyaktuk)

8.1 Criteria for Assessing Herd Status

The main pieces of information on which management actions will be based include[5]:

1. Population size
2. Recruitment
3. Bull-to-cow ratio
4. Body condition and health
5. Population trend and rate of change

"During the fall season, and after the snow has fallen, there are times when it rains, and the snow becomes crusty and the caribou cannot get to the vegetation. Because of this, the herds tend to head south towards the tree line. This is a change that we notice more and more; it rains after it snows and the snow becomes frozen, making it harder for the caribou to get to their food."
(Kugluktuk)

8.1.1 Population Size

The main factor to assess herd status, and the key consideration when recommending the harvest for a herd, is the estimated number of animals in a herd (population size). A "post calving photo survey" is conducted by taking photographs of the herds soon after the calving period. The number of caribou in the photographs is determined and this is used to estimate the total number of adult caribou in the herd. Calves less than 1-year-old are not included in the estimate of population size because of their high death rate experienced over the first year of life.

[5] The list of factors, based on scientific knowledge and TEK, was developed and shared by participants during community engagements used to develop this management plan.

8.1.2 Recruitment

Recruitment refers to the number of calves that survive to one-year of age. Calf/cow ratios in spring (as measured by the number of calves per 100 cows) are used as a measure of recruitment. Groups of caribou are located using radio-collars and local knowledge, and the numbers of cows, calves, and bulls are counted.

These ratios, while informative, are often difficult to interpret as they are influenced by changes in cow mortality (death rates) from year to year. Typically, recruitment rates are low before the number of animals in a herd begins to decline, whereas high recruitment rates, particularly several years in a row, may indicate an increase in herd size.

8.1.3 Bull-to-Cow Ratio

Caribou bulls can mate with many females within the same season. The natural death rate for male caribou is higher than that for females, especially when environmental conditions are poor, so even in non-harvested populations there are usually fewer bulls than cows. Monitoring the bull-to-cow ratio helps determine if there are enough bulls to impregnate cows and enough pregnant cows to maintain or increase the herd size. Monitoring can be done by scientists and by harvesters who can provide information on the number of bulls observed in relation to the number of cows.

8.1.4 Body Condition and Health

The health and condition of individual caribou can affect productivity and survival of calves and adults. The Circum Arctic Rangifer Monitoring and Assessment Network (CARMA) has developed protocols for measuring body condition and health of caribou. The least intensive (Level 1) measurements can be easily done. Sample kits are provided to harvesters to measure or collect: pregnancy (presence of foetus), back fat thickness, left kidney with the fat to assess contaminant levels and condition, body condition score, collection of lower front teeth for age determination, and location, date and sex of the animal harvested. It is most useful to collect Level 1 measurements on an annual basis. More intensive measurements (Level 2 or 3 protocols) of body condition and health, including disease and parasites, are often done by scientists and harvesters during a community hunt but on a less frequent basis (every 3 or 5 years).

Community members typically have a holistic look at the condition of caribou through harvesting, field dressing (skinning, gutting, etc.) and preparing or fixing the meat. Body condition information collected by community members, harvesters and scientists provides supporting evidence of health for predicting or confirming changes to the herd size and trend.

8.1.5 Population Trend and Rate of Change

The trend or the rate of increase or decrease is also a key indicator of herd status. Trend can be determined by comparing herd size estimates over many years. When a population estimate is not possible, we can look at other data to help determine the trend, such as recruitment, body condition and health, and bull-cow ratio. Information on the trend of a caribou herd over the long term can be provided by TEK as observations of changes in abundance and distribution, which are often linked. For example, when caribou are at low numbers they often don't occupy all of the same areas as when they are abundant.

Female survival estimates can also help determine the trend and are important in interpreting recruitment and bull-cow ratios. This is discussed in more detail in the ENR Technical Herd Status Report.

8.2 Additional Criteria for Assessing Herd Status

Beyond information on caribou at the individual and herd level, there is important ecosystem-level information that should be considered. This can include level of harvest and predation, habitat quality and quantity, and disturbance levels that may limit the herd's access to parts of its range. Co-management agencies can support long-term research and monitoring of these factors that will allow management actions to be more proactive. These factors are discussed further below.

8.2.1 Harvest Levels

Harvesting has a direct impact on caribou numbers and accurate information of harvest levels is very important for management decisions. Wounding loss (animals that are wounded but not retrieved) is also important, but is very difficult to measure. There are situations where a herd cannot sustain any harvest because of the number and health of the caribou. Most harvesters support establishing (or re-establishing) a harvest monitoring program in each region.

8.2.2 Predators

Predators affect caribou behaviour and mortality. Some predators take caribou only during the calving period (e.g. eagles) and some only during the spring to fall period (e.g. grizzly and black bears). Wolves prey on all age classes of caribou year-round.

Predator numbers decline as herds decline but usually there is a delay of one or two years; or if other prey species are available, predator numbers may not decline at all. When caribou

numbers begin to decrease, the impact of predation may become proportionately greater. This was reported from several of the communities.

Caribou users have frequently requested programs to reduce wolves in their area. They have also requested increased monitoring of predator populations, measurement of predation and the impact of that predation on the herds.

There is much debate about predator control as a caribou management tool. Experience in Alaska, Yukon, NWT and Nunavut in the 1960s, have shown that predator control can be a tool for short term recovery in caribou populations in some situations. However, there is little evidence of wolf control programs being effective over the long term. Predator control as a management tool in the area of these three herds has not been done.

It is suggested that, prior to the design and implementation of any predator management approach, an open, frank discussion of this topic be held among managers, biologists and harvesters. (See the ENR Technical Status Report for more discussion of this subject).

8.2.3 Environment and Habitat

Better understanding of cumulative effects at the ecosystem level can be obtained through long term research on habitat quality and quantity and impacts of human activities. Co-management agencies can continue to call for and support such long-term research and monitoring. With improved understanding there is a better opportunity to use regulatory management tools to limit disturbance on caribou.

Community members have observed changes in the weather and the environment that may have a positive or negative effect on caribou movements and condition. These observations are generally consistent with scientists' predictions of increased variations in temperatures, more rain and snow, and more severe weather events as a result of climate change. During the summer, shifts in temperatures and precipitation can lead to changes (either greater or lesser) in insect harassment of caribou or the timing of "green up". During the winter, variation in temperature or precipitation can affect caribou energy use through changes in access to food or vulnerability to predation. (See also ENR Technical Status Report)

Changes in habitat conditions (e.g. fires on winter range; levels of rain or snowfall; shifts in vegetation composition) can provide insight into the stresses impacting caribou. Long-term protection of key herd habitat will help to ensure that there are "caribou forever".

"Habitat – need to look at – caribou manage their habitat – the caribou move to other areas and then move back to that area – we need to include more about habitat."
(Tsiigehtchic)

Some steps to assess habitat conditions for each herd are:

1. Define seasonal range use for each herd;
2. Develop and monitor key habitat indicators of quality and quantity using remote sensing and ground surveys;
3. Monitor trends in climate and weather; and
4. Track past and present fire activity.

"We have seen the caribou changing their migration routes from the 1970s. In July caribou are now up in the hills since the summers are colder now and the caribou don't have to hit the beach [inference is that there are fewer bugs bothering the caribou now]. Fall also comes later now and caribou stay longer into the fall and winter."
(Paulatuk)

8.2.4 Human Disturbance

Disturbance of caribou from human activities such as aircraft over-flights, recreational activities, and resource development can influence caribou behaviour and energy use, which in turn can affect condition and health. Indirect effects can also include a reduction in quality and quantity of habitat or access to quality habitat. Particularly when caribou numbers are low, human activities have the potential to alter the rate and extent of the decline or how long it takes the herd to recover.

The range of the three herds extends over lands that are protected from development and lands where exploration and development is occurring. Concern about the impacts of non-renewable resource development grew in the 2000s with a renewed surge in potential developments such as the proposed Mackenzie Gas Project (MGP) natural gas pipeline and associated exploration and development, the proposed Mackenzie Valley Highway extension north of Wrigley, and the Inuvik-Tuktoyaktuk all-weather road. Discovery of diamonds and other valuable minerals in the NWT and Nunavut also led to increased mining activities throughout the herds' range. Land use activities are discussed more in Appendix C.

"One big change we've seen is that now that the oil and gas companies are gone, the caribou have come back closer. When the oil companies were here, there was no caribou close by. They were way up past Aubry Lake." [north of Colville Lake]
(Colville Lake)

Multiple sources of disturbance can have a cumulative impact on herd health. Threshold levels of disturbance are known for some species but not for barren ground caribou. Quantifying levels of disturbance to caribou could help establish how disturbance changes over time and how it influences caribou movements and behaviour. Location and levels of disturbances could then be related to habitat availability and accessibility.

The impact of development can be reduced by working closely with developers and with regulatory agencies such as land and water boards and Indian and Northern Affairs Canada (INAC) to avoid low-level flights and reduce operations when caribou are near project sites.

9.0 How We Make Decisions

9.1 How Herd Numbers Change Over Time

"It's a hard issue to think about or deal with. Harvesting caribou is a tradition. I hunt for my family and people in other communities, and share my hunt." (Kugluktuk)

Understanding changes in caribou populations can be difficult. However, traditional and scientific knowledge agree that caribou herd numbers generally fluctuate over decades – what we call a population cycle. The length of the phases varies, particularly the length of time that a population stays at a low level. Scientific evidence, the journals of missionaries and trading post managers, and TEK all suggest that barren-ground caribou populations go through cycles 30-60 years long.

The cycle itself is not 'neat and tidy', nor is the cycle the same each time. The causes for these population cycles in caribou are not well understood, but likely result from several factors such as habitat quality and quantity, predator populations, climate and disease. Different management actions may be called for - depending on the phase of the cycle. **Figure 8** is a simple, generalized representation of a long-term population cycle.

"Not sure if it is a natural cycle or other reasons but I guess our job is to try to manage the best we can." (Tsiigehtchic)

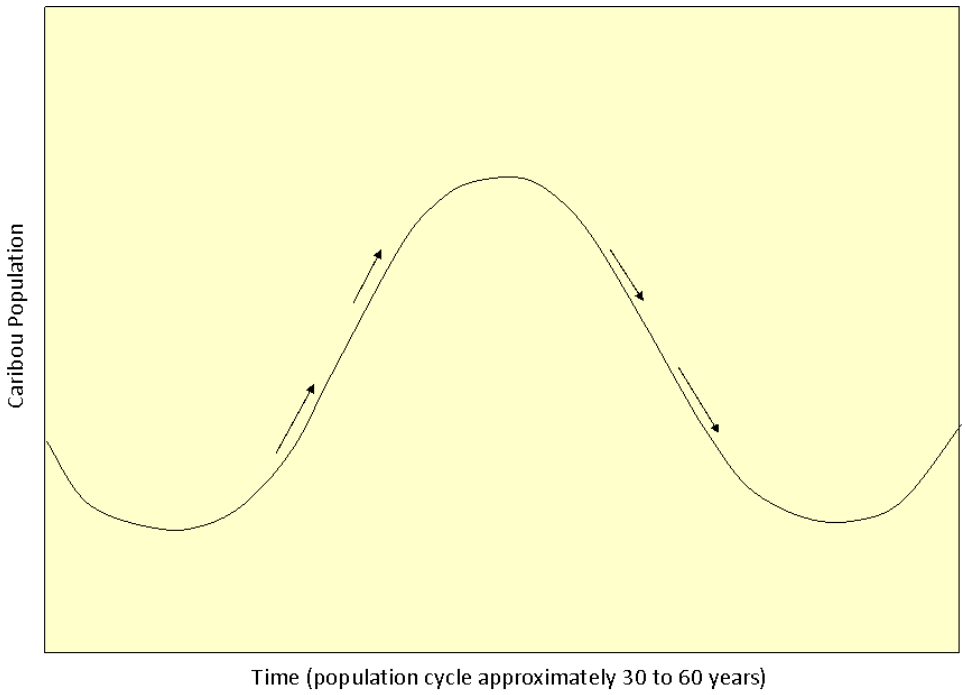

Figure 7 *Simplified curve of caribou abundance over time*

9.2 When Do We Take Action

The things we do to help the caribou herds will be determined in part by the herd size, and whether it is increasing or decreasing. Management decisions will also be influenced by other information from harvesters and scientists such as recruitment, bull-to-cow ratio, body condition and health.

In this management plan there are four levels of herd status and associated management actions. These are colour-coded green, yellow, orange, and red. The herd status provides a trigger for specific management actions.

Green: The population level is high

Yellow: The population level is increasing

Orange: The population level is decreasing

Red: The population level is low

Thresholds for management actions were determined with input from community and technical experts and are presented in **Table 1** below. Slight differences in threshold percentages between herds reflect the results from community engagements.

As an example, the Cape Bathurst caribou herd is considered to pass the threshold into low population (red) when the herd is estimated as being below 4,000 animals or 21% of the historical maximum level of 19,000 animals. It is considered to pass the threshold into high population (green) when the herd is above 12,000 animals or 63% of the historic high as measured by surveys. The maximum levels for each of the three herds, and the change over time, are shown in Figures 4, 5 and 6 of this report and described in more detail in the ENR Technical Herd Status Report.

Table 1 *Thresholds for the Status of the Cape Bathurst, Bluenose-West, and Bluenose-East Caribou Herds.*

HERD	Historic High As measured by surveys	Threshold Between green & yellow/orange	Threshold Between red & yellow/orange
Cape Bathurst Herd	19,000	12,000	4,000
Bluenose West Herd	112,000	60,000	15,000
Bluenose East Herd	120,000	60,000	20,000

A representation of these thresholds is provided with colours in **Figure 8**.

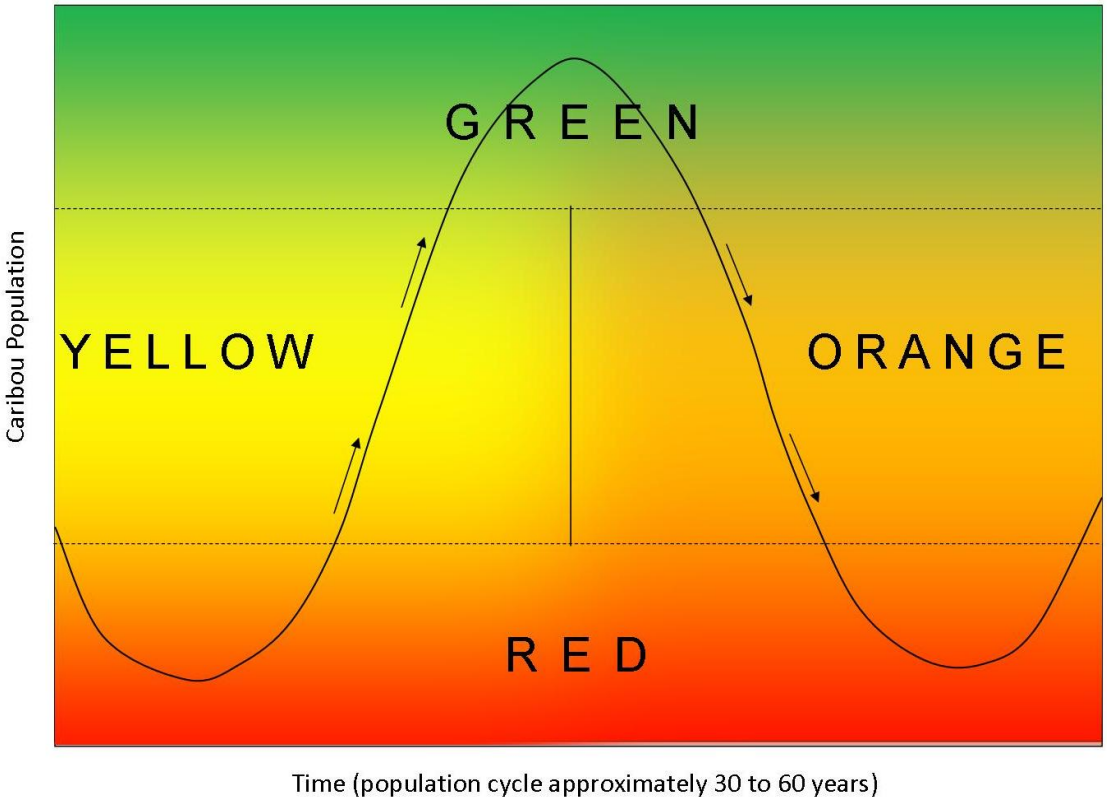

Figure 8 *Caribou Population Status as Colour Zones*

9.3 How We Use Herd Monitoring Information to Make Decisions

Accurate and timely information is necessary for making good decisions that will help the caribou herds. Because the herds are shared between communities and regions, it is also important that information is collected and shared by all harvesters and managers.

Herd status (e.g. green, yellow, orange or red) will be determined based on information including:

- Estimate of the overall size of the herd
- Previous estimates to provide a trend (increasing, decreasing, or stable)
- Additional monitoring indicators (as in **Table 2** below) to supplement the interpretation.

Members of the ACCWM may also use other scientific information as described in the ENR Technical Herd Status Report to help them interpret the monitoring information and determine herd status.

It is important to have up-to-date information, and so the frequency of research and monitoring effort is very important. Certain monitoring will take place regardless of whether the herd status is green, yellow, orange or red. However, the frequency and intensity of monitoring will vary in response to herd status. The monitoring information, frequency, and means of collecting that information are listed in **Table 2** *Herd Monitoring Summary.*

Table 2 *Herd Monitoring Summary*

Information	Community-Based	How often	Scientific[6]	How often
Estimated herd population size	High, medium, low, critical	Throughout the year	High (green) Medium (yellow/orange) Low (red)	Every 3 years when in red and orange; every 3-4 years in yellow; and every 4-5 years in green
Estimated recruitment	Observations: many or few calves	In summer, fall, and winter	Number of calves per 100 cows	Annually, every winter
bull-to-cow ratio	Observations: many or few bulls (and bull health)	Throughout the year	Number of bulls per 100 cows	Every 3 years
Body condition and health	Observations: good, fair, poor, abnormal	Throughout the year, especially during harvest	Fat indexes, pregnancy rate, parasite and disease level	Basic level 1 annually; More intensive level 2 or 3 every 5 years
population trend[7]	Observations: increasing, stable, decreasing	Throughout the year	Increasing, stable, decreasing	Annually
Comprehensive harvest data	Harvest interviews	Monthly during harvest season	Using community harvest data, calculate total and sex ratio of the harvest	Annually
Predator populations[7]	Observations: high, medium, low	Throughout the year	Carcass collection (reproduction, health, etc.)	Every year when in red and orange, every 5 years in green and yellow

[6] More information on scientific indices and their interpretation is available in the ENR Technical Herds Status Report

[7] There is no single indicator for population trend. Rather, it is based on monitoring of population levels, recruitment, body condition, etc.

Habitat and environment[8]	Observations of food quality and availability, extent of burns, weather, snow depth, etc.	Throughout the year	Track seasonal range use, fire, monitor changes in plant productivity, green-up, climate, etc.	Annually to establish baseline and then TBD thereafter
Disturbance levels[7]	Observations: high, medium, low	Throughout the year	Track land uses and disturbance levels	Annually and then TBD thereafter

Long-term monitoring of environmental factors, including range quality and quantity, development activity and trends, and disturbances that influence caribou herds are important in understanding changes in caribou health and abundance.

Some of these indicators of population status can be difficult or expensive to measure. In these cases there may be some information available through long-term research programs or TEK. All of this information will be considered by management agencies and harvesters.

9.4 What Management Actions Can We Take

The individual boards that make up the ACCWM have authority through their land claim agreements to make recommendations and decisions on wildlife management issues. The ACCWM can make consensus-based recommendations to governments, land use regulators, and respective Boards on the general types of management actions that are described below. ACCWM recommendations do not prohibit individual boards from providing additional recommendations, nor are individual boards bound by ACCWM recommendations.

9.4.1 Harvest

The ACCWM can make recommendations with respect to limits on harvest as established through land claim agreements, with non-commercial harvesting having priority over commercial harvesting. With respect to non-commercial harvesting, Land Claim beneficiaries and Aboriginal people have a priority right to harvest over NWT residents who in turn have priority over non-residents. In Nunavut, as per the Nunavut Land Claims Agreement, when a Total Allowable Harvest is established for a population, a basic needs level is to be established, which constitutes the first demand on harvesting.

[8] There is a need for further research and discussion about how these factors, such as predator levels, can affect these three caribou herd populations

The ACCWM can also make recommendations on harvest composition (e.g. bulls vs. cows) or seasonal restrictions on harvest, and it can recommend programs to encourage residents to harvest alternative species and increase trade and barter of traditional foods. Finally, the ACCWM can make recommendations on things like consideration of community monitors and the design and nature of harvesting studies.

9.4.2 Land Use Activities

The ACCWM can provide recommendations to regulators (i.e. Land Use Planning, Environmental Assessment and Land and Water Boards) to help reduce the effects of exploration and development on caribou herds. Advice can be given to avoid important caribou seasonal ranges like calving grounds, and how to mitigate disturbance from noise and access. For example, based on the recommendations of the Tuktut Nogait National Park (TNNP) Management Board and the community of Paulatuk, aircraft access to TNNP has been restricted during the calving and post-calving period to reduce potential disturbance to the Bluenose-West herd.

9.4.3 Predators

The ACCWM can recommend increased research on predators, including distribution and abundance and the impact of predation on caribou herds. It can also recommend means of predator control including incentives for harvest of predators.

9.4.4 Communication and Education

Members of the ACCWM can work together and with government to provide active and accessible communication programs, and recommend education programs. This can include different programs and approaches for elders, harvesters and youth to encourage traditional harvesting practices, use of alternate species and increased trade and barter of traditional foods. It can also include work with members of industry including resource developers and aircraft charter companies.

"How are you going to protect them? Much of the Tłı̨chǫ has been burned… we can suggest making caribou habitat a high value-at-risk so if a fire comes by, ENR can protect it."
(Behchokǫ̀)

9.4.5 Habitat

The ACCWM can recommend increased research and monitoring related to seasonal range use, key habitat indicators, or trends in climate and weather. It can also recommend important habitat as a "value at risk" for forest fire management.

9.5 Management Actions Based on Herd Status

The type of management action and the degree of management intervention will vary depending on the status of the herd. There are four levels of herd status which are colour-coded green, yellow, orange, and red. The herd status will trigger specific management actions or a change in the frequency of action, as described below:

Green: The population level is high

Management actions include:

- Support harvest by beneficiaries of a Land Claim and members of an Aboriginal people, with rights to harvest wildlife in the Region.
- Recommend that subsistence needs are met and resident harvest should be permitted (with limits if established).
- Potentially recommend non-resident (outfitter) and commercial harvests.
- Provide standard advice on mitigation of the impacts of exploration and development activities to proponents and regulators.
- Provide active and accessible communication, and recommend education programs for all.

Yellow: The population level is increasing

Management actions include:

- Recommend easing limits on both subsistence and resident harvests.
- At higher levels of yellow, consider recommending outfitter and commercial harvests.
- Provide standard advice on mitigation of industrial impacts to proponents and regulators.
- Provide active and accessible communication and recommend education programs for all.

Orange: The population level is decreasing

Management actions include:

- Recommend a mandatory limit on subsistence harvest based on a TAH accepted by the ACCWM.
- Recommend no resident, outfitter or commercial harvest.
- Recommend a majority-bulls harvest.
- Recommend harvest of alternate species and encourage increased trade and barter of traditional foods.

- Consider recommending options for predator management.
- Recommend important habitat as a "value at risk" for forest fire management.
- Recommend increased enforcement including community monitors.
- Provide standard advice on mitigation of industrial impacts to proponents and regulators.
- Provide active and accessible communication and recommend education programs for all including developers and airlines, and consideration of community monitors.

"When we are in the low part of the population, is there any way we can enforce what is being suggested? If people don't do what they are supposed to do, we should fine them…." (Fort MacPherson)

Red: The population level is low

Management Actions include:

- Review of mandatory limit for subsistence harvest for further reduction.
- Resident, commercial, or outfitter harvest remain closed.
- Work directly with proponents and regulators of exploration and development activities to advise on mitigation measures.
- Recommend harvest of alternate species and meat replacement programs, and encourage increased trade and barter of traditional foods.
- Consider recommending options for predator management.
- Recommend important habitat as a "value at risk" for forest fire management.
- Recommend increased enforcement including increased use of community monitors.
- Provide active and accessible communication and recommend education programs for all including developers and airlines, and consider increased use of community monitors.

"When it is in that zone [red], maybe harvesting could go to another herd that is stronger and leave these ones alone"

9.6 Process to Make Decisions

The following is a summary of the guiding documents, process and schedule to be followed by the ACCWM to determine herd status and management actions.

9.6.1 Guiding Documents: Action Plan

This Management Plan is supported by an Action Plan which outlines the management actions to be taken and how they will be implemented. The ACCWM is responsible for determining herd status and developing and reviewing the Action Plan following each post-calving photo survey (at three-five year intervals, depending on the population phase of the herd). Based in large part on the herd status, the Action Plan will outline specific management actions and how they will be implemented, by whom, and within what timeframe. Funding for the management action will be discussed by the ACCWM with other management partners. A third document, the ENR Technical Herds Status Report, may assist the ACCWM in making its decisions.

Implementation of the Action Plan is cooperative, and ongoing community input and support will help to develop and implement management actions. Each wildlife co-management board will be responsible for approving the Action Plan for its implementation. The effectiveness of the Action Plan will be reviewed annually.

9.6.2 ACCWM Meetings

The ACCWM meets annually (normally in early fall) to review all new information and implementation of the Action Plan. It will be presented with the best available scientific and traditional knowledge and community monitoring information. The Action Plan will be reviewed, and possibly updated, at the same time that the ACCWM determines herd status.

Although normally revised only following a post calving photographic survey, the herd status or Action Plan may be revised more frequently if, for example, there has been some unanticipated and extreme change since the most recent post calving photo survey.

9.6.3 Allocation of Harvest

If a Total Allowable Harvest (TAH) is recommended, the allocation for each settlement region/area will be determined collaboratively among the responsible co-management boards, based on historical harvest levels.

Formal harvest studies are available for the Inuvialuit, Gwich'in, Sahtú, Tłı̨chǫ, and Nunavut settlement areas. Groups without formal harvest studies will need to find a way to determine

past harvest levels. Individual boards, in association with the ACCWM, will determine how far back to go in order to determine "historical harvest levels."

10.0 How We Communicate

"Education is important – always say at meetings we have to educate our harvesters how to hunt caribou – we need to do that." (Aklavik)

"Good communications are important. Use radio stations. Bring translators to the meetings for elders." (Fort McPherson)

Communication is the responsibility of all parties engaged in wildlife management. Knowledge itself is dynamic and powerful and information must flow both ways - between local knowledge holders and management agencies.

There are many communication and education techniques which will be used depending on the message and the intended audience. They may include local radio programs; visits to schools; posters or presentations; briefing of developers and airlines; and on-the-land gatherings. They will occur on an annual basis and not just when the herds are in the Orange or Red zones. However, conservation and education will be particularly emphasized during times of low or decreasing caribou herds. Further details on timing and communication methods will be provided in the Action Plan.

The kind of information communicated will include the colour-coded herd status; any voluntary or management limits on harvesting; what is being monitored and why; the results of the monitoring programs; why harvesting mostly bulls rather than cows may be preferable; and education of youth in traditional hunting and butchering practices.

11.0 HOW WE UPDATE THE MANAGEMENT PLAN

The Plan for the Cape Bathurst, Bluenose-West, and Bluenose-East barren-ground caribou herds will first be reviewed after five years (i.e. 2016) and at ten-year intervals thereafter. Any party may request a review, at any time, through a formal request to the ACCWM.

12.0 SIGNATORIES TO THE PLAN

Below are the members of the ACCWM and signatories to *Taking Care of Caribou: The Cape Bathurst, Bluenose-West and Bluenose-East Barren Ground Caribou Herds Management Plan*. In recognition of the importance of the Bluenose Caribou Herds and their habitat, the decision of one Party not to accept the management plan will not preclude the remaining Parties from continuing with development and implementation of the plan.

Wildlife Management Advisory Council –NWT (WMAC-NWT)

Gwich'in Renewable Resources Board (GRRB)

Sahtú Renewable Resources Board (SRRB)

Wek'èezhìi Renewable Resources Board (WRRB)

Kitikmeot Regional Wildlife Board (KRWB)

Tuktut Nogait National Park Management Board (TNNPMB)

Nunavut Wildlife Management Board (NWMB)

APPENDICES

APPENDIX A

ACRONYMS AND TERMS USED IN THIS PLAN

List of Acronyms

ACCWM	Advisory Committee for Cooperation on Wildlife Management
ENR	Department of Environment and Natural Resources, GNWT
GLUPB	Gwich'in Land Use Planning Board
GN	Government of Nunavut
GNWT	Government of the Northwest Territories
GRRB	Gwich'in Renewable Resources Board
GSA	Gwich'in Settlement Area
GTC	Gwich'in Tribal Council
HTO	Hunters and Trappers' Organization
IGC	Inuvialuit Game Council
INAC	Indian and Northern Affairs Canada
ISR	Inuvialuit Settlement Region
KRWB	Kitikmeot Regional Wildlife Board
NLCA	Nunavut Land Claims Agreement
NPC	Nunavut Planning Commission
NWT	Northwest Territories
NWMB	Nunavut Wildlife Management Board
SLUPB	Sahtú Land Use Planning Board
SRRB	Sahtú Renewable Resource Board
SSA	Sahtú Settlement Area
TAH	Total Allowable Harvest
TNNPMB	Tuktut Nogait National Park Management Board
TSA	Tłı̨chǫ Settlement Area
WRRB	Wek'èezhìı Renewable Resource Board
WMAC	Wildlife Management Advisory Council (NWT)

APPENDIX B

MANDATE AND WEBSITES OF MANAGEMENT AGENCIES

The many organizations which share responsibility for managing the herds include:

Wildlife Management Advisory Council (NWT)
The Wildlife Management Advisory Council (WMAC) provides advice to the relevant Ministers, ENR and the Inuvialuit Game Council (IGC) on all significant wildlife matters in the Inuvialuit Settlement Region (ISR) including management policies, regulations and harvesting quotas.

Wildlife Management Advisory Council (NWT): www.jointsecretariat.ca

Gwich'in Renewable Resources Board
The Gwich'in Renewable Resource Board (GRRB) is considered to be the main instrument of wildlife and forestry management within the Gwich'in Settlement Area (GSA). It is responsible for establishing harvest levels, approving management plans, approving regulations proposed by government and reviewing any wildlife management matter referred to it by government. GRRB decisions are referred to the appropriate Minister who may accept, vary or set aside the decision, with reasons.

Gwich'in Renewable Resources Board: www.grrb.nt.ca

Sahtú Renewable Resources Board
The Sahtú Renewable Resource Board (SRRB) is considered to be the main instrument of wildlife and forestry management within the Sahtú Settlement Area (SSA). It is responsible for establishing harvest levels, approving management plans, approving regulations proposed by government and reviewing any wildlife management matter referred to it by government. SRRB decisions are referred to the appropriate Minister who may accept, vary or set aside the decision, with reasons.

Sahtú Renewable Resources Board: www.srrb.nt.ca

Wek'èezhìı Renewable Resources Board
The Wek'èezhìı Renewable Resource Board (WRRB) is the wildlife co-management authority for the Tłı̨chǫ Settlement Area (TSA). It is responsible for approving harvest levels, management plans, research plans, and any other wildlife management matter referred to it by government. WRRB decisions are referred to the appropriate government which may accept, vary or set aside the decision, with reasons.

Wek'èezhìı Renewable Resources Board: www.wrrb.ca

Nunavut Wildlife Management Board

The Nunavut Wildlife Management Board (NWMB) is the main instrument of wildlife management in Nunavut (NLCA, s.5.2.33). The NWMB is responsible for establishing Total Allowable Harvests and Basic Needs Levels; participating in research; establishing, modifying or removing non-quota limitations (e.g. sex or age specific harvests); approving the establishment, disestablishment, and changes to boundaries of conservation areas related to the protection of wildlife and wildlife habitat; and other duties assigned to it though the Nunavut Land Claims Agreement (refer to NLCA s. 5.2.33, 5.2.34). NWMB decisions are required to be submitted to the appropriate Minister and follow processes and requirements outlined in Part 3 of Article 5 of the NLCA.

Nunavut Wildlife Management Board: www.wmb.com

Kitikmeot Regional Wildlife Board

The Kitikmeot Regional Wildlife Board (KRRB) is a Regional Wildlife Organization (RWO) under the Nunavut Land Claims Agreement (NLCA). As such, the KRRB is responsible for the allocation and enforcement of the regional BNL among the HTOs in the Region and the regulation of harvesting practices among the members of the HTOs.

Kitikmeot Regional Wildlife Board: www.niws.ca

Tuktut Nogait National Park Management Board

The Tuktut Nogait National Park Management Board (TNNPMB) is responsible, subject to the jurisdiction of the co-management boards within the ISR, for advising the Minister, or other ministers as appropriate, on all aspects of park planning, operation and management, and research.

Tuktut Nogait National Park Management Board: www.pc.gc.ca/eng/pn-np/nt/tuktutnogait

Parks Canada Agency

Parks Canada Agency protects and presents Tuktut Nogait National Park and and the Saoyú-Ædacho National Historic Site to ensure the ecological and commemorative integrity of these places for present and future generations. Tuktut Nogait National Park was established to protect and maintain the Bluenose-West caribou herd and its calving and post-calving habitat. Parks Canada Agency works cooperatively with co-management boards and the GNWT to manage and monitor the herd and its habitat in the Park and in the greater Park ecosystem.

Parks Canada: www.pc.gc.ca/eng/pn-np/nt/tuktutnogait

Government of the Northwest Territories
The Department of Environment and Natural Resources (ENR) has ultimate responsibility for the management of caribou under the GNWT *Wildlife Act.* The Minister is empowered to establish harvest seasons, quotas and other conditions that may be required for the conservation of caribou within NWT.

Environment and Natural Resources, Government of Northwest Territories: www.enr.gov.nt.ca

Government of Nunavut
The Department of Environment (DoE) has ultimate responsibility for the management of caribou under the GN *Wildlife Act.* The Minister is empowered to set harvest seasons, quotas and other conditions that may be required for the conservation of caribou within Nunavut.

Department of Environment, Government of Nunavut: www.gov.nu.ca/env

Kugluktuk Angoniatit Association Hunters and Trappers Organization
The objects of the Association are to constitute an open and accountable forum, organized in a fair and democratic way, to protect and promote the rights and interests of those Inuit in the Kugluktuk area who are involved in hunting and trapping.

Email address: kugluktukhto@qiniq.com

APPENDIX C

MAJOR LAND USE ACTIVITIES IN THE RANGE OF THE CAPE BATHURST, BLUENOSE-WEST, AND BLUENOSE-EAST CARIBOU HERDS

Hydrocarbon Exploration and Development

The proposed Mackenzie Gas Project (MGP) represents a renewed attempt to bring the natural gas from the Beaufort Delta into production. The National Energy Board (NEB) approved the project in 2010. Gas would initially come from three gas fields in the Mackenzie Delta but construction of the pipeline would likely lead to enhanced exploration and development activities throughout the Mackenzie Delta and other areas of the Mackenzie Valley, particularly the Tulıt'ɑ-Norman Wells area and the Colville Lake area. The Mackenzie Delta and surrounding area includes a significant portion of the ranges of Cape Bathurst and Bluenose-West herds, whereas all three herds occur in the Colville Lake area. Herds are not normally in the Tulıt'ɑ-Norman Wells area.

Mineral Exploration and Development

Mineral exploration and development waxes and wanes in response to the global demand. It can change quickly - as seen with the staking rush following the first discovery of diamonds in the NWT or recent interest in rare earths. The presence of base metals and diamonds has been confirmed but projects are still in the planning and surveying stage. Much of the caribou range is subject to mineral claims or prospecting permits. However, the extent of claims and permits is not a true reflection of land use as the activities are often concentrated in a small part of the overall claim area. The cumulative impact of these land use activities is unknown.

Transportation Route Development

The Bathurst Inlet Port and Road, proposed in the 1990's, was put on hold in 2008. If the development were approved, it would shorten the shipping routes to remote mines in the Tłı̨chǫ and Kitikmeot Region by creating a deep-water port and all-weather roads. Other proposed road developments include an all-season road from Tuktoyaktuk to Inuvik, and an 804 km extension of the Mackenzie Valley Highway north from Wrigley.

Land Use Plans

The IFA does not provide for a Land Use Planning Board to develop a plan for the Region. However, the WMAC (NWT) produced community conservation plans for the ISR in 2000 and will release updated plans soon. These plans reflect community concerns and expectations about the acceptable level of impacts on various landscapes.

The Gwich'in, Sahtú and Nunavut agreements provide for land use planning which is undertaken by claim-specific Institutions of Public Government (IPG). In these instances, the land use plans may declare zones in the settlement lands for various purposes. This can include restrictions on land use activities and land management agencies must respect the conditions established through the land use plans.

The Gwich'in Land Use Plan was approved by the Gwich'in Tribal Council (GTC) and the Federal Government in 2003. The plan classified the Gwich'in Settlement Area (GSA) into three zones: General Use Zones (57% of GSA), Special Management Zones (33% of GSA), and Conservation Zones which includes Heritage Conservation Zones (10% of GSA). All licenses, permits or other authorizations relating to the use of land and water must conform to the Land Use Plan. A review of the Gwich'in Land Use Plan is under way.

The Sahtú Land Use Planning Board is preparing a comprehensive land use plan for the SSA that will guide how the land and its resources will be used. It will designate three categories of land: conservations zones where no development will be permitted; special management zones where development will be permitted with conditions; and multiple use zones where development will be permitted subject to current regulatory requirements. The second draft of the plan was submitted in 2010.

The Tłı̨chǫ Agreement does not provide for formal land use planning for the settlement area but in 2010 the Tłı̨chǫ government was developing a land use plan for Tłı̨chǫ lands.

Protected Areas

Herd ranges encompass established and proposed protected areas. Tuktut Nogait National Park protects calving and post-calving habitat of the Bluenose-West herd in the ISR and SSA. Discussions of a new park in Nunavut adjacent to Tuktut Nogait are ongoing with Kugluktuk, Kitikmeot Inuit Association, and the Nunavut Planning Commission.

Edaı́ı́la is a prominent peninsula on the east shore of Great Bear Lake which is an important area culturally and for the Bluenose-East caribou. Edaı́ı́la has been proposed for formal protection by the Délı̨nę Land Corporation, and is identified as a conservation zone in the draft Sahtú Land Use Plan. Saoyú-ʔehdacho National Historic Site of Canada

protects the two westernmost peninsulas on Great Bear Lake. The land is co-managed by the Edɑ́ɻ́lɑ Cooperative Management Board and Parks Canada.

Ezǫ̨dzìtì is an area protected through the Tłı̨chǫ Final Agreement for its historical and cultural importance. The area, which encompasses approximately 1,374 km^2 of settlement land, is protected from non-renewable resource development.

APPENDIX D

ADVISORY COMMITTEE FOR COOPERATION ON WILDLIFE MANAGEMENT (ACCWM) AND BLUENOSE CARIBOU MANAGEMENT PLAN WORKING GROUP (BCMPWG) MEMBERSHIP

The ACCWM consists of the Chairpersons (and/or their alternates) of:

- Wildlife Management Advisory Council (NWT);
- Gwich'in Renewable Resources Board;
- Sahtú Renewable Resources Board;
- Wek'èezhìı Renewable Resources Board;
- Kitikmeot Regional Wildlife Board;
- Tuktut Nogait National Park Management Board; and
- Nunavut Wildlife Management Board.

The BCMPWG consists of representative of:

- Wildlife Management Advisory Council (NWT);
- Gwich'in Renewable Resources Board;
- Sahtú Renewable Resources Board;
- Wek'èezhìı Renewable Resources Board;
- Kitikmeot Regional Wildlife Board;
- Kugluktuk Hunters and Trappers Association;
- Dehcho First Nation;
- Tuktut Nogait National Park Management Board;
- Tłı̨chǫ Government;
- Environment and Natural Resources, GNWT;
- Department of the Environment, GN; and
- Parks Canada.

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